Transcripts of
Five August 1991 Public Comment Meetings Concerning Two Proposed Cleanup Projects at the Test Reactor Area at the Idaho National Engineering Laboratory

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UNITED STATES DEPARTMENT OF ENERGY

PUBLIC COMMENT MEETING CONCERNING PROPOSED CLEANUP PROJECTS AT THE TEST REACTOR AREA AT THE IDAHO NATIONAL ENGINEERING LABORATORY

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WARM WASTE POND PROPOSED PLAN and PERCHED WATER PROJECT SCOPING

August 7, 1991
6:30 P. M.
Westbank Inn
475 River Parkway
Idaho Falls, Idaho

Panel Members: Jerry Lyle, D O E Idaho

Wayne Pierre, E P A Region 10

Dave Hovland
State of Idaho

Presentations: Andy Baumer - Warm Waste Pond Proposed Plan

Nolan Jensen - Perched Water Project

Moderator: Deborah Welles

Reported by:
Ross L. Oviatt, C S R

EASTERN IDAHO COURT REPORTERS
P. O. Box 50853
Idaho Falls, ID 83405

P R O C E E D I N G S

DEBORAH G. WELLES: Good evening. I have been asked by D O E to monitor this evening's meeting. My name is Debbie Welles and I think we need to begin.

Before introducing the first speaker on the program, I would like to take a moment to have you look through the agenda that was handed out at the table as you walked in the room. The meeting will begin with three short presentations given by Jerry Lyle, who is the Director of the Environmental Restoration Division for the Department of Energy here in Idaho; Wayne Pierre, who is the second person, is the Senior Project Manager of the Superfund Branch of E P A's Region 10; and Dave Hovland, the third, who is the Project Manager for the Test Reactor Area for the Idaho Department of Health and Welfare.

Once we have heard from these three individuals the meeting will be broken into two distinct part, almost two separate meetings. Both parts of this meeting are being conducted in order for you to make official comments for the record. To accomplish this we will have a Court Reporter who is here to transcribe tonight's meeting.

For this reason each time you come to the microphone to speak, please be sure to say your name clearly, and spell it, if necessary. I want to stress that

you do that every time you come to the microphone. Our Court Reporter really needs to know who you are.

Next on the agenda the first of two presentations will be given. The first presentation will be on the Proposed Plan for the Warm Waste Pond. This will be followed by about an hour for you to ask questions and make comments for the record on this project. In order to make sure that we make the most of this hour, we will proceed in the following manner:

When you came in tonight you found several cards on your chair, three by five's. During the presentation please feel free to fill this cards out with any question you may have pertaining to the Warm Waste Pond Interim Action. Please use a separate three by five card for each question.

Just as soon as the presentation has concluded, I will ask if there is anyone who has a question specific to the presentation itself. While those questions are being asked at the microphone, the note cards will be collected in the center isle and given to the panel. The panelists will then address your questions. If there is a question that pertains to a matter other than the Warm Waste Pond Project, please note that we will not be able to address it during the meeting.

Then there will be a short break. When we

reconvene we will switch topics and hear the presentation on the Perched Water Project. This presentation will also be followed by an hour of questions and comments. It will be run in an identical manner to the one that I just described.

Following Perched Water, and at about 9:30, you will note that the floor will be opened and you will be free to pursue either topic.

As you can see we have an awful lot to cover tonight, but I wanted to mention that at the meetings held in June many of you asked D O E whenever possible, combine topics. This evening in response to that the topics both fall within the purview of the Test Reactor Area.

If you have questions or comments on topics other than projects at the Test Reactor Area the agencies want to make sure that these questions get responded to.

In a minute several agency officials will be asked to stand up who are sitting in the audience in addition to these gentlemen. These individuals are here to assist you tonight with questions about other clean-up issues.

In addition, Nick Nichols - -

Nick, are you here?

NICK NICHOLS: Yes.

DEBORAH G. WELLES: Nick is at the I N E L

Public Affairs Office. He is also here tonight to answer other questions about I N E L that do not pertain to the cleanup. If you have any questions that are not on point with the two topics tonight, would you please find one of these folks, and you will meet some of the others in a few minutes, and pull them aside and ask them those questions. They really want to help you with it.

If we reach 8:00 o'clock and there are still comments or questions on the Warm Waste Pond, remember to hold on to them, you will have another opportunity to ask them at the end of the meeting.

I also need to mention that if you do not have an opportunity to make a comment tonight or if you would like to provide your comments in writing, you may do one of two things: at the back table you will see a sign that says "Written Comment Forms" and there are two forms there. One is on Perched Water and the other is on Warm Waste. If you would like to fill out a comment for the record, that way in lieu of speaking or in addition to speaking, you are more than welcome to do that. You can leave it here tonight or send it in later. The other way to comment is if you have interest in making a comment of any length you should feel free to send that in. The address to do that is both written on the comment form as well as it is on copies of the fact sheet you can find at the end of the

room.

Now I would like to introduce you to Jerry Lyle, again the Director of the Environmental Restoration for D O E Idaho.

JERRY LYLE: I would like to take this opportunity to welcome everybody here tonight. I think as most of you know we have been working - - the three parties up here at the table have been working on an interagency agreement for quite some time to implement CERCLA actions here on the I N E L. This is the first of hopefully quite a number of meetings that we will be bringing to the public on different response actions that will be taken out on the Site.

On that interagency agreement I did want to mention that in about a month from now we will be having a series of meetings to receive public comment on that agreement specifically. So public comment will start here in about a week and then we will have some public meetings. So that will be your opportunity to comment on that agreement before it is signed.

We do ask that you comment on that agreement and we will have a responsive summary that will go out addressing everybody's comments on that at the time.

This first remedial action that we are bringing out tonight is on the Warm Waste Pond, that is, to address

a problem we believe we have there, an actual remedial action.

The second half of the meeting, as Debbie did say, is looking at scoping alternatives for the Perched Water at T R A as well as any potential environmental impact there.

So again I would like to welcome you all here and please provide us any comments you have.

WAYNE PIERRE: Thank you, Jerry.

As Debbie mentioned, my name is Wayne Pierre. I am actually Chief of the Federal Facilities Section of E P A, previously Project Manager at the I N E L, and still holding on to the Project Manager to make sure that things get off the ground.

In November of '89 E P A listed Idaho National Engineering Laboratory in the National Priority List of the Superfund. Since that time we, the State, D O E, and E P A, have worked to develop an interagency agreement, an action plan, an agreement of how to operate to expeditiously clean up the contamination problems at Idaho National Engineering Laboratory. The E P A's role in this is both partner and auditor. For any records of decision E P A must sign on that decision and agree that is the way to go under the Superfund Program.

What we are here tonight to do is to come to

you, the public, and to ask your input, to ask your support, and ask for your comments on this proposed plan. As Jerry mentioned this is the first of many. We hope to have an aggressive schedule for addressing the problems at I N E L and through the next year we hope to be here on as many as maybe half a dozen occasions to address problems that we think are a concern today or will only get worse if we do nothing about it.

The document that we have for this interim action is relative simple compared to the second half of this meeting which will talk about the remedial investigation feasibility study and what may come up in the future.

For those of you who are part of a public group who requires technical assistance in review of these documents, E P A does provide for technical assistance grants to public groups in the amount of $50,000.00. And suggest that those of you who are interested seek such a grant. Our contact person for that is Bub, B-u-b, Loiselle, L-o-i-s-e-l-l-e. He is in our Seattle office of E P A and can be reached at 206-553-1283.

E P A supports, as I mentioned, a very strong involvement. We are public agencies, we work for you, the public, and we need and seek your input.

We are available, I am available, if anyone

needs to talk to me. Again, I am from the Seattle office and my number is 206-553-7261. I do have a very busy schedule, but again call and I will get back to you and talk as long as we need to so you understand what we think is a good idea at I N E L.

I would like to turn it over to Dave Hovland now with the State of Idaho.

DAVE HOVLAND: Thank you, Wayne.

As Debbie mentioned, my name is Dave Hovland and I am a Project Manager with the State of Idaho. I work out of Boise, Idaho.

I might mention the State of Idaho is very supportive of this interim action, of the Warm Waste Pond sediments. Essentially this is the first activity to initiate the cleanup efforts at the I N E L under the I A G. The interim action will take the identified contaminants from an uncontrolled environment into a controlled situation.

As Wayne and Jerry mentioned, this is the first of many proposed plans that will be coming forth to the public. And again, the State of Idaho does encourage a very active participation from the public in Idaho.

The State's role under the I A G is to be a very active participant in the decision process and that means that we will have a very active technical review and

oversight of all of the environmental restoration activities at the I N E L.

Besides a staff in Boise, Idaho where I am located, we have an Idaho Falls field office that was established fairly recently and I would like to mention and introduce Shawn Rosenberger. Shawn is our Idaho Falls Field Supervisor and maybe he can tell us a little bit about it, his program, and some of the staff that are coming on board.

SHAWN ROSENBERGER: Right now we are starting to staff up, just myself and Rod Ariwite here, he is our grants and contracts officer. I have a hydrogeologist starting with us on Monday, he is coming in from Columbus, Ohio. So we are going to get some people here.

Our role is document review and auditing. Field verification will be a big part of our function since we are close to the Site. My number is 525-7300. Feel free to call us at any time if you have any questions or just want to talk about the Site.

DAVE HOVLAND: There is another person that couldn't make it tonight, that is Steve Nygard in our Boise office. He is basically Wayne and Jerry's counterpart in the State. He is a Project Manager for the entire I N E L. He couldn't make it tonight, but you will be seeing him probably in the September I A G meetings.

DEBORAH G. WELLES: With that I'd like to introduce Andy Baumer who will be giving the first presentation tonight. Andy is the Project Manger for the Warm Waste Pond Interim Action and is an E G & G employee.

Again I would like to remind you while he is going through his presentation you might want to be writing down on your cards questions and they will be picked up at the end of the meeting.

Andy.

ANDY BAUMER: We have got two projects here. The first is the proposed plan of the Warm Waste Pond sediments, interim action.

As the gentlemen mentioned, there are - - the Site is now on the Superfund List and so to clean up we have to follow the Superfund regulations, procedures, et cetera. The way that works is that the State, the E P A, D O E, they evaluate - - they look at the data, they evaluate alternatives, compare the alternatives, et cetera, and recommend a preferred alternative in a document called a proposed plan, which then goes out to the public to generate public comment so that the three agencies can evaluate community acceptance of the alternatives prior to selecting the remedy. That is where we are in the project.

The proposed plan is out, many of you probably got it in the mail, and if you didn't and you signed up,

you will get the next one in the mail.

So what we are doing here tonight is generating public comment on the proposed plan. We want your comments on all the alternatives, and even ones we haven't thought of as well as the one that is recommend.

Let's get into it. This is the Test Reactor area at the I N E L. Over here, which you can't see too well, is the Warm Waste Pond which has been used for almost 40 years for disposal of radioactive waste water and was used for ten years for disposal of all waste water at T R A, Test Reactor Area, except for sewage.

So what is in it? All the contaminants fall into two categories, metals and radionuclides. Even though the metals are there in significantly larger quantities, what we found in our risk assessment was that the radionuclides were the problem from a risk standpoint. In fact other radionuclides, 19 are known to be in the Warm Waste Pond because of the decayed products and things like that. Cesium and cobalt are the major problems because of their - - just because there is more of them in the pond.

When we get to the risk assessment, the important aspect of this is the half life, and that is because not only do we evaluate the present condition of the pond, but we also assume in the future that - - for an example, if we assume that in 100 years hypothetically the

I N E L would revert to private ownership we would need to evaluate whether it was safe at that point.

Well, cobalt in 100 years with a 5.3 year half life would have decayed to something like half a millionth of its strength right now where as cesium would only have decayed to about a tenth of its present strength. So that becomes important in the risk assessment.

So let's go to risk assessment. Risk assessment is composed of two main elements: toxicity assessment, how bad is it; and exposure assessment, how might an individual be exposed to the contaminants.

Toxicity assessment is two basic elements: are the contaminants cancer causing, or are they carcinogens; and/or are there other health risks associated with them. At the Warm Waste Pond, based upon, you know, metals, radionuclides, cancer causing and other health risks, the only other category that turned out to be significant from a risk standpoint was the cancer causing effects of radionuclides.

The other side, exposure assessment, is composed of pathways or receptors. For example we evaluated inhalation of dust by a worker. In that case pathways is ingestion, that is how it gets into the body or to the body. The particular receptor is the worker who we have to assume is at a given location for a given number of

hours per week for a given number of years. That is the exposure assessment.

So if we go on in this case, we evaluated three sets of pathways and receptors. Now, under the Superfund Law they have established a risk level above which you have to clean up below that risk range. The three scenarios that we evaluated: the first one, external exposure to radiation. Based on the present condition of the pond, in all scenarios, and we analyzed a variety of scenarios, it was above the target-risk range and therefore has to be addressed by the cleanup.

The other two that we evaluated were inhalation based on the present condition of the pond and ingestion based on the assumption that hypothetically that the I N E L could be private in a hundred years, a family would move out there, kids would eat dirt. We found in these cases, both of these individually, were below this target risk range line that we have to clean up below. But cumulatively, if we add them together, they are above that line. So what the bottom line is that if we were to just deal with external exposure we would still have a risk above the target range and therefore it would be unacceptable and we would still have to clean that up.

So knowing what the risks are, how can we clear up it? If we go to the E P A, which has put out several

guidance documents on the cleanup of radiologically contaminated soils, and if we go to those, we find not only do they give descriptions of technology, but they also give assessment of the proveness of those technologies, if you will.

What you find is that the only two technologies which actually have been used to clean up a radiologically-contaminated site are capping, which is backfilling the hole and filling it with something impermeable; and capsulization, which is digging it up and taking it somewhere else and covering it up.

So if we wanted to go one step beyond that and say what is the next level of proveness besides actually having been used to clean up a site? That next category is technologies which have been demonstrated in the field with radioactive materials, but have never actually been used to clean up a site.

Those categories are stabilization, which - - not categories, but technologies, are stabilization which is mixing it up with concrete and thereby immobilizing the contaminants; vitrification, which is melting it into a glass and immobilizing the contaminants; chemical extraction which is leeching of the contaminants from the sediment using acid or something like that; and physical separation is based on some physical property of the

contaminants, we remove those from the sediment.

So when we were trying to decide which one we would further pursue for the Warm Waste Pond, we were going through capping, time, and using technology, it seems appropriate to evaluate that, land capsulization, digging it up and moving it somewhere else, it doesn't make sense to pursue that. Stabilization is commonly used for treating radioactive wastes, so that is appropriate. Vitrification, at this point is - - hasn't been proven, well, it has been proven, but it has never been proven on the scale of something like the Warm Lake Pond. Chemical extraction is commonly used in the mining industry to extract radionuclides from ores and things like that. So it is certainly is appropriate.

What we found was that if we were going to look at chemical extraction that we would probably have to do physical separation first because the Warm Waste Pond has a lot of gravel, sand, cobbles, things like that, whereas the contaminates are tied up in the silt and clay-sized particles. So if we can get rid of all the sand and bigger stuff we actually reduce the volume of the contaminated material by 60 or 80 percent and make our chemical-extraction process a lot more effective.

Okay. How do we figure out which is the best one? These are the nine criteria specified in the

Superfund Law which are used to evaluate the alternatives and to select a remedy. So let's go into these. You will notice we have added no action in comparison here to the other three, capping, stabilization and chemical extraction.

The first one: does the remedy reduce the risk that we have identified? Capping - - no action doesn't - - capping reduces external exposure but there is a potential for ingestion in a 100-year scenario.

Stabilization and separation/extraction both reduce all three risks. Does the remedy comply with all environmental laws? D O E, E P A, and the State intend to meet the substantive requirements of all applicable laws as required by Superfund, therefore they all meet this criteria except no action.

Long-term effectiveness, capping - - caps have a 100 year design life and in this case the cesium would not have decayed to an adequate level for something like 400 years. So that certainly is not a permanent solution.

Stabilization in theory is permanent, but having been used on radioactive wastes for a number of years they have found that after - - so far - - that after about ten years of so they have had problems with it starting to decompose, so that is still questionable long term.

Separation/extraction, by actually removing a majority of the contaminants of concern from the sediment is a permanent remedy at the Warm Waste Pond.

Reduction of toxicity, mobility, or volume. Under Superfund there is a preference for treatment over non-treatment options. Okay. So does the alternative use treatment and if so, does it reduce the toxicity, mobility, or volume?

Well, no action and capping do not involve treatment, so they don't meet this criteria. Stabilization uses treatment by - - and it reduces the toxicity and mobility, but it actually increases the volume of contaminated material. Separation/extraction, toxicity, and mobility are both reduced as well as the volume of the contaminated material.

Short-term effectiveness, how quick will it reduce the risk, and is there a risk during implementation of the alternative? Is there a risk to workers, environment, or the community? Well, all three of these options would be implemented within a year or two so they get equal weight on that foot.

As far as the risks, all hold to safety standards, procedures, et cetera, as far as using things like engineering controls in lieu of people and waste minimization and things like that will be used to minimize

the risks on all three alternatives.

Implementability. Well, as we saw earlier, capping is the only one that is proven, except for no action, to clean up a radiologically-contaminated site. Both of the others would require pilot-scale studies which is to build a small version of the plant, test it out, and make sure it worked. And it in fact may not work. But we feel that both of them will probably work in this instance.

Cost. How much does it cost? No action is cheap. Capping is 2.8 million; stabilization, 5.3 million; and separation/extraction, 6.9 million.

In each case that cost includes design and construction. In the case of stabilization/separation, it also includes the pilot scale test that I spoke about. In the case of extraction/separation, it also includes the treatment of the material that when you separate and extract it you end up with it.

As far as capping goes, the cost is just to build it, not to maintain it. So if in fact capping was in fact selected as the permanent remedy at the Warm Waste Pond, we would have to in the future, since this is an interim action, when we did the final record of decision for Waste Area 2, we would have to address long term maintenance costs.

Okay. So there is the first seven criteria.

So let's sum it up. No action doesn't meet any of the requirements. That is easy to implement and it doesn't cost much. Capping does not reduce all of the risks and it is designed to reduce toxicity, mobility - - it is not treatment, so it doesn't reduce any of the three. It is proven, has been used to clean up radiologically-contaminated sites and is the cheapest of the three alternatives, the three action alternatives.

Stabilization reduces all the risks. It's not a for sure permanent remedy and it is intermediate in cost. Separation/extraction reduces all the risks. It is a permanent solution for toxicity, mobility, and volume, but it has never been used to clean up a radiologically-contaminated site and is the most expensive of the three action alternatives.

Based on this analysis D O E, E P A, and the State have recommended separation/extraction as the preferred remedy of the Warm Waste Pond. The State has added a condition that the residual which is created in the separation-extraction process be stored such that it will be visually monitored until the final disposition of it which would be addressed in that W A G W, Waste Area Group Wide record of decision.

So that is where we are now. The proposed plan has come out and it documents all this and it has

recommendations in it and we now need to gather public comment so that we can evaluate community acceptance of the alternatives prior to selecting a remedy which would then be documented in the record of decision.

DEBORAH G. WELLES: Thank you, Andy.

What I'd like to ask you to do now is to finish off the questions you have got, putting them in writing. And as you have them finished you might just pass them to the center isle, they will be picked up, and if you are not ready right now we will be picking them up throughout the evening.

As long as Andy is still standing up what we would like to take first is any questions you may have that were on point with his presentation, anything that he said that didn't quite come through to you and you would like to ask him a question about. In order to do that it would be great if we would get that microphone right in the center isle.

And again, as you come up to the microphone to ask your question if you would just state your name very clearly for the record.

DEBORAH G. WELLES: Yes, Wayne. You would like to ask the first question?

WAYNE PIERRE: Just to clarify a point that Andy made. The nine criteria are broken into priorities.

There are two criteria that are considered threshold criteria and needs to be meet in order to go into detailed analysis. The threshold criteria are protection of human health in the environment and meeting applicable relevant or appropriate requirements. So in that comparison of alternatives we do need to make sure that the first two of those criteria are considered threshold by at least E P A.

DEBORAH G. WELLES: Thank you, Wayne.

Any other questions or clarification on Andy's presentation? He covered an awful lot of ground.

Andy, they are looking like they got it, which is really good news.

Baring any of those questions, what we are going to do now is the questions that have been written down that have now been given to the panel.

Jerry, would you like to go ahead.

The process here is that Jerry has taken a quick look at the questions and he has passed them out to the person he thinks would be most appropriate to answer it.

JERRY LYLE: I will take it.

DEBORAH G. WELLES: You will take the first question. Would you please read it.

JERRY LYLE: The question is: Why does capping not reduce mobility?

The answer is that capping does reduce mobility. Actually capping can increase the concentration initially, but the thing that - - again in clarification of Andy's presentation - - is reduction of mobility, toxicity, and volume by treatment. Capping does not treat or eliminate the problem. It basically puts a band-aid over the problem which may come back to haunt us 100, 200 years from now.

ANDY BAUMER: I have a question over here: What is the estimated-external exposure due to the particulates that is due to the assumption that known concentrations at T R A all come from the Pond?

There is yes and no. The estimated-external exposure, which is the actual radiation field to an individual, was based upon the radioactivity from the Pond itself. In that case we limited that to the fence line, the value of the fence which was five milirem per hour. I should say, and I forgot to say, even through our exposures, all of our scenarios were above that target-risk range for external exposure.

There are procedures, controls, et cetera in place that D O E and the contractors use that no one is supposed to excede that dose, but it is still potential.

The other question though is - - well, the size of this is due to the assumption that known particulates at

T R A all come from the Pond. In fact when we did the inhalation assessment we did assume - - we have measurements at T R A of the amount of dust, that particulate matter in the air. We did in the risk assessment assumed that those particulates represented average dirt from the Warm Waste Pond. So you can see that is a conservative assumption.

DEBORAH G. WELLES: Are we needing additional cards? Does anybody have a card they filled out? Okay. Is there anybody else that has a card? Don't be shy. Pass them on in. Great.

REUEL SMITH: Are there any of them back here? Just pass it to the isle and I will take them up.

DEBORAH G. WELLES: If someone is not picking it up, just raise it up.

What we will do is we will focus on the questions that you all have and then when those questions are satisfied and you have had an opportunity to have them responded to, we will move to formal comments on this particular issue. And we will stay on it until 8:00 o'clock, at which point we will move to the next issue, providing that people have comments and are interested in going on it.

Jerry, is the next question ready, is there one? We are going to keep Andy busy here.

ANDY BAUMER: What is the depth of contamination directly beneath the Pond? Samples were only taken eight to ten feet, how can it be said with 100 percent certainty there is no contamination directly beneath the Pond?

Is it true that - - well actually there were a couple of samples that were taken to 15 feet, I believe, in 1988. But what they found was that a very large percentage of the contaminates were in the upper two feet. And I wouldn't stand up here and tell you 100 percent of the contaminants were in that two feet, but based upon the fact - - I would say 90 percent is in the upper two feet. That's where the risk lies and that is what we will deal with.

Now, as we go in to dig it up we will be taking measurements as we go to make sure that points where we go through and if we got a hot spot, you know, we will keep going to grab that to make sure. We are not limiting it to a magic two-foot level.

What type of real risk reduction is gained? The worker exposure with soil washing would be negating any short-term gains.

Well, in the first place I have to disagree because when we do this, whatever we do, okay, say it is extraction/separation, the process will be very mechanized.

The actual soil washing thing is, you know, a pilot plant. Okay. And while there are individuals who will work on that, we have to build-in shielding and things like that to make sure they don't get their - - what we call ALARA, as low as reasonable achievable. Those levels for people are set fairly low. And if we let people get much of a dose we are going to have to put a new person on every day because we have to keep their dose low. People wear domismetry while they are working.

JERRY LYLE: You may want to add that the actual process of the extraction and how it will be chemically extracted could be by a robotic system. The technique is still - - needs to be placed up. What we are stating is that extraction is a system that, as I think Andy mentioned earlier, is used in mining technology. It is a technology we believe could work here, could reduce what I think is half a million cubic feet of contaminated soil to something substantially less than that. This material is radioactive, it needs to be managed. If it is left unmanaged the potential for some future resident winding up on a ticking time bomb since - - institutional controls being maintained greater than half a life of this country is very difficult. That is what one is talking about when one is talking about 100 years.

ANDY BAUMER: They are kind of overlapped.

Will two feet remove an adequate amount of activity? What is the competence level of the process?

One, I think I addressed the two-foot question.

The competence level of the cost estimate, we have gotten independent-cost estimates on this. In fact these estimates are - - have been refined, but as we have to go through a pilot scale, et cetera, we can't - - I mean the competence level - - this is statistics - - but that is our best estimate based on our current knowledge.

JERRY LYLE: I guess I will take the next question, it is not in the proposed plan I know.

When does cost enter into the risk-assessment process, how much money are you willing to spend to prevent one cancer or one rem exposure?

There has to be some criteria. Cost do not enter into the risk-assessment process. Cost enter into the decision process. There are two stages to a Superfund activity and Andy had it up on a slide earlier.

One is the remedial investigation, second is the feasibility study. The remedial investigation provides data to understand what is called the nature and extent and to determine the fade of transport of the contaminants.

When we look at half life, when we look at fade of transport in a period of 100 years we are reaching a decision process on what is the risk as determined from the

National Contingency Plan as E P A has promulgated in a national-wide guidance, the risk from radionuclides which are considered class A carcinogen, as carcinogenic as you can get, when the calculations are done is not one in a million, it is one in three. So the risk from leaving this for time uncontrolled, at some time in the future can be very, very significant.

The decision to undertake remedial action once you know there is a threshold that has been reached, and we believe the threshold in this case far exceeds a tenth to a minus four, or one in 10,000 threshold which is the criteria in the National Contingency Plan, is when cost does figure into it.

As I mentioned there are two threshold criteria, and that is compliance with applicable or relevant and appropriate standards and protection of human health and the environment. Once those threshold criteria are meet, cost is one of the factors in choosing the best solution.

The reason that the physical and chemical treatment option is selected, which may seem to be more expensive, is that capping is a band-aid. Capping - - when Andy talked about capping, caps working for 100 years design life. That is the theoretical-design life. We don't have cap we have studied for 100 years, we don't know

that caps will last 100 years, must less 1,000 or 10,000 years.

Another question: Is there any reason to believe that capping will reduce the combined risk for inhalation and ingestion?

Inhalation and ingestion would be reduced by capping as long as the cap was maintained and the maintenance is the question.

The next question: Is private ownership of the T R A ponds area a mandated assumption and then mandated by what regulation?

It is not a mandated assumption. What we as the three agencies did was we had to come up with some assumption on how long the Department of Energy would control the I N E L, how long can we assume we are going to have ownership of that property. The three agencies, we have agreed at least for the purpose of this action, on a 100-year scenario which is consistent with what is in the N R C guidelines that they use.

Future land use is something that will be addressed in the programmatic waste management environmental restoration E I S at our headquarters. From that we expect to get some guides we will use in the future.

ANDY BAUMER: Let me get rid of a few of these.

What is the chemical extraction process?

That is the process by which - - an easy way to think of it is that if you have a silt or clay particle and you have a cesium atom attached to it, when you wash it with acid or something like that, a hydrogen molecule or something similar would actually detach the cesium and would replace itself, replace the cesium atom with the hydrogen atom. So the clay silt keeps the hydrogen and the cesium goes out the other end of the pipe so to speak.

Another process question, it says: The duration times are too short and do not allow for winter snows.

Well, we considered that. The biggest problem we feel during the winter is digging the dirt up because it is frozen. If we anticipate - - what we would do in that case is we would go in and stock pile dirt to get ready for January and February to be prepared for the freeze.

Does the cost of chemical extraction and physical separation include dealing with the extraction portion?

Yes.

There is another question here: What would you do with that?

We don't know for sure, to be honest with you, until we get to the - - right now we are doing bench-scale

work. We will evaluate that. The common way to deal with it is stabilization, mixing it up with some concrete.

Now, the issue that is raised somewhere in here is that don't you increase the volume again. Well, yes and no. We reduced the volume so much that we will increase it somewhat, but what we are increasing is that 90 plus percent reduction that we have got.

Where will the extractant be stored?

We don't know that either. This issue that the State asked it be stored so it can be visually monitored, we are dealing with that right now and I don't have an answer for that to be honest with you.

Can you justify $750,000.00 for a feasibility study? What does this include? Who is performing these studies?

Unfortunately that is how much it costs based on our cost estimates. What we would do is actually build a miniature plant in which we would test the process. In particular in this one, as I mentioned, the physical-separation side, that is the kind of thing we would feel very comfortable about. So the main focus of that would be to test the extractions and then test - - when you extract with the acid and the cesium goes out in the acid, then you have to remove the cesium from the acid. So it is a two-step process. What we would do is focus on

those two processes as well as dealing with the residual. So all three of those things are encompassed in the pilot scale.

E G & G at this present time is planning to do that, or at least manage that project, if public comment indicates we should go forward with it.

We have got that one.

What are the factors for evaluating the risk assessment, ingestion, external exposure due to radiation, and injection?

Ingestion was 100 years from now, external exposure and inhalation at the present time. Obviously the present ones assume a worker rather than a family which is the second question.

What is the risk of the contaminated material after soil washing?

Well, we can't say exactly what it is, but we have to clean it up to a level that makes it below the target risk level. D O E, E P A, and the State together will determine, based on the bench scale and the pilot-scale work, what exact cleanup levels we would be shooting for.

What is the size of the plant?

I think the estimate of that, the process, was five or ten tons an hour, something like that.

Last: Is soil burning feasible?

I don't think so.

Won't this material be land filled in the future? Why spend 6.9 million to move the problem to another state or another at the I N E L?

Yes. As Dave pointed out, we feel it is much better to concentrate the contaminates of concern into a small controlled area rather than to have this thing out in the desert which is uncontrolled.

Would it be land filled in the future?

Don't know that right now. Since this is an interim action and the State has put the condition on it that we store it so that it can be visually monitored, we will have to deal with that issue in the record of decision for T R A, the Test Reactor Area. So that has not been decided at this point.

WAYNE PIERRE: Again, volume reduction is a major activity that states and the federal government are involved in. I would assume that Idaho Falls has a recycling program, as most states and most communities do. The reason is that land fills fill up. To just say we are going to land fill it anyway is not any different than land filling your aluminum cans, your plastic, your papers and everything else.

We found to our misfortune that you just can't

land fill it anyway. There is a limited volume available of land fill space.

DEBORAH G. WELLES: So we have taken our last question. Are there any other questions from the audience?

Do you have it written down or do you want to just go ahead and come to the microphone and state your name?

JOHN TANNER: How many acres do these ponds cover?

DEBORAH G. WELLS: Sir, could you state your name as well?

JOHN TANNER: John Tanner from Idaho Falls.

DEBORAH G. WELLES: Thank you.

ANDY BAUMER: I think it is about four and a half acres, something like that.

DEBORAH G. WELLES: Are there any other questions?

(No response.)

DEBORAH G. WELLES: At this point in the meeting what we will do is we will move into the formal comment period and what I'd like to ask you to do is make your comment, if you'd like to make your - -

WAYNE PIERRE: Deborah, we are in the commentary, in the presentation of the formal comments.

DEBORAH G. WELLES: Wayne, thank you.

In any event if you have a comment you'd like to make would you please step up to the microphone and state your name. You will have five minutes to make your comment and I will know when you reach the four-minute mark. It seems if you wish to talk longer than that if you will pause at the five-minute mark and I will let you know if there is a speaker behind you.

Is there anybody who would like to make a comment at this time?

Yes, would you step to the microphone and state your name, please.

The Court Reporter has asked me if you have a copy of your testimony with you, he will take it verbatim while you speak it, but if you could leave it with him as well that would be appropriate.

BRIAN LANDOW: No, I don't have a copy.

DEBORAH G. WELLES: So your name, please.

BRIAN LANDOW: My name is Brian Landow.

My major concern with all this is one, the cost of 9.6 million dollars. I don't see how you can justify spending seven million dollars to clean up the Site to almost a nubulous scenario, we don't live in a nubulous society. When you look at the alternative of capping, which will reduce almost everything at a cost of four million dollars, I think you have a responsibility to the

tax payers.

It just seems like this soil washing extraction - - you have not addressed waste-disposal problems of the radionuclides afterwards. It just seems like you dealing with - - what the nuclear industry has done all along, and that is we will deal with the problem later. You haven't dealt with it, you haven't addressed these problems, you haven't mentioned anything to the public here and I don't think that is fair to us as tax payers.

Just the feasibility of 6.9 million, I mean, that is just so much money. How can that be justified for the Site? Where is there a better place to put waste - - I mean, this Site is in the desert, with less than nine inches of rain, you know, precipitation per year, ground water 400 feet deep, the ground water is 400 feet below the surface. It seems obvious nothing is going to migrate down there. I mean, you could probably do models and nothing will show up. How can you justify 6.9 million dollars? That is an incredible sum of money.

DEBORAH G. WELLES: I am not clear on whether or not this is a comment or a question.

BRIAN LANDOW: It is both. I guess my main question is what have you done to address the waste-disposal problem? It just seems like you are moving - - sure, you are concentrating on waste, but you are

moving it somewhere else, you are not dealing with the problem, the problem with the radionuclides, you are not actually dealing with the problem. You can't - - where are you going to dispose of it? That has not been addressed anywhere. How can you involve action before this is addressed?

DEBORAH G. WELLES: It sounds to me like this is a comment and - -

BRIAN LANDOW: Well, it is a question.

DEBORAH G. WELLES: The question then specifically, could you frame it so that it can be answered?

JERRY LYLE: I think we can answer it, Debbie.

First off I'd like to point out that this is an interim-remedial action that we are taking on this Pond to address the sediments because of the risks that are posed by those. In the interim action it is not meant to be the final action. When we do address the final action that is the time that we will actually address the final destination of this waste, but we want to try to do now is concentrate that waste, get it into a situation that is more controlled so that we don't wind up with, you know, a bigger problem than we have now.

What you will see in the meeting after this is that - - or the next part of this meeting we are going to

be addressing the perched water underneath this area. That perched water does come from this Pond as well as some others that are on the Site. Indeed there are contaminants there that have moved from the Pond sediments that we are talking about now to that perched water, so they have migrated. What we are tying to do is address that source of contamination with this interim action and then deal with the final disposal of that waste.

BRAIN LANDOW: But you still don't know what you are going to do with it then?

WAYNE PIERRE: If we look at taking the contaminated sediments now and digging it up and containerizing it, you are talking about as many as 100,000 drums of waste which has to go somewhere. If we can volume reduce it, maybe we can reduce it to 1,000 drums. So there is a profit that we are talking about and it has to do with volume reduction.

The other thing I mentioned, capping, you just can't put down a cap and walk away from it and hope it is going to stay. With capping there is also monitoring, installation, and monitoring. Monitoring wells at I N E L costs a fraction of a million dollars, in some cases maybe up to a quarter of a million dollars. That is the price that we didn't talk about. We also didn't talk about other sites at I N E L where six millions dollars - - the

Governor of Idaho has made statements as far as regulating the Waste Management Complex, the cost of removal of that waste could be two billion.

So for this action we believe the reduction, mobility of volume, the potential payoff, long-term benefits of the value of reducing this waste, is economical, and that capping may look good in the short run, but it is not good in the long run for waste that aren't going away.

BRAIN LANDOW: Just one other thing that hasn't been addressed in terms of cost with extraction is that -- the final disposal cost which could cost so much money for the radionuclides.

WAYNE PIERRE: The point there though is that the cost of disposal of 100,000 drums versus the potential cost of disposal of 1,000 drums to 100 drums, there is a value saved there. We can't just keep the fence up and walk away it in perpetuity. That is really the bottom line here. So we are not discussing is there a choice, leave it alone. We have identified the risk of leaving it alone and forgetting about it is unacceptable from an environmental management point of view, from the National Contingency Plan, and from the Superfund Program.

So our choice is what do we do that saves money, the most money in the long term. Also when we talk

about the treatment type plan, I N E L, as we will be meeting in September, and as Jerry and others will be talking about in the second part of this meeting, it is an integrated whole. In the ten waste area groups and in the 890 square miles there are a number of actions that we will be coming before the public to talk about. The pilot plant, if we can use it elsewhere, we are going to use it elsewhere. We are going to try to get the best economy scale that we can get.

DEBORAH G. WELLES: I need to ask you - - we have reached the five-minute mark. Are there any other comments that you would like to make?

DAVE HOVLAND: I would like to add one more thing, the importance on the State perspective. If you look at page nine of the plan it is very important from the State perspective that since the final resting place for the extracted waste has not been found, it is important that those wastes be put in a controlled area and visually monitored so that again they are not just going back to the ground, we are looking for a long-term disposal of this waste.

DEBORAH G. WELLES: There is another comment, sir, if you would like to come to the microphone and state your name.

JOHN TANNER: My name is John Tanner and I from

Idaho Falls.

It is apparently clear that there are no significant exposures occurring to workers under present operating procedures and conditions. That is partly because the area is barriered with fences, it is partly because of the training the plant personnel receive, and also because they wear dosimeters which would alert the officials if anybody were receiving a significant exposure.

What we seem to be worried about what might happen some distant day in the future when everything is out of control and nobody knows anything. In the first place we have cut off the source of the radioactivity to the ponds because now you are cleaning the reactor discharge water much more thoroughly than before. So the radioactivity is going to gradually decay, although as the slides showed, rather suddenly.

Nevertheless, you can still wait to do something until the rest of T R A is decommissioned and do all the decommissioning at once. At that time there would be less radioactivity to deal with. How much less depends on how much long they keep T R A in operation, of course.

In the mean time it could be advantageous to allow the much cleaner reactor water to continue to go into the Pond and perhaps leach some of the radioactivity down below where it is truly out of harm's way. Or you could

cap it now and then later when T R A is decommissioned, you could inspect the cap and perhaps recap it so that it would last an additional 100 years beyond whenever that occurs.

I certainly - - I know that monitoring is done and required for city land fills. In this case, as we will see, we ought to be able to see from the history of the perched-water table, there is absolutely no reason for doing underground monitoring of what happens to that waste if we should cap it because it is totally out of harm's way down in the perched-water table.

Instead you have chosen the most expensive possible solution and I don't feel that is justified. You have to really stretch the scenario to imagine how that is going to benefit either the environment or the public..

DEBORAH G. WELLS: Thank you for your comment.

In this portion of the meeting what we really do is we take comments for the record and don't have responses.

I see there is another commentor. Would you state your name and take five minutes if you wish.

JEFF BROWER: Jeff Brower, licensed professional nuclear engineer, State of Idaho.

I support your selection for chemical separation and physical extraction. I believe the cost estimate is a little low. If you think you are going to

perform it at $14.00 a cubic foot, with unproven technology, I think you have something cut out for you. The guy that was concerned about seven million dollars, to make him feel a little more uneasy, I'd say it is more like 70 million dollars.

DEBORAH G. WELLES: Do we have another individual that would like to make a comment?

Sir, if you'd step to the microphone and let us know who you are.

JOHN HORAN: John Horan. I do not have a copy of my comments. In fact I wish you would have announced beforehand what the ground rules would have been, the five-minute limitation, and I could have been better prepared for that type of situation.

Lady Chairman, ladies and gentlemen, the proposed plan for the cleanup, in my opinion, is a political fraud and it is a technical hoax.

We as Idahoans should be outraged to be told our emotions and our tax money should be invested in a pork-barrel project of this nature. It will give us no return in improved health, no peace of mind concerning the environment, and at the same time cause serious economic damage to the tune of seven, and perhaps 70 million dollars.

Efforts are being made to bluff us into buying

a gold-plated product under the pretext of protecting the public health and restoring the environment.

That is my political statement as a private citizen. I do plan to submit later written testimony as an environmental scientist giving the technical details to support this. But right now as long as you will allow me I will talk in terms of some aspects of this project. These are items I was not planning on talking on tonight.

First of all I'd like to address some comments to the E P A since they are the alarmists who are calling for spending billions of dollars to avoid doom from chemicals and radioisotopes. What they do not tell us is that radiation exposure from all sources, natural, medical, and nuclear energy cause less than one-half percent of the cancers experienced in this country.

That individual products from food additives to the chemical wastes produced by our industry contribute fewer than seven percent of these cancers. There is overwhelming scientific evidence which points directly to diet, viruses, sexual practices, alcohol, and above all, tobacco, as responsible for nearly 92 percent of the cancers in America. But thankfully E P A so far has not been given jurisdiction over these root causes.

As a result the public is being constantly bombarded by innuendo and allegations against industrial

chemicals and against radiation. The public believes that cancer - - and the public does believe it - - that this belief is caused - - that cancer is caused by toxic substances, is the result of the public listening to the wrong spokesman.

Now, I'd like to talk to you just a little bit about Andy's presentation.

Andy, I do want to compliment you on the nature of your presentation and the facts presented. I will take issue with just one item.

This has to do with what I call the scenario game, the numbers game. It is interesting that in the text that has been distributed by D O E, they talk about the scenario on page three, they assume the dose the receptor could receive was five rem per hour with access restrictions. But it is not until page 11 under the glossary that they define the circumstances of the scenario.

One of the circumstances is 265 days, 40 percent of the time for 40 years. Well, my slide rule comes out with this delivering more than 17 rem per year, or 700 rem to one person in the 40-year period that was selected for the scenario. The 17 rem per year comes out to 48 rem per day. And I will ask you if anyone has ever received 48 M R in a day at the T R A pond?

May I have just one more minute?

DEBORAH G. WELLES: If you could find a logical place to wrap it up, that would be a good idea.

JOHN HORAN: Thank you.

If somebody has received 48 milirem in one day it shows pathetic radiation protection. To give you an example, Phillips Petroleum Company in 1955 had an administrative policy which limited exposure to a maximum of 60 M R per day.

To wrap up, the last year of record, which was 1988, the collective dose for I V contractor personnel at the I N E L was 233 man rem, which for roughly 5,600 employees exposed, was an average of 40 M R per year. Does 48 M R per day as the low range for a scenario seem practical?

Thank you, Lady Chairman, and I might have another period later when I can extend these comments.

DEBORAH G. WELLES: Thank you.

Is there anybody else who would like to come up and make a comment at this point? This would be a good time to do it because the next thing I am going to do is have us take a break.

I would make one last request if anybody else wants to comment on this topic.

(No response.)

DEBORAH G. WELLES: At this point let's take about a five-minute recess. There is water over here by the wall. Then when we come back we will take out next topic.

Thank you.

(Recess taken.)

DEBORAH G. WELLES: The next presentation that you hear will be on scoping for perched water beneath the Test Reactor Area. The perched-water project is not as far along in its development as the Warm Waste Pond. In fact, D O E is still developing the list of alternatives for cleanup or control of the perched water. Once a remedy is selected for this operable unit, and if it is determined that an E I S will be needed to be prepared, D O E has asked me to let you know three things:

First, E I S would be formally noticed and reopened at that time; second, all comments made tonight on perched water will be considered as part of an E I S scoping process, should an E I S be deemed necessary at a future point; and, third, the comments you make tonight will be used as D O E moves forward in considering the most appropriate remedy for the perched-water site in the coming months.

Before introducing you to the speaker, again I will mention that cards have been handed out and the

process will be identical to the one we just used for taking questions and comments following this presentation.

Now, I would like to introduce to you Nolan Jensen, who is the Waste Area Group 2 Manager for D O E Idaho and he will make his presentation now.

NOLAN JENSEN: Like Debbie said, the second part of the meeting tonight is to talk about the perched-water study, again at the Test Reactor Area. And also as she said, unlike Andy's presentation on the Warm Waste Pond sediments which is right at the end of the process where we are making a decision, in the case of the perched-water investigation or setting, we are just really getting started, we are just getting to the point now where we are identifying the potential alternatives for the cleanup of that perched water.

So tonight what we hope to do - - and also there was a fact sheet sent out previously on the perched-water study, and I think we have them at the back of the room to provide more information - - but we hope to be able to provide enough information that you will be comfortable with giving input on some of the things that you think we should consider as we get into this study.

In particular another law besides the Superfund Law that comes into play here is the Federal Environmental Impact Law or the National Environmental Impact Act and we

will be evaluating potential environmental impacts of the various alternatives. So if you have comments on the impacts that you think should be considered, we'd also like to have that input.

Where does this study fit into the grand scheme of things? As was mentioned before right at the beginning of the meeting by Jerry and the State and E P A, we are in the process of finalizing an agreement, an interagency agreement, between the three parties. Since the I N E L is a big facility we have tried to break up the work into manageable sizes.

So the first breakdown of the I N E L was to break it down into ten waste areas groups. They correspond basically to the different facilities at I N E L. The Test Reactor Area or the T R A is W A G 2, Waste Area Group 2. It is further divided down into what are called operable units. That is not a magic name, it is just breaking the work down into bit-sized chunks so we can manage it and focus on the study.

The perched-water study is one of those 13-operable units. The Waste Water Pond interim action that Andy talked about, that is another one of the operable units.

Let's talk a little bit about what is perched water. Basically perched water is ground water that has

seeped through the surface of the earth into the subsurface and it has encountered an impermeable layer in the subsurface. So the ground water has been stopped and is mounted in the subsurface creating a perched aquifer, if you will.

The perched water beneath the Test Reactor Area Andy already talked about came from disposal of waste water at the Test Reactor Area for a number of years into unlined disposal ponds. The perched water - - the bottom of the perched water is about 300 feet above the top of the Snake River aquifer.

Let's go through a couple of photographs again. Andy showed you this before. Here is the Waste Water Pond and there are a couple of other waste water disposal ponds at the Test Reactor Area. And over the years as waste - - contaminated-waste water was put into these ponds it goes into the subsurface. So for an example we have a pond with contaminated water going into the pond and over time it seeps into the subsurface until it encounters one of these clay layers, if you will, and it slows the progression of the water into the subsurface and creates this mound of perched water.

We know at this point that the perched water is contaminated. It is not tremendously contaminated, but we do know that in the perched water and in the Snake River

Plain aquifer in some cases is above drinking-water standards.

Now, let's go to the next slide. The aerial extent of the perched-water area - - again, this is a diagram of the Test Reactor Area - - the aerial extent is about half a mile across and a little less then a mile long. So the perched-water study focus on this perched-water system right here.

Let's talk a little bit about how the study process goes. Under the Superfund Law, as has been mentioned earlier tonight, the study is called a remedial investigation feasibility study, so there are two parts to that study. It starts off with scoping. As part of the scoping process again we have a public meeting. This triangle here and this triangle here represent times when public meetings might be held.

In the case of the Warm Waste Pond, which we had for the first part of the meeting tonight, we are at this part of the process where the proposed plan or near the decision. In this case we are just getting into the study and starting to identify alternatives.

So again the remedial investigation part of the study has the objectives of finding out what contaminants there are, where they are, to what extent, and then evaluating the risks of those contaminants.

The second part of the study, the feasibility study, is to develop and analyze those various alternatives to see which one of those is the best alternative for cleaning up the investigation. This is an interactive process. In scoping in this case is a planning process where we determine what the objectives of the study are. Even though it is shown at the start here, of course, it can continue on.

When we actually get to the point when we have to define several alternatives for the cleanup of the perched water, again as Andy mentioned earlier, the Superfund Law has nine criteria that are used to evaluate the alternatives to determine which are the best. Also as Wayne Pierre mentioned earlier, these top two criteria are - - they have to be met in order to even evaluate the criteria. Those have to be met.

So as you think about alternatives and the ones we will present tonight are the preliminary list of the alternatives that we are thinking about, keep in mind that these are the criteria that the alternatives will be measured against.

So I'd like to go over just a couple of the alternatives that could be used for the perched-water system to clean that up. This is just a very preliminary list and it is in very broad types of alternatives.

The first one that we might do is, of course, remove the perched water from the ground and then treat it some way. The second alternative would be to remove the perched water out of the ground and then run it through a line-evaporation pond, for an example, so that the water could be evaporated and the residues could then be collected. Another alternative is to improve waste management practices. This is something that is already on going. As was mentioned by one of the commentors before, although a lot of the radioactive-waste water has gone into ponds in the past, those contaminants have been reduced. Another thing that is going on next year is the Warm Waste Pond is going to be replaced with a new line-evaporation pond. So some of these things are going on already.

Another type of alternative that could be used is a term called institutional controls which just basically means that we would restrict access to the perched water by preventing wells from being installed so that people couldn't withdraw that water or putting up fences. Something along that nature.

Again the no action alternative, in the event we find out that the perched water really doesn't cause a problem, that could be a viable alternative. On the other hand if we find out that the perched water is a significant problem, then the no action alternative would be used to

compare the other alternatives too to see how much they reduce the risk.

So again just in summary, what we would like to do tonight then is hopefully have you over the next period of time think about some of the alternatives we think are viable for the perched water, provide us that info. We want to make sure we are considering everything that we should in conducting and going ahead with this study. Also one of the potential-environmental impacts that you think might need to be considered as we go through and develop these alternatives.

In order for us to be able to use those best we would hope that we could get those comments by September 10th.

DEBORAH G. WELLES: Thank's, Nolan.

At this point what we will do is move the microphone into the center isle and if anybody has a question for clarification for Nolan on anything he has just said in his presentation, this would be a real good time to ask that.

Any questions for clarification?

Sir, if you would come up to the microphone and again state your name.

JOHN TANNER: John Tanner, Idaho Falls.

If the perched-water table existed before T R A

started dumping water there, and how soon would it disappear if T R A stopped? And in that event the answer is no. How soon would it be gone if T R A stopped operating?

NOLAN JENSEN: In this case the perched water is a man made. The perched water came from the disposal of waste waters into these ponds. Part of the study that we will be doing, one of the things that is just being started is the ground-water model. The intent there is to calculate what could happen. For example, if there was no more water going into the ground, how long would it take before it was all gone. That is one of the things that could be considered with that model.

JOHN TANNER: In other words you don't know?

NOLAN JENSEN: Right, we don't know.

JERRY LYLE: I might add that right now the State and E P A are evaluating the selection of the ground-water model out at T R A. So we are just reviewing those documents.

DEBORAH G. WELLES: Any other questions for clarification?

(No response.)

DEBORAH G. WELLES: Any other note cards? If you have a note card these gentlemen in the isles will be happy to pick it up. If you need a pen we have extra pens

at the end of the room.

NOLAN JENSEN: This is a question: Has risk to perched water from seismic activity been studied?

I don't know the answer to that.

Here tonight as well is Don Vernon, the E G & G Project Manager over this study.

Do you have any idea, Don?

DEBORAH G. WELLES: Don, do you want to come and take this mike here?

DON VERNON: Do I understand the question to be risk of seismic?

We have not specifically addressed that or even looked at it, but I think it is our understanding that the purging layer is pretty much continuous. Unless there is such a large event beyond expectations we might have some problems there. It is very, very unlikely.

JERRY LYLE: That is a good comment. Those are the kinds of things we would like to be able to, you know, know what are your concerns, what things we should consider as we go through this evaluation.

DEBORAH G. WELLES: You have got another question.

JERRY LYLE: There is a statement and then a question. I will read the statement first.

It should be noted that over 90 percent of the

perched water comes from clean non-radioactive sources. When the radioactive stream is discontinued, won't the problem go away naturally?

Some of the problem may go away naturally, that is going to be part of it, as Nolan indicated a moment ago. Part of what we will be evaluating with out model, which -- - that information will be fed into the remedial investigation feasibility study that we will be doing.

The next question: How can I obtain a copy of the E P A and State of Idaho comments or review of the warm waste pond alternatives, also the interagency agreement?

That could be obtained through the Administrative Records which is held now over at the Waste Area Complex, E G & G facility, which is over at 1st and Woodruff. If you want some more information you can contact Reuel Smith back there, he can get you better information on how to get access to Administrative Records.

DEBORAH G. WELLES: Reuel, do you just want to waive your hand so everybody knows who you are. Very good.

Reuel, do you have a comment where they can get a copy of the proposed plan?

NOLAN JENSEN: Well, copies of the proposed plan are at the back of the room. But some of the other documents, like the risk assessment for example, they have been placed in information repositories at various

locations in the State. In Idaho Falls it is at the I N E L Technical Library and the public library.

Anyway, on the fact sheet and the proposed plan it has the locations for those.

REUEL SMITH: I might make one point too, that the question on the interagency agreement, that document is also in the information repository.

JERRY LYLE: The next question: Is it possible to chemically inert the hazardous materials to where they lie?

I guess for my answer I'd say that is a possibility and that may very well be one of the things we will consider as an alternative here.

DEBORAH G. WELLES: Any other questions on the three by five cards?

If we can keep them flowing, that is always the best.

NOLAN JENSEN: At what level is the perched water below the ground?

I told you it was about 300 feet above the Snake River Plain aquifer, and that is about 150 feet below the surface at the bottom of the perched water.

JERRY LYLE: So we gave it to you in one direction and then didn't tell you how far it was below the ground.

NOLAN JENSEN: About 150 feet down.

DEBORAH G. WELLES: Any other questions on the three by fives?

(No response.)

DEBORAH G. WELLES: If there are no further questions on the three by five cards, at this point we would move to the portion of the meeting where you will be welcome to come up to the microphone and speak for five minutes making a comment. Again, we when we do this, it is a comment you make and the agency will listen to your comment. And it is my understand that no response will be provided.

Somebody always has to go first. Is there somebody who would like to make a comment?

(No response.)

DEBORAH G. WELLES: Is there somebody who has thought of another question?

Sir.

JOHN HORAN: Thank you. John Horan.

On page three of the current document that you have on this project mention is made that an extensive analysis will evaluate whether the quantities of contaminants that have seeped into the soil and the perched water are concentrations that could have an impact on human health or the environment.

Where do people become involved in this? In other words, what I am interested in are who do you consider to be the consumers of this water that might have a health impact?

JERRY LYLE: One of the scenarios that we would evaluate in this investigation would be similar to what we described with the Warm Waste Pond where you may have somebody that moves there and is farming there or whatever, has some kind of a well, whatever, whatever could happen there is an uncontrolled situation, you know, in say 100 years from now.

JOHN HORAN: May I suggest you also evaluate the people working at Central Facility Area.

JERRY LYLE: Absolutely. That will be another one of the scenarios. You look to see if that stuff was in the aquifer, was in the drinking water of the people. That definitely would be occupational exposure.

JOHN HORAN: You will find there is a track record concerning this exposure. These calculations have been keep since 1960.

JERRY LYLE: That will be one of the scenarios we will look at.

DEBORAH G. WELLES: Any other comments or questions?

Sir, if you'd come to the microphone and

probably ought to state your name again.

JOHN TANNER: John Tanner from Idaho Falls.

This would seem to be one case where one has to strain pretty hard to find a scenario where somebody could be at risk. Right now nobody is at risk, they don't pump water out of the perched-water table for drinking or other purposes that I know of. The only thing that migrates far enough that it could get into drinking water is the tritium and even there at Central, which is the only place there is significant tritium, is still to within safe limits.

As far as the future is concerned, as long as T R A and all our security controls are in place, no one is going to move in there and start pumping water out of the perched water table. Eventually maybe the place will be decommissioned.

As we all expect the perched water will disappear after they quit using T R A. We don't know right now until we study it some more how long that will be to take place. Perhaps institutional controls can bridge the gap between the decommissioning of T R A and the first family that moves in there with some water rights to that perched water.

So this would seem to be the one case where there is clearly a case for no action.

DEBORAH G. WELLES: Is there another comment?

Question? Okay.

JOHN HORAN: John Horan.

I want to apologize for perhaps Mr. Tanner and I being the two that are approaching the mike all the time. I hope you will note that we allow time in between for everybody else to have an opportunity.

DEBORAH G. WELLES: This has been noted.

JOHN HORAN: The question or comment that I wanted to make that might help you out on this, in both of these studies, and I can talk specifically in the technically aspect on the radioisotopes that are involved, and this is in what form are they in. These are high-fired oxides. That is very important because high-fired oxides are not soluble. They are not soluble in water - - pardon me, everything is soluble in everything, as Claude Sill would say as an analytical chemist.

Their solubility in water is minor, their solubility in body fluids is even less. And so I would support John Tanner's recent statement. And really we should note for the record that practically all the comments about costs that were made at the first presentation would also apply to this project. I think you will find that tax payers have an interest in dollars which government employees may not have.

DEBORAH G. WELLES: Is there another comment?

Question?

(No response.)

DEBORAH G. WELLES: We really don't need to prolong this.

Jerry, what we can do at this point? It seems we fully answered the questions on the warm waste unless anybody else has a question they'd like to bring up about warm waste or perched water, or if you'd like to make another comment about either one of those we will take those now. I think we really have exhausted a lot of the questions.

Is there anybody else that wants to say something?

JERRY LYLE: About the projects we discussed tonight?

DEBORAH G. WELLES: Fire away.

JOHN HORAN: I will only be the last speaker. I want everyone else to have a chance at perched water.

DEBORAH G. WELLES: It seems appropriate for you to come to the mike and speak again.

JOHN HORAN: Thank you, Lady Chairman. John Horan.

These are all consider extended remarks, if you will. What I'd like to talk in terms of is what some other people have had to say about the technology that has been

used in the perched-water report. Also what some other people, and I think these are knowledgeable people, have had to say about the entire risk assessment process.

The first person I would quote is the Director of Energy Issues for the General Accounting Office. These are rather recent comments, April 11, 1991. They found that D O E was throwing money at environmental problems. Victor Rezendes, the Director, made this presentation before a Congressional Committee.

"Appropriated money is disappearing into a black hole."

I really think the Warm Waste Pond project qualifies. That is my aside.

Even Mr. Leo Duffy, D O E's head of Environmental Restoration and Waste Management, has expressed misgivings about the Department's ability to spend cleanup money wisely. And I emphasis the wise spending of tax payers' money is really the public's concern.

"G A O is concerned that site characterization and cleanup milestones lead out by these tri-party agreements between the State and E P A and D O E, that these so far in these United States are forcing D O E to spend money when the Department has neither the knowledge, technology, or manpower to accomplish the task mandated."

These are all statements from last April 11th.

Another thing I think we ought to see reflected in this report is that E P A's Science Advisory Board in September of last year, almost a year ago, said that E P A was using the wrong priorities focusing on oil spills and radioactive waste.

I won't go into any details, but they told what the priorities should be including species diversification, stratospheric ozone depletion, items of this nature, which are a threat to life.

The interesting part was that the Administrator of E P A, Mr. William Reilly, acknowledged that over the past 20 years E P A has seldom reached beyond the exacting rules to correct problems already identified by congressional legislatures. He also went on to say that these did not meet the risk evaluation of their agency or that they were good science.

Incidentally Administrator Reilly thought so much of this report "Reducing Risk" that was put out by the Science Advisory Board that he ordered 10,000 copies of it making it a government best seller. It was distributed throughout the agency. Now a year later we do not see that the priorities have changed as far as this project and the Warm Waste Pond is concerned.

The final one, and then I will sit down totally

for tonight, White House Executive Order 1229 - - pardon me, 12,291, August 3, 1990. "The risk-assessment process is flawed." This report goes on, "Rejecting the maximum exposed individual. . ." And the fact that this is not a good approach.

I took part last year in a evaluation of the off-site dose assessment which D O E performed. I was part of a review group. E P A and the Center for Disease Control in Atlanta took D O E to task for their flawed risk assessment because they had calculated the dose to an individual who did not exist at the nearest-site boundary. E P A said that you should make the calculation more realistic. That is the state of the art today, it should be the average dose to an individual in centers of population.

Thank you.

DEBORAH G. WELLES: We will take the next comment.

JACK BARCLAY: I guess I can't resist. Jack Barclay.

I'd like to say a little bit about perched water. The perched water was found in the early 60s and it has been studied for 30 years by the Geological Survey and others. In watching this level of perched water we see that when more discharge is to the ponds have been made we

see the perched-water system expand in size. Then when less water is discharged we see it decrease in size.

And calculations I made years ago show that the upper perched water in the alluvia has about a two- or three-week supply of water equivalent in there. The deeper perched body based on a silt and clay bed in the basalt has about a one and a half to two year supply of water. So if you stop discharging the water this would drain out. The bed that the water is perched on is not impermeable, it is relatively impermeable.

If you look at the flow of the Big Lost River and the recharge from the Big Lost River down to this same perching system, 200 feet below the surface there, you see that when - - you have a big flow into the Big Lost River, that you built up another perched-water system there. Then when you have a year and during the winter when there is no recharge, you have - - that system drains out and within a year or 18 months most of that would drain out.

So even though you are going to do a model, the results will show that most of the perched-water system, if the water drive was cut off, would be gone within six months minimum and about three years maximum. The perched water would really go away, you don't have to plan on people 100 years from now drilling wells to that perched-water system because it won't be there. It is a

man-made system and it is going to drain out naturally.

The size of the perched-water system is controlled by how much water goes in and how that system spreads out until you get enough infiltration rate through the sediment bed for all that water to move down in - - it is a balancing act. So the fact that it used to be a mile by half a mile in diameter and then it got much larger - - when we took the water from the disposal well and put it in the cold waste ponds, the cold ponds, and the perched water expanded again.

So there is a lot of evidence to show that it is not going to be a long-term problem. The only radionuclides that have been found in the aquifer are tritium, which has moved through this system from the pond to the shallow perched to the deep perched to the aquifer, the tritium takes about a year to get down there. Then cobalt 60 was found for a short time in the 80s and is not present in the recent sampling.

Then chromium was discovered not just ten years ago, it was discovered in 1966, and its use was discontinued in 1972. Every graph of chromium since then shows that the chromium levels in the aquifer are getting less and less and less.

Then if you look at the tritium levels in the aquifer at the closest well, well 65, which is only a third

of a mile south of the plant, you see that the levels since 1980 have been decreasing every year. Then when you look at the new E P A regulations that perhaps next year will change the tritium level from drinking water limit from 20 to 60.9. Levels in the aquifer beneath the T R A pond will be less then the drinking water levels probably next year because they are decreasing and the level will be increased from information I have from E P A.

So really I agree with some of the others that I think the problem has been magnified a little bit because the natural conditions there do a very good job of assimilating the waste and the fact that the waste inputs are much less now, the levels in the aquifers are much less.

Thank you.

DEBORAH G. WELLES: Is there another person who would like to comment?

(No response.)

DEBORAH G. WELLES: Reuel Smith is at the back of the room and wanted me to mention that there are comment forms that you can take with you.

The yellow one is for which project?

REUEL SMITH: The Warm Waste Pond.

DEBORAH G. WELLS: The Warm Waste Pond.

The other one which is white is for perched

water.

If you just want to pick one of these up and a thought occurs to you and you want to write it down on your way out, Reuel would appreciate you leaving it at the end of the room. Of if something else occurs to you later on, please go ahead and send in any comments you have.

At this point if there are no further questions or comments on either perched water or warm waste I will turn the meeting back over to Jerry Lyle for the closing remarks.

VOICE: I have a question: In what form are the comments going to be answered?

DEBORAH G. WELLES: The question is a good one and let's see - -

Jerry, is your microphone on?

JERRY LYLE: Your comments will not be addressed in just another public meeting. For the perched-water table or the perched-water project, what we will do is incorporate those into our planning, looking at different alternatives, that type of thing, and then when we come back to you, that will be another public meeting where we will tell you what the alternatives are so that you actually will be able to see where we have come.

For the Warm Waste Pond, we will address each of those questions that will become part of our

administrative record.

VOICE: But the perched water and they really don't have to give alternatives - -

JERRY LYLE: Or environmental impacts, those types of things, they will be included.

For example, some of the scenarios to look at, we will consider those as we go through this process.

I guess with that I would thank everybody for coming out. We appreciate your participation in the process. Like we said earlier tonight, the next time we will be coming out to meetings like this will be a month from now requesting comments on the interagency agreement itself. I encourage you all to come out then and provide comments so that we can include those in our process and get that agreement signed and look forward to having you at future meetings.

Thank you very much.

(Hearing adjourned.)

REPORTER'S AFFIDAVIT

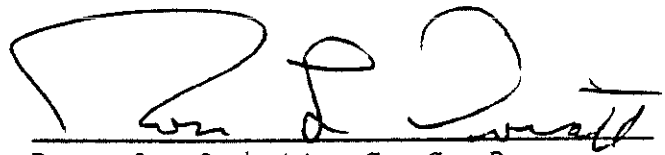
STATE OF IDAHO)
) ss.
County of Bonneville)

I, ROSS L. OVIATT, do hereby certify that I am an Official Court Reporter for the Seventh Judicial District of the State of Idaho;

That I took down the proceedings aforesaid at the time and place therein named and thereafter reduced the same to typewriting by means of C A T (Computer Aided Transcription).

I further certify that the foregoing, consisting of pages 1 through 71 inclusive, contains a full, true, and correct transcript of the proceedings had, all transcribed by me to the best of my knowledge and ability.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this the 15th day of August, 1991.

(Signature) 

Ross L. Oviatt, C. S. R.,
Official Court Reporter and
(Seal) Notary Public in and for Idaho.

My commission expires: Perpetual

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UNITED STATES DEPARTMENT OF ENERGY

PUBLIC COMMENT MEETING CONCERNING PROPOSED CLEANUP PROJECTS AT THE TEST REACTOR AREA AT THE IDAHO NATIONAL ENGINEERING LABORATORY

— —

WARM WASTE POND PROPOSED PLAN and PERCHED WATER PROJECT SCOPING

August 8, 1991
6:30 P. M.
Quality Inn
1555 Pocatello Creek Road
Pocatello, Idaho

Panel Members:	Lisa Green, D O E Idaho
	Wayne Pierre, E P A Region 10
	Dave Hovland State of Idaho
Presentations:	Andy Baumer - Warm Waste Pond Proposed Plan
	Nolan Jensen - Perched Water Project
Moderator:	Deborah Welles

Reported by:
Karen Konvalinka, C S R

EASTERN IDAHO COURT REPORTERS
P. O. Box 50853
Idaho Falls, ID 83405

P R O C E E D I N G S

MR. HEADINGTON: Welcome to tonight's meeting. My name is Dennis Headington. I'm the Director of the Pocatello INEL Office. The purpose of tonight's meeting is to review two cleanup projects at TRA, Test Reactor Area, and to receive and address your comments on these projects.

The moderator for tonight's meeting is Debbie Welles from Advanced Sciences, Incorporated, and Debbie will moderate the balance of the program and introduce the speakers. Thank you. Debbie?

MS. WELLES: Thanks, Dennis. I want to welcome you as well, and want to let you all know my role here is really two-fold: First to make sure you have an opportunity to comment and, second, to keep you on point with the agenda.

Before I introduce the first speaker, when you walked in the room tonight you probably picked up an agenda for this evening's activities. We have Lisa Green from the Department of Energy here in Idaho. She will be giving a presentation, a short one; Wayne Pierre, EPA Region 10 is also here tonight; and, then we have Dave Hovland from the State of Idaho, Department of Health & Welfare, and we'll start out with three series of remarks

REPORTER'S NOTE: Through a numbering error, page three was omitted with no loss of text.

from these individuals.

After that the meeting will be broken into two distinct parts, really almost two separate meetings. Both parts of the meeting will be conducted in order to make official comments for the record. To accomplish this we have a Court Reporter. For this reason, each time you come to the microphone to speak, please be sure to state your name, and if it's a complicated one, spell it. That way the Reporter will be able to get your question clearly on the record. If you have prepared remarks that you brought with you tonight, sometimes people do bring typed comments, please leave a copy of them with the Court Reporter. That way DOE will also get a copy.

Next on the agenda, the first of two presentations will be given, the first by Andy Baumer. This will be on the proposed plan for the cleanup of the Waste Water Pond. This will be followed by an opportunity for you to ask questions and then make comments.

To make the most of this time, we are going to - - the procedure we will follow is when you came in tonight there were a couple of notes cards on the chairs. What we'd like to ask you to do is the purpose of the note cards is, as the speaker is speaking, if you will just fill out a note card and hand them in, somebody

will come down the aisle and pick them up. That way we will get the questions to the panel and they will be able to respond to them.

While that is occurring, what I'd like to ask you to do is if you have any questions for Andy regarding the contents of his presentation, just go ahead and ask him at that point in time.

After we've finished with the warm waste pond, we'll have a short break and we'll move into the perched water presentation. This presentation will be conducted really the same way I've just described regarding the warm waste.

In order to make sure we made it through both of these items, and if anybody needs to leave, what we will ask you to do is keep your questions really on the topic of the talk you've just heard. This is especially important, because we are taking official comments for the warm waste pond.

If you have questions or comments on projects other than the test reactor area, the agency has other individuals who will be able to answer those questions and help you with them.

At this point, I'd like to introduce you to Brad Bugger. Brad, could you please stand up so we can see who you are? He's in the back of the room. Brad is

here so he can answer some of these additional questions, and Dennis can do so, as well.

I also need to mention if you do not have an opportunity to make a comment or choose not to, you're more than welcome to provide comments in writing. Reuel Smith, who is standing back here as well, is in Community Relations at INEL. He has brought some forms on the back table. You may already have them, and you're more than welcome to fill those out and leave them, as well. You may also hand in or send in at a later time any comments you've got really of any length. The agencies are anxious to hear from you.

Now I'd like to introduce you to Lisa Green with the Department of Energy.

AUDIENCE MEMBER: Where do you send the comments?

MS. WELLES: Those can be sent to - - if you'll look in each one of your fact sheets, or if you picked up one of the forms at the back of the room, the address is noted very carefully on the top of that. And Reuel Smith or any of the agency people can point that out to you.

AUDIENCE MEMBER: Which questions do we write on the card and which do we just ask - -

MS. WELLES: What we are asking you to do is

any questions that you've got about the warm waste pond in general and the cleanup at the warm waste pond, if you could write those on the note cards. Those are going to be given to the agency, and they will respond to them. The questions of clarification are directed to the presentation you will hear and the slides Andy is going to show you.

Lisa?

MS. GREEN: Thank you, Debbie. I'd like to welcome you all here tonight. This is the first in a series of public meetings for specific INEL cleanup projects. We're here tonight for two purposes: One, to receive your input on a Proposed Plan for Cleanup of the Test Reactor Warm Waste Pond sediments that is an internal action we are planning to conduct, and the second part of this meeting will be to receive your input in the scoping phase of the Test Reactor Perched Water investigation.

Now next month we'll be having a series of meetings to receive comments on our CERCLA, Superfund Interagency Agreement we've been negotiating over the last year. That public comment period, I believe, is to begin tomorrow. The copies of the documents are available through our Outreach Offices or through our Community Relations Plan Coordinator or through the State.

At any rate, we'll be having a whole series of separate meetings to receive input on the Interagency Agreement and Action Plan.

Now with that, I'd like to turn it over to Wayne Pierre, who is our representative from the Environmental Protection Agency.

MR. PIERRE: Thank you, Lisa. In November of 1989, EPA listed the Idaho National Engineering Laboratory on the national priorities list. Since that time, the State, EPA and the Department of Energy have put together a plan of action to address remedial concerns, cleanup problems, environmental concerns at that site.

As Lisa mentioned, we have reached an accord and are in the process of starting a public comment period on that. Tonight we come before you with the first of which will be many proposed plans for cleanup action at INEL. This proposal is an interim action. EPA's role in this is both partner and auditor. And EPA will be both a signature to this plan, depending on public input and comment we get tonight and through this comment period. We think what we are here tonight to present to you is a good idea. We think it will work at the Site. We think it is cost effective.

EPA supports a strong public involvement program, and we need the input from you, the public. We

are a public agency who work for you.

I'd like to turn it over to another public agency representative, Dave Hovland.

MR. HOVLAND: Thank you very much, Wayne. I'd like to say that the State of Idaho is supportive of the TRA Warm Waste Pond Interim Action. And, again, this interim action is to initiate the cleanup efforts at the INEL.

This interim action will take the identified contaminants from an uncontrolled to a controlled situation. There are some very positive aspects in this. This is the first, as you know, of many proposed plans that will be coming forth to the public. The State of Idaho supports a very strong public comment and participation in this process.

Again, the State's role under the IAG, which is a three-party agreement with the State, EPA, and DOE, is to be a very active participant in the decision-making process for all environmental restoration activities at the INEL.

The State has dedicated staff to do INEL work, both in the Boise office, which I'm part of, and, also, in the Idaho Falls office.

Now I'd like to introduce Shawn Rosenberger, who's out in the audience. He's our supervisor of the

Idaho Falls field office.

MR. ROSENBERGER: I just wanted to mention we're in the field office. We do a lot of field oversight and verification work, kind of an extension of Boise in a way.

We also do a lot of auditing functions, still in the process of staffing up.

I've got a couple people here, Rod Ariwite in the back there. He's our technical recruiter, and we have Rensay Owen. He's the inspector for the RCRA facilities, and in the field office we also have an oversight monitoring group, some people here from Air Quality Inspections. We interface quite a bit, so it's real beneficial to the IAG implementations.

If you have any questions you want to talk about at the Site, our number there is 525-7300, and that's basically it.

MR. HOVLAND: Thank you, Shawn. I'd also like to mention another one of my colleagues, Dean Nygard, from our Boise office. Dean is the Project Manager for the entire INEL Site. He couldn't be out here tonight, but if you need to get ahold of Dean, he's at (208) 334-5879.

MS. WELLES: Thank you, Dave. We're now ready to move into the next part of the meeting, which

is the presentation.

Andy Baumer, who is the Project Manager for the Warm Waste Pond Interim Action and is an EG&G employee will be giving this. For those of you who are not real familiar with the process, here's a copy of the Proposed Plan on the Warm Waste Pond and the Proposed Plan is the name of a specific document. And you'll have it in your hand. Andy is going to be giving you a synopsis of this Plan in his conversation tonight, and he'll be giving you a lot of technical information. You'll find it quite familiar after hearing from him, if you want to pick it up and read this.

Andy?

MR. BAUMER: Thanks, folks, for coming tonight. What we're going to talk about is the interim action for cleaning up the warm waste pond sediments. And before we jump into it, I suppose I should explain what an interim action is.

Under Superfund Law, when you need to determine what contaminants are a site and what risks they pose and how to clean them up, you would do a study called a Remedial Investigation Feasibility Study. If prior to or during that study you determine that you have enough information to select a cleanup alternative, you can do what is called an interim action, a cleanup or

initiate a cleanup to clean up the site. The reasons for that would be to reduce risk and, also, because t way you can speed up the total cleanup of the site.

The interim action might range from a quick Band-Aid type thing, you know, for example you might truck in water somewhere where there's contaminated drinking water or something, all the way through permanent remedy. When you select the remedy, be it an interim action or an action after the full Remedial Investigation Feasibility Study, you still go through the same procedure. There are nine criteria under Superfund which are used to evaluate remedial alternatives, cleanup options. The first eight of those are evalua by the agencies who then recommend a preferred alternative in a document called the Proposed Plan.

The Proposed Plan goes out to generate public comment, because the ninth criteria is community acceptance. So by generating public comment, the agencies get the information they need to evaluate community acceptance prior to selecting the remedy.

So that's where we are with the Warm Waste pond. The Proposed Plan is out, and we're in public comment period, and we're out to get public comments on the interim action. And I guess that's the next slide

So if you came to our last meeting, you heard

me say there were four things you needed to do before you can clean up a site. You had to find out what was there, how bad is it, what methods could be used to clean it up, and which of those methods is the best one.

So what's in there, this is the Test Reactor Area, and this is the Warm Waste Pond over here. At one time there were three reactors running at the Test Reactor Area. Now there's only one.

For nearly 40 years, the Warm Waste Pond has been used for disposal of radioactive waste water, and in addition, for ten years it was used for disposal of all non-sewage waste water at the Test Reactor Area.

Because of what was put in it, the contaminants fall into two categories, metal and radionuclides. Even though the metals are present in a lot higher concentrations and total weight, our risk assessment shows us that the radionuclides are the main problems. And in fact, of the 19 radionuclides known to be in the pond, cesium and cobalt, because they are in there in the highest quantities, are the two biggest risk factors. And you can see they are here in 11 and a half and 4.6 manocuries per gram, which is one of those wonderful units, but just to give you a reference point, the Department of Transportation considers anything under two manocuries per gram to be nonradioactive for shipping

purposes. Now that's just an aside there.

Now when we go to our risk assessement, the half life becomes important. And that's because in an interim action, we can either go in and just reduce the risks that are there right now, but we can also go in and do a permanent remedy, in which we case we have to evaluate future scenarios as well as the present condition of the pond.

So what we have in this case is, we assume hypothetically to evaluate future risk that the INEL would revert to private ownership in 100 years. So we evaluate risk in 100 years. Well, that becomes critical in the risk assessment, because cobalt 60 with a half life of 5.3 years would have decayed to something like a half a millionth of its current strength in 100 years, whereas cesium would only decay to about a tenth of its current strength. So both of them are a problem right now, but only cesium is a problem in 100 years.

So how do we do the risk assessment? There are two parts of a risk assessment, toxicity assesment - - how bad is it - - and exposure assessment, how would somebody likely be or possibly be exposed to the contaminants.

On this side, toxicity assessments breaks down into two areas: Are the contaminants cancer

causing, are they carcinogens and/or, are there any other unknown health effects. In this case what we found was that radionuclides, metals, cancer causing and other health hazards, of those four categories, the cancer causing effects of radionuclides was the only risks that were - - that needed to be dealt with.

On the other side, exposure assessment, it's composed of pathways and receptors. For example, we evaluated present time inhalation of dust, in which case inhalation is the pathway by which the contaminant gets into or to the body, and the worker is the receptor, who we would assume is at a given location for a given number of hours per week over a given number of years.

We evaluated three scenarios, three exposure assessments, if you will. Two of those were based on the present, external exposure, just the radioactive field that's out there right now and inhalation of dust. In addition, we evaluated ingestion of soil in 100 years, based on the assumption that in theory the INEL could become privately owned and children, et cetera, would eat soil.

Now in the Superfund Law, there are established ranges of risk above which you have to clean up. And we found that the external exposure at the present time

was above that bad risk level. So it has to be dealt with.

The other two, inhalation at the present time and ingestion in 100 years, both were below that target cleanup level, so what the bottom line here is is that if we just want to go in and do a temporary fix, we can go in right now and address external exposure. But if we want to do a permanent remedy, we have to also address inhalation and ingestion, and I guess I forgot the point was that inhalation and ingestion together are above that targate range, even though each one individually is below it.

So for a permanent remedy, we can't - - for a permanent remedy we can't just deal with the external exposure. We have to also deal with the other.

So there we have what's in there and how bad is it, and the third one is how could you clean it up.

EPA has documents out which describe the radiological - - the clean up of radiologically contaminated sites. And not only do they describe the technologies and things like that, they also give a kind of status report of how proven they are. And what we find is that the most proven category, that of actually having been used to clean up a radiologically contaminated site, there were only two categories:

capping, which is backfilling the hole and putting the impermeable barrier on top of it, and land encapsulation, which is digging up, putting it in containers and putting it somewhere else.

If we wanted to go down to the next level of proveness, that would be it has been demonstrated in the field with radioactive materials, but has not actually been used to clean up a site. And those four categories are: stabilization, which is mixing the sediments up with concrete or cement to make it into a big solid mass which binds up the contaminants; vitrification, where we melt the soil, and when it cools it forms a glass, which binds up the contaminants; chemical extraction, which is leaching the contaminants out of the soil or sediment using acid or something like that; and, physical separation, which is based on the fact that there is some physical property of the contaminants which allows you to separate them from the majority of the sediment.

Okay, we looked at this list and said which ones should we focus on for the Waste Pond. Capping is commonly used and is proven, so that seemed appropriate.

Land encapsulation, just the sheer volume of dirt that would be required makes this one - - takes this one out.

Stabilization is commonly used for treatment

of radioactive waste, and so it seems appropriate.

Vitrification is pushing it for a project this scale, of this size for vitrification, so we didn't pursue that one.

Chemical extraction is actually used in the mining industry to extract radionuclides from ores, so it seemed appropriate. And then what we found out on chemical extraction was that if we wanted to do chemical extraction, we probably had to do physical separation first. And that's because the sediment in the Warm Waste Pond has got a lot of cobbles, gravels and sand, whereas most of the contaminants are tied up in silt and clay-sized particles. So we found that just by separating out the silts and clays from the bigger stuff, we could get a volume reduction of 60 to 80 percent and thereby make our chemical extraction process a lot more efficient.

Okay, so which one is the best one? At this point - - I always forget this point, but there's a point I should have made earlier on the risk assessment was that this external exposure right here is there are procedures and standards, et cetera, used at the Site, and an individual wouldn't get that dose if they, you know, followed the rules. But it is possible, and so we do address it.

Okay, so now that we know which one, capping, stabilization and a combination of separation-extraction, which one is the best one to use? Well these are the nine criteria under the Superfund Law that I mentioned earlier, and the way it works is that the agencies evaluate the first eight of those criteria and recommend a preferred alternative to the Proposed Plan.

So let's go through those one by one. Notice we've added a no action, too.

Does the alternative reduce the risk we've identified? Well, capping reduces the external exposure risk, and, therefore, could be used as a temporary fix. It doesn't reduce all three risks, so it wouldn't be a final remedy.

Stabilization and extraction separation - - separation and extraction, both reduce all three risks.

Does the alternative comply with all environmental laws? Well, the agencies will meet the requirements, the applicable requirements of the substantive requirements of all applicable laws, as they're required to do. So all three of these meet this criteria.

Long-term effectiveness, capping - - caps are designed for 100 years, but none has ever lasted that long and would take substantial maintenance, et cetera, in the long term. In addition, we have a problem with

the cesium. It probably won't decay to an adequate level for something like 400 years. So even if you did get 100 years out of the cap, it wouldn't be a permanent remedy.

Stabilization is in theory a permanent remedy, but it's been used for a number of years on radioactive wastes, and they have found, unfortunately, that they have problems with it starting to decompose after a number of years.

Separation extraction is by removing the contaminants of concern from the soil, it permanently reduces all the risks.

Under Superfund, there is a preference for using treatment options over nontreatment options, so does the alternative use treatment, and if so, does it reduce the toxicity, mobility or volume. Well, capping and no action, neither involves any treatment. Stabilization decreases, reduces the toxicity and mobility by binding up the contaminants, but actually increases the volume of contaminated material. And separation extraction removes the contaminants from the sediment and thereby reduces the toxicity and mobility and actually concentrates them and reduces the volume. So it meets all three.

Short-term effectiveness, how quickly would it

reduce the risk? All three would be implemented within a year or two. Once implemented, capping is quicker, because it's easier than the other two.

Does it pose a risk to the workers or community environment? Well, all health and safety standards would be met equally, whichever was - - whichever alternative was chosen. And things like engineering, practices, using machines in lieu of people and things like that would maximize the minimized risk.

Implementability, well, as I described earlier, the only one of these that's proven to have cleaned up a radiologically contaminated site is capping. The other two would require pilot scale studies which are you build a little miniature plant which you run to make sure the process works and tweak the system to get it just right. Both stabilization and separation extraction would require that.

And cost. No action has no short-term cost. Capping is $2.8 million to construct - - design and construct the cap. And in this case, because capping isn't a permanent - - a final remedy, we did not add any maintenance and operating-type costs for that, because we would assume that the cap would last until the final remedy was put in.

Stabilization is $5.3 million, and separation

extraction is $6.9 million. Those costs include design and construction. They also include the pilot scale test that I mentioned earlier, and the separation extraction costs also include the treatment of the residual which comes out the other end.

So let's go over here quickly on the first seven criteria: No action, basically doesn't meet any of the criteria.

Capping reduces the present problem, but it's not a permanent solution and does not reduce toxicity, mobility or volume, but has proven to have been used in radiologically contaminated sites and is the lowest cost of the three action alternatives.

Stabilization reduces all three risks, but is not - - we don't feel comfortable with the permanence of it. It increases the volume of contaminated material and it meets the pilot scale for implementation in its intermediate cost. Separation extraction reduces all three risks, is a permanent remedy, reduces all three toxicity, mobility and volume, would require a pilot scale test, and in the short run, in the capital and building it is the most expensive.

Okay, based upon this analysis of these seven criteria, DOE, EPA and the State have recommended separation extraction as a preferred alternative to clean

up the sediments of the Warm Waste Pond. Now the State has put a condition on that, that the concentrated residual, which is created as a result of that separation extraction process, be stored so it could be visually monitored until the point where that big study that I was talking about, the Remedial Investigation Feasibility Study for the whole Test Reactor was completed.

So that's where we are. The Proposed Plan is out with the recommendation of the three agencies. Written comments are encouraged, as well as verbal comments, and are treated equally. All comments will be addressed in the responsiveness summary, which is in the Record of Decision, which is a document which the Agency puts out which describes which remedy was selected and why.

MS. WELLES: Because there's so few people, I don't really think we need to use the microphones to ask questions, if that's okay for your system. What we'll do now is, while you're handing your cards in to the center aisle, there are a couple of people that can take them. We'll ask if there's anybody that has a question of clarification for Andy, anything on his presentation you want to clarify.

Barbara? You have to speak loud enough so the Court Reporter can hear you.

MS. MARSH: Capping is proposed. Is anything going to be done to prevent it from getting into the soil? I understand the capping is to prevent it from getting into the air?

MR. BAUMER: Well, one advantage of capping is that the dirt is a wonderful shield. So it knocks the radioactive field down significantly, which is the one risk scenario that has to be dealt with.

MS. MARSH: But we are speaking liquid.

MR. BAUMER: No, no, it's dirt. It's the sediment in the bottom of the pond. The water goes through the pond sediment, and most of the contaminants that are soluble are in water actually get hung up in the sediments. And 90 percent of all the contaminants are in the upper two feet of sediment in the warm waste pond.

MS. MARSH: What means do you have of monitoring that to ensure that it does not seep into the ground beyond the sediment point or several feet under the sediment point?

MR. BAUMER: I'm assuming you mean water?

MS. MARSH: I'm talking - -

MR. BAUMER: You mean the radio - -

MS. MARSH: No, I'm talking - - if you have water seeping through sediment - -

MR. BAUMER: Right.

MS. MARSH: It's going to pick up particles as it goes through the sediment, and it's going to continue seeping.

MR. BAUMER: Yes, ma'am.

MS. MARSH: What do you have means of monitoring below the pond, say 15, 20, 30, 40, 50 feet and all the way down to the aquifer?

MR. BAUMER: Okay, when we found - - the pond has been sampled down to 15 feet, and it kind of works the other way. The water drops out the contaminants in the sediment rather than picks them up.

Now there are some like tritium and hexivalent chromium, which hexivalent chromium is not put in the pond, but in any case they're very soluble, and they just keep going. But most of the other contaminants actually get caught in the pond cells.

Anyway, when we did our sampling down to 15 feet, and a lot of sampling to ten feet, virtually all of the contaminants are in the top two feet.

MR. PIERRE: Maybe I can help a little. The first part of this meeting is to talk about an Interim Action Proposed Plan for the sediments in the Warm Waste Pond. The second part of tonight's meeting is to talk about a Remedial Investigation Feasibility Study for the

perched aquifer, which in part is contaminant from sediments in the Warm Waste Pond. At a later time we'll be talking to you about another Remedial Investigation Feasibility Study about the Snake River Plain Aquifer, which EPA's position is in part contaminated from the perched aquifer, which is contaminated from the sediment in the Warm Waste Pond.

So it's an integrated pattern. What we are concerned about tonight is that the sediments in the Warm Waste Pond continue to represent a loading or a continuing hazard to the perched aquifer, which represents a continuing hazard to the Snake River Plain Aquifer. So by moving the bulk or the mass or the majority of the contaminants from the sediment in the Warm Waste Pond, it no longer will represent such a hazard.

The risk calculations that were done were done for interim action purposes. For interim action we're looking at is there an immediate hazard? Are we concerned about worker safety? Are we concerned about a level that may cause immediate hazard in the future? So it's not just an intermediate hazard today.

The other aspects of the sediment removal, which is a benefit that we get from what we're proposing is that we're removing future sources of contamination to the Snake River Aquifer. And to get there, it goes

through the perched aquifer.

So, yes, there are a large amount of contaminated sediments that are bound. The extent, though, how much they are bound, well, they're not bound permanently, because it's in the perched aquifer, as far as we're concerned, and we believe some of those contaminants are in the Snake River Plain Aquifer.

The bottom line, though, is that part of this is one piece of an entire picture which we hope to talk to you about in September, which is part of the interagency agreement in the action plan of how the ten Waste Area Groups at INEL and how five or six operable units in each of those Waste Area Groups are going to be managed so that we come to a conclusion of addressing all environmental cleanup problems from past activities before the year 2001.

So it's part of a big picture, and what we're talking about right now is here's these little sediments and what are we going to do about them? But we are concerned about those sediments affecting the perched aquifer and we're concerned about the perched aquifer affecting the Snake River Plain.

MS. MARSH: May I simplify my question?

MR. PIERRE: Sure.

MS. MARSH: I thank you for that. My question,

is it being monitored all the way down to the aquifer, and what is the means of monitoring it and who is doing the testing, what agency or agencies by name, please?

MR. PIERRE: The Perched Acquifer and the Snake River Plain Aquifer are being monitored by the Department of Energy's consultants, and part of that requirement is under the Interagency Agreement, which we hope to talk to you about again in September.

So DOE's contractors are doing the work, DOE is monitoring, the EPA is monitoring DOE. The State is monitoring DOE, and you are monitoring DOE.

MS. WELLES: Are there any other questions on the content of the presentation? Sir? Your name for the record?

MR. TURNER: Roger Turner. Just while we're on that topic, I just have one question: On the contaminants in the water from the Warm Waste Pond containing low levels of radioactivity, and this water passes through the sediment, potentially leaching into the underlying groundwater. I understand how that's going to be put aside at the next phase, but are the alternatives you're discussing today, including, I assume you won't be able to dump that water into the Warm Waste Pond while you're cleaning it up, so do the costs of the altnernative include - - do the costs of the alternatives include

building a new line, pond while you are cleaning up the sediment or the alternatives - -

MS. WELLES: Is that a question regarding the presentation?

MR. BAUMER: To answer the question, a new Warm Waste Pond will be built, hopefully next summer, and is now being paid for out of environmental restoration's budget. That comes out of the Test Reactor Facility's budget.

MR. PIERRE: Andy, the other part of that is that there are technologies that can remove those contaminants and continue using the Warm Waste Pond. What we're trying to do is remove the bulk of the contaminated soil, and that can be done - - dredging is one technique, for example - - and the Warm Waste Pond can remain in service. Although, there is a concern about the Perched Aquifer, and that's the latter part of this evening's meeting.

MR. BAUMER: In addition, the pond is composed of three cells, and one hasn't been used for, I don't know, something like 15 or 20 years. So you could move through the three cells and, you know, start with the dry one.

MS. WELLES: Other questions specifically on the presentation you just heard?

MR. WIGGERS: I just need a clarification. My name is Gene Wiggers, and when you talk about water, are you talking about plain water as we know it, or does that include heavy water?

MR. BAUMER: No, the water is from the cooling systems at the Test Reactor Area. It contains minor amounts of radioactive constituents, but it's not heavy water.

MS. WELLES: Are there other questions on the presentation?

MS. MARSH: One more - - Barbara Marsh. Who did the research of the health - - your health research? You mentioned which ones would have effects on what individual. Who did that research by agency name, please?

MR. BAUMER: EG&G did that for DOE, and that was provided to the other agencies for their review.

MS. MARSH: Were there doctor scientists involved?

MR. PIERRE: Are you talking about the risk assessment? The risk assessment is done by using scenarios, standard scenarios and default numbers. Those numbers are provided both from EPA guidance and, yes, we do have medical professionals. We talked to quite a large number of Ph.D risk assessors through our headquarters at EPA in D.C., the headquarter's office, this

is national guidance, the numbers and equations that were used. So it was not done on an actual epidemiological study. It was done based on theoretical, what's called a reasonably maximum exposed individual. So it's an assumed number which EPA believes is a conservative way, but a necessarily protective way of determining what cleanup levels should be applied.

It is the same process that is used for private industry, and EPA's belief is that the government and private industry should be subject to the same standards of cleanup.

MS. WELLES: Okay, are there any other questions, or are we ready to move to the cards you handed in? It looks like we are.

Lisa?

MS. GREEN: Andy, here's a question for you. Can the cesium and cobalt radionuclides be separated?

MR. BAUMER: Separated from each other or separated from the soil? I'm assuming we care about separating them from the soil. We're doing tests right now to determine the effectiveness of that separation but, yes, they can be. They can be separated from the soil. I don't know if you said can they be separated from the soil or from each other.

MS. BRAILSFORD: For your testing, the

feasibility of what?

MR. BAUMER: Well, the feasibility study is focused toward the cesium, but we're evaluating the removal of both cesium and cobalt from the sediments.

MS. BRAILSFORD: You're only certain you can separate out cesium?

MR. BAUMER: No, they have a tendency to go together.

MS. WELLES: Do you have a follow-up question on that, or is it a different question?

AUDIENCE MEMBER: It's a different question. The cost of storing these radionuclides after they're separated from the soil, I assume you evaluated them and make them into a solid, is that what you're doing?

MR. BAUMER: And I don't know if evaporation would be a separate technology, but if they were in contained liquid, they would be stabilized or something along those lines.

AUDIENCE MEMBER: Do you figure the cost is going to be less if you contain these together, or if you separate them?

MR. BAUMER: I think the process is going to work - - they're going to come out together, and we're not going to have any choice in separating them out.

From our standpoint, we might as well take

them all out together, because that reduces the external exposure scenario more efficiently, and since the cobalt decays, if we can get the cobalt and the cesium, we're in better shape than if we just got the cesium.

AUDIENCE MEMBER: Do you figure the cost of storing these together is going to be the same as it is - -

MR. BAUMER: From one of them? Yes - - oh, we needed her name, please?

MS. WELLES: Oh. Ma'am, we didn't get your name.

MS. FLAGLER: Julie Flagler.

MS. WELLES: Could you spell that?

MS. FLAGLER: It's like the American flag plus l-e-r.

MS. WELLES: Thank you.

MR. PIERRE: I'll just answer a couple of questions I have.

The risk assessment was based on the individual at the boundary of the operable unit. Will cleanup workers be closer for any of the alternatives?

As Andy mentioned, the alternative to each of them can be designed to meet the as low as reasonably achievable goals of the Department of Energy. If you were trying to put a cap down, depending on the type of a cap, there are caps that employ flexible memory and

liners, and that is a manual operation. So that is one possibility of being closed, but again, these are engineering considerations and each of the alternatives could be designed to achieve the ALARA goals of DOE.

What is a treatability study is another question.

A treatability study is when you have a technology that you believe works, but you have not seen it work given specific site conditions. Extraction of metals, extraction of inorganics out of soil is a technology that's been employed for many many years. It's mining technology. Will it work specifically at the Warm Waste Pond? Will it be effective is something that would be explored in the feasibility study, but the basic premise is understood and believed to work, but the actual application has not been tested.

Dave, maybe you would answer a question.

MR. HOVLAND: We have a question back there first.

MS. BRAILSFORD: Can you give me a one to ten on what your level of confidence that this feasibility study or pilot plan will work out or alternative courses?

MR. PIERRE: Eight.

MS. BRAILSFORD: Eight out of ten?

MR. PIERRE: I'm fairly confident that the

system will work. The real issues are going to be how much. Whether or not it becomes cost effective in terms of what the ultimate volume reduction is. The larger the volume reduction, obviously, the more effective and significant to the system. What we're trying to do is reduce what may be as many as 100,000 drums that need to be disposed of to something much more manageable. If we are very very efficient, maybe that can be a miniscule amount of the thing. If it's still close to the original number, then we haven't achieved the goals of volume reduction.

Another thing that came up, just to touch on it Andy mentioned, and that concerns the storage time. The State's position right now, and I believe EPA's position, also, is that storage of this material awaiting final remedial action is not going to be a very long process. There are a number of other activities at the radioactive waste management complex that we'll be bringing before you for decision purposes which will answer questions of the ultimate fate of radioactive waste at INEL. And we hope to bring those before you within the next year or two. So what's really being stated here is that rather than try to make that decision on this interim action, let's wait for the real issues at the Radioactive Waste Management Complex and

answer those then, so we don't expect this issue to be festering for very long.

MS. BRAILSFORD: I have to follow up. Am I to infer from what you just said that RWMC would be used as a disposal facility?

MR. PIERRE: No, I did not. What I stated is that the ultimate fate of radioactive waste residuals at INEL is an issue that is best addressed at the radioactive waste management complex, because it has, by far, the vast majority of the radioactive waste at the INEL.

MR. HOVLAND: I think that leads into the next question. It says: Explain the State's condition to approval of the pond plan. And, again, that condition is under State Acceptance on Page 9.

And in essence what it's saying is the State is - - their position on this is that if the low level waste generated by this chemical extraction is performed, then until there's a final repository for this waste, we want to make sure that it can be visually inspected.

MS. WELLES: Is there a follow-up for that?

MS. BRAILSFORD: So it wouldn't be - - so when you say visually monitored, you're not talking about - -

MS. WELLES: The Court Reporter is not able to

hear you. It would be helpful if you could come forward. I'm sorry to have to ask you to do that, but she needs to get that in the record.

MS. BRAILSFORD: Have you seen a visual monitoring technique? Like right now DOE is resisting some changes to RCRA, so that DOE is not - - I have to start this all over.

MR. HOVLAND: Go ahead.

MS. BRAILSFORD: Are these drums, the drums that we finally get out of the Warm Waste Pond, are they going to be in a dense pack at RWMC, or when the State requires visual monitoring, are you thinking of, you know, aisles between them and shielding?

MR. HOVLAND: Again, the visual monitoring aspect of it is so that we can see it. And the idea is that the RCRA issues are handled in another part of the State, another group, the compliance section. I'm not specifically involved in that, however, I can certainly give you a contact. I'm sure you know who he is.

MR. PIERRE: I can add a little bit to that. The dense pack is used as their support building for the purposes of providing a buffer. You have the higher contaminated waste, which are in the middle of the container. You also have to look at what your storage availability is. Where these containers would be stored

or maintained for the short duration until other decisions are made at INEL really has not been decided. In large part it's going to depend on what the efficiency of the process is, what the results of the capability study is. We're talking 100 drums. It's a lot easier to maintain 100 drums, even at the Test Reactor Area. If you're talking about 100,000 drums, you're not going to be able to put it in the existing capacity, if you're talking about building capacity. The treatability study will provide the types of numbers which will help determine where these containers would be stored.

Also, the timing of other projects will determine whether or not there is a storage time at all or whether a decision for other waste management activities will have been made and so determined the fate of these residual containers. So it's part of an integrated goal we're trying to achieve at INEL.

MS. GREEN: Andy's got quite a stack of cards there. Do you want to tackle two of them?

MR. BAUMER: Okay. Were environmental concerns based on any observed injuries, or were they on perceived risks to health?

As Wayne stated, those are based on EPA established scenarios, standards, et cetera, and are potential risks, calculated risks, rather than actual

risks.

What specific activities at TRA produced the waste still going to TRA Warm Waste Pond?

The water going into the Warm Waste Pond is reactor cooling water, as far as I know, and contains minor amounts of radionuclides.

MS. GREEN: I've got a question here. Can the people have access to technical reports on how the evaporation pond will take the uncontrolled to a controlled situation?

We have - - the information that was used on which to base this remedy selection, proposed remedy selection, has been placed in the administrative record. file. And the public does have access to that information. And Mike is holding up an example of that specific administrative record file for this project. We have it here if you would like to look through it following the meeting. They are available - - Reuel, correct me if I'm wrong. They are available in the information repository in several cities in the State.

MS. SMITH: That's right, each of the city libraries in Idaho Falls, Pocatello, Twin Falls, Boise and Moscow have the same copy he just held up. Beatrice was just telling me that the one in Pocatello, she wasn't able to find. So I'll check into that before we leave

town.

But the INEL Pocatello office has a copy in their office.

MS. GREEN: Let me take another question here: Where does the chemical extraction separation take place? And it's - - I can't read one of the words on there - - oh, chemical extraction physical separation take place? And it would be the treatment remedy would be developed in the vicinity of the TRA area.

MR. PIERRE: I'll take a couple. One is if the concentration of contaminant dropped 90 percent, does the risk?

The risk equation - - the short answer is yes, you do reduce the risk to the concentration.

Another one will be - - this is kind of related: What will be below regulatory concern?

Regulatory concern probably is not the appropriate term. What we're talking about is threshhold or risk levels. We all live with risk every day. We breathe air, live in homes, drive cars, et cetera. The National Contingency Plan, which was proposed or finally submitted in the Federal Register of March 8, 1990, identifies a risk range of ten to the minus four to ten to the minus six for carcinogenic effects. That is not death. That is the increased incident of cancer

in one in 10,000 to one in one million.

That is what EPA looks at for determining risk. The Department of Energy, under executive order, is the lead agency with the Federal Government for conducting Superfund cleanups on its property. So the Department of Energy is required to comply with the National Contingency Plan which is what EPA follows in determining what is acceptable risk.

The cleanup that is being proposed would reduce the risk to within the range that would be an EPA published position acceptable.

MS. GREEN: Andy, do you want to take two more?

MR. BAUMER: Sure. When is the TRA evaporation pond scheduled to be finished?

It's been scheduled to be finished for several years now. They now have the air permit, though, and are waiting on NEPA, NEPA documentation. And due to the materials that it's constructed of, the hypolon or the plastic, it can only be constructed, the actual lining can only be put in in a couple of months, because I think it's something like the night time temperature can't go below 50 degrees. So I think they're shooting for mid-summer next year to complete the pond.

MS. GREEN: I just got a new question. I'd

like to read it, because I think you just answered it: If the Warm Waste Pond is currently still in use, how long will it continue, regardless of the cleanup method chosen? What precautions are or will be taken to prevent this from happening in the future?

And I think that Andy's answered that.

MR. BAUMER: Please describe the processes involved in Alternative 4, which is the recommended alternative. First thing they would do is take a big machine of some sort and take up the dirt, dump it in the back end of a screening plant, as it's called, which shakes the dirt and has a series of different-sized screens on it and allows the sand and the smaller stuff to go through. Then it would probably go to something like a hydrocyclone or something along those lines, which uses water or air to separate the silt and clay-sized particles from the sand particles. That's the physical separation front end. Then it goes into some kind of processing unit, which uses an acid probably to - - what happens is that the contaminants are actually replaced by hydrogen atoms from the acid, and so the contaminants are stripped off of the sediments, and they go out in the fluid. The fluid is then treated with something like ion exchange or distillation, such that to get rid of the liquid.

And then you have a concentrated residual, which has to be treated to whatever standards are applicable, certainly if there's any liquid it would have to be dried out and more than likely would have to be stabilized so nothing could leach out of it.

MS. BRAILSFORD: So you would be building a new facility to do this rather than using the Chem Plant?

MR. BAUMER: Yes, ma'am.

AUDIENCE MEMBER: Why wouldn't you use the Chem Plant?

MR. BAUMER: Do they do that kind of thing?

MR. GREENWELL: Yeah, but the process is considerably different as far as the form the waste is in.

MR. BAUMER: This is Doug Greenwell.

MR. GREENWELL: The form the waste is in when it is brought into the Chem Plant is considerably different than the soil matrix.

AUDIENCE MEMBER: Yeah, but it's in solution.

MR. GREENWELL: Actually the solution part, you're probably talking about an evaporation process or something simple to just get the liquid phase removed from the particulants that remain. So it really doesn't have to be as complicated a process as they use in the Chem Plant operation.

What we're talking about as far as a plant is really a rather small operation. I don't want to give the impression of a new facility being constructed at the INEL. That's not quite the scale of an operation you're talking about.

MR. BAUMER: We're talking about something that would fit on a couple of flatbed truck-trailers, although it would probably be in a temporary building.

MR. PIERRE: Andy, why don't you describe what the flow-through on that proposed treatment unit. That may give an image of scale.

MR. BAUMER: I think as envisioned at this point, as I said, we're still doing the testing to determine the exact flow through, but I think the current design is based on a feed into the screening plant of something like five to ten tons per hour, which gets reduced to the chemical side on the order of one to two tons, you know, based upon the volume reduction due to physical separation.

Beyond that, we're going to get into over my head.

Why don't we do one more here: It is assumed that none of the alternatives have significant operating expenses. How long will the residuals be stored at the INEL?

I hope that one got answered earlier with the discussion on the storage.

MS. BRAILSFORD: No.

MR. BAUMER: No, it's how long would they be stored? Well that would be decided in the final Record of Decision or RIFS that they were describing earlier.

MS. BRAILSFORD: So the answer is the Department of Energy doesn't know?

MR. PIERRE: I'm sorry, could you - - I was talking to Lisa at the time.

MR. BAUMER: How long would the residuals be stored?

MR. PIERRE: And the answer is that none of us know, but we could state that we hope to come before you probably a year, maybe a few months from now, on an issue at the subsurface disposal area that we would hope would resolve ultimate fate for many of the residual wastes at the INEL. And we would expect that the implementation of the treatability study for the design and construction of the treatment plant at TRA would be done within the next month - - year and a half, I should say. So what we're talking about is before the treatment plant is ever built, we would hope to have a decision on ultimate fate of residual radioactive waste at the INEL.

So the anwer could be it won't be stored at

all, but we don't have an answer on that. Part of it would be we need your comments when we come to you a year from now.

MS. WELLES: In order to get a better feel for the level of technical detail that we need to be giving you, can I just have a show of hands that describe how many people in the audience are working on the project at this point in time? We know these people up front are, but - - okay, and the second question was how many of the citizens in this room are working currently with agencies?

AUDIENCE MEMBER: What do you mean agencies?

MS. WELLES: Lisa, can you help me with this? Okay, that was a question for clarification. We have a question back there at the end of the room.

MS. ROSS: I do. Isn't it true that the United States doesn't right now have a low level waste repository?

MS. WELLES: Okay, and I'm not sure I caught your name.

MS. ROSS: I'm Claire Ross.

MS. GREEN: There are several low level waste repositories in the United States. Several of them are for commercial low level waste, and DOE operates their low level waste disposal facility.

MS. ROSS: Where is that?

MS. GREEN: Pardon?

MS. ROSS: Where is that?

MS. GREEN: There is a low level waste disposal site at the INEL.

MS. ROSS: That's not permanent, though. That's a storage area.

MS. GREEN: There is a low level waste disposal site at the INEL. There are transuranic wastes stored, also, at the INEL, which generically have been called low level wastes in the media.

MR. PIERRE: There is also a low level waste disposal at Richland at Hanford, and there's a commercial low level waste repository at Richland.

MS. ROSS: Excuse me, those that are non-commercial are not considered permanent storage, though.

MR. PIERRE: Obviously, DOE can speak for itself. I think the FDA meeting may be a better place to discuss the different types of wastes that are stored or disposed or DOE different interpretation of all those terms.

I agree with you that there has not been a decision on one repository for handling the nation's waste. That material is now being managed with different types of material, transuranic, low level, high level,

at the individual DOE facilities. And there is a disposal location at the subsurface disposal area, which is separate from the Rocky Flats waste and separate from the transuranic waste that DOE places low level waste. Low level waste to a lay person is contaminated clothing and material like that.

MS. WELLES: In the interest of making it to our next presentation, we will take a few more of the questions that we've got up here, but what I need to ask is that the panel please make sure we focus on the questions specifically related to this particular topic. We need to be able to make it to the next presentation, as well.

If you will bear with us, at the very end we can come back to some general questions. We also will have people from the agencies who will be very willing to talk with you about these issues that are general in nature at the break, which will be in just a few minutes.

MS. BRAILSFORD: Can I please ask one clarifying question, because I may not be understanding what you're doing at all. Is this low level with the residual will be low level waste and not mixed waste?

MS. WELLES: Do you want to just take that and we'll move onto the next?

MR. BAUMER: Yes, it would not be mixed waste. would treat it such that if it was potentially mixed waste, we would treat it such that it was. The problem there is that the metals, which currently the sediment is not hazardous, but when we concentrate the radionuclides, we may concentrate the metals at the same time, and concentrate them to a point where they could leach out using the test which determines if they're hazardous, but we would treat that residual so that it would not leach. Therefore, it would not be mixed waste.

MS. BRAILSFORD: But you're still going to use RCRA disposable standards?

MS. GREEN: The disposal standard that would be used would depend on what the waste, what the residuals actually ended up being at the end of the process.

I've got several questions here, and my cards are piling up faster than anybody's.

Is the tritium actually part of the water rather than a contaminant dissolved in it? That's an important facet in the remediation.

Technically, I believe that tritium is actually part of the water, yes. But tritium, because it's part of the water, it does not stay in the sediment, therefore it would be addressed in the future studies that deal with the water that has perched and percolated

through the sediments.

Does DOE have a RCRA permit for dumping the cooling water into the warm waste pond?

No RCRA permit - - that was the question. The answer is no RCRA permit is necessary because the cooling water is not a RCRA hazardous waste.

When will the EA, the Environmental Assessment on the TRA warm waste pond be available?

We anticipate that will be later this fall and have no date on that as of yet.

We'll let Dave take a couple of his questions now.

MR. HOVLAND: I've got a couple of question The first one is: What process was used to decide to clean up the TRA Warm Waste Pond before the RWMC, and who was involved?

The process is CERCLA. It follows the National Contingency Plan. There is a bias for action built into that. The idea was that this is an early action. There was enough information to make a decision at this point to again move this from an uncontrolled to a controlled situation. The interest in the actual group or people who are involved in deciding on this was developed by DOE, EPA and the State of Idaho. And the idea was a schedule was developed under the action

plan, the Interagency Agreement, which identified areas which could be cleaned up fairly quickly in the process and not wait too long down the line to do these. The RWMC is a much more complex site, and I suppose you're referring to the subsurface disposal area, and there is enough questions there where it's going to take more study and a lot more effort to clean up that site.

MR. PIERRE: But we do plan to come to you on a number of proposals within the next year, and some of them will be on Radioactive Waste Management Complex. So this really comes down to how long will it take to clean up INEL, and we are trying to schedule that we think will get INEL results by the year 2001 and the radioactive complex is a major part of that, and there will be a number of meetings on that in the next calendar year.

MR. HOVLAND: The next question, there's a couple of them on one card here. It says: Does the State want to see an EIS on the perched water cleanup, and it also says, does the State want to see an EIS on the pond cleanup?

Basically, the State of Idaho wants to pursue cleanup under the Interagency Agreement. The colleague that I mentioned earlier, Dean Nygard, is our specialist on not only State air ARARs, but also NEPA and other

overall consistent procedures at the INEL, as far as the State is concerned. His address is listed on Page of the Proposed Plan. If anybody would like anymore information from members or contacts, I can provide those at the break.

MS. GREEN: Andy, do you want to address two more?

MR. BAUMER: Sure: What matrix would be used in stabilization?

We would, as I said, we would have to do a pilot scale on that. But the ones that are commonly used are Portland Cement, fly ash, things like that, combinations of various percentages, cement versus soil things like that.

Is transportation of the treatment chemicals to the site included in the risk assessment for chemical extraction?

The risk assessment is on the pond itself, and the three scenarios that were evaluated were the ones that I discussed.

The risk assessment was based on samples from '88. Why were no new samples taken? How many total samples is the risk assessment based on?

The risk assessment was started prior to the 1990 sampling being available, and it, basically, says

the same thing as the '88 data. The total number of samples is on the order of - - well, the '88 sampling was 18 locations at at least five steps, so that's about 100 samples. And the 1990 sampling was 13 locations, two depths. So that's about 125 samples, something like that.

MR. HOVLAND: I have a question here. I think it says: Please contrast, and it gives two quotes out of the Proposed Plan, is that correct? Okay.

The first comes from Page 4. It says, "The agencies recognize adequate data exists and the technology is available to start cleanup activities at the Site."

And then it goes on to Page 10 to say: "If unsuccessful, is recommended Alternative 2, capping, implemented."

The idea here is, as Wayne mentioned, there is an eight out of ten chance the treatability study will prove to be a viable option - -

MR. PIERRE: In my opinion. I could be wrong. That was my professional opinion.

MR. HOVLAND: Well, anyway it's a probability. There is another part of that. There's a part that says it wouldn't be successful, and the idea is there are several options available, and the next best choice would be this Alternative 2. So I think that's what it's

saying, there is a back-up plan on this.

MS. WELLES: Anymore questions on the cards? Okay, at this point what we would like to do is to, if there are no other questions on cards, you do have one more question, and why don't you go ahead and ask it. I need to tell you if you need to ask a question this is not the time yet to make statements. Do you have a question?

MS. MARSH: I have a question, a quick question.

MS. WELLES: Okay, fire away.

MS. MARSH: Vitrification, if that is the alternative chosen, assuming that all radioactive particles either travel in alpha beta or gamma rays, if it is frozen in time through the melt process, would that contain all of the hazardous rays or particles stemming out from this?

MR. GREENWELL: I don't proclaim to be an expert on vitrification, but gamma radiation is, I guess, best described as a ray. And it would not be completely stopped by vitrified glass substance. A portion, a percentage of that energy would be absorbed, but not the entire amount of energy. Gamma rays can penetrate concrete and lead, depending on their strength. But I'm just saying it would not guarantee that the.

gamma ray radiation would be fully contained.

MR. PIERRE: Doug, a couple of things. Vitrification is not one of the alternatives looked at tonight for the Proposed Plan. Number two, as you know, the in situ, you don't just melt away soils, you also melt away surrounding soils, so it would depend on the gamma rays whether we get alpha. It also depends on what the concentration, as far as the overall risk.

But on control, not remedy, does represent a risk right now, a risk that the agencies feel is unacceptable and needs interim action.

MS. WELLES: At this time we're going to take a ten-minute break - - one more question.

MR. PIERRE: On a scale of one to ten, can you rate vitrification?

Vitrification is a technique that EPA believes can be used for mixed waste facility. There are still problems with the melting. One has been keeping track of vitrification at INEL or Hanford, those at least with the fabric covers, they catch on fire, number one.

Number two, they're still concerned about volatile loss. So you have organic loss that may occur in the vitrification process, so I would say if you're eliminating cost, will vitrification work for inorganics, yes, it will work and probably eight-nine would be my

scale on that. Will it work in perpetuity? No, that's not known. That's why, as far as I know, no one has made a decision yet on whether vitrification is the - - or glassification is a permanent solution for radionuclides for flammable waste management.

Vitrification is an expensive process. It may be a solution or needed solution at other locations at the INEL waste management complex. It may come into play in the final management of residuals, but what we're talking about right now is that we have a hazard with sediments in the Warm Waste Pond at the Test Reactor Area at the Idaho National Engineering Laboratory. We need to do something about it. Leaving it in place does not work. Trying to vitrify and put water in at the same time is technically infeasible, so we need to get that material out.

If we're going to get it out, it makes sense to reduce the volume. Managing 100,000 drums is a heck of a lot harder to manage than 100 to 1,000 or something around that.

MS. WELLES: We will take a break. When we return from the break, we'll have a short presentation on the perched water. After that presentation is completed - - well, there's a question about when you will be able to make comments on the warm waste, and let

me just clarify. There are three people who indicated they wanted to make formal comments. Do any of you wish to make formal comments on the warm waste pond, or would you prefer to wait until after you've heard the second presentation and make them at that point?

I think that the second presentation, after you listen to it, has a lot of information and may clarify some questions. And it may impact the testimony you would care to make.

May we have a show of hands how many people would like to make comments specifically directed to the warm waste pond, Proposed Plan? Then at this point you are more than welcome to begin that, and afterward -- may I see if there's anybody else who wants to make a statement on that particular issue? Okay.

If you would like to just go ahead, let me tell you that you're welcome to take up to five minutes to do that, and I'll help you by letting you know when you have one minute left.

MS. MARSH: I'll make it quick. Based upon the overview that was given and the input from other individuals here, I have a tendency to agree with the EPA in that it must be removed from the ground in some manner, some form and stored in proper shielded containers.

That's about it.

MS. WELLES: Any further comments? The way comments work is that no response is given from the agency, because they wanted to hear your comments, and that was the purpose of it.

If there are no further questions on that, let's take a break and come back in ten minutes.

(A brief recess was taken.)

MS. WELLES: The next presentation you will hear will be on scoping for perched water beneath the Test Reactor Area. The Perched Water Project is not as far along in its development as the Warm Waste Pond In fact, DOE is still developing a list of alternatives for cleanup and control of the perched water. Once a remedy is selected for this operable unit, if it is determined that an EIS will need to be prepared, DOE has asked me to let you know three things: The EIS scoping will be formally done and reopened at that time. All comments made tonight on perched water will be considered as part of that EIS scoping process, should an EIS be deemed necessary at a future point, as well as the comments that you make tonight will be used as DOE moves forward in considering the most appropriate remedy for the perched water site in the coming months.

Again I'd like to say that we'll use the same process for asking questions. The first question that we'll take will be just point of clarification for Nolan, and the second set of questions will be ones you write on your note cards and hand to the panel, the panel will parcel out the questions and address them for you.

Now I'd like to call on Nolan Jensen, who is sitting right next to me, as the Waste Area Group 2 Manager of DOE Idaho.

MR. JENSEN: The second topic for tonight is another study at the Test Reactor Area. It's called a Perched Water Site, and in this case we're going to back up quite a bit and look more at the big picture. Where the project that Andy talked about, the Warm Waste Pond is right at the decision stage, we've actually proposed a remedy. In the case of the Perched Water Study, we're just now starting to formulate the alternatives that we think should be evaluated to clean up.

So tonight, the objective of this part of the meeting are to get your input on where you think this study should go. What are the things you think should be considered, both in the way of the Study itself and because there's another law that is - - comes into play here, The National Environmental Policy Act or NEPA,

and that requires us for federal actions to evaluate environmental impacts of our actions.

So we would like to have our input on what environmental impacts you think should be considered. Should, for example, an Environmental Impact Statement be required or in any case.

Now, again, to talk about the big picture, where does the Perched Water Study fit into the INEL project as a whole? The INEL, and as we mentioned earlier, the State EPA and DOE are just at the point of finalizing an agreement under the Superfund Law for studying and cleaning up the entire INEL. But the INEL is a big place, as you all know, and so in order to focus the studies and do it efficiently, we have broken up the work into manageable-sized pieces.

The first breakdown of that is called Waste Area Groups. There are ten Waste Area Groups at the INEL. Test Reactor Area is one of those Waste Area Groups, but Test Reactor Area is still a pretty good-sized chunk of work. So we've broken that further into bite-sized - - we call them bite-sized or smaller pieces called operable units. And there's nothing magical about those names. It's just a way to manage the work efficiently, and both the Warm Waste Pond project tha Andy talked about and this Perched Water Study, which I

will talk about, are two of the 13 operable units at the Test Reactor Area.

Let's talk a little bit about what is perched water. As Andy discussed, the Warm Waste Pond is one of several disposal ponds at the Test Reactor Area where industrial waste water has been disposed of over the last 40 years. And as that water goes into these ponds, some of it evaporates. A lot of it seeps into the ground.

Beneath the ground, down in the subsurface there are different layers of soil. Some of those may be clays, for example, which are relatively impermeable. At least enough so that it impedes the downward progress of that water, and impedes it enough that it forms a perched water body on its way down. The perched water below the Test Reactor Area - - well, before I try to explain that, let's go to the next couple of slides and it will make it clearer.

Again, this is the Test Reactor Area, and as Andy pointed out earlier, there are a number of waste water disposal ponds, as I'm pointing to them. And each of these have had industrial waste water disposed over a number of years. Now if we took a slice through one of those ponds, a vertical slice, this is a diagram that tries to explain what it might look like in the sub-surface. Now, of course, this isn't exactly to scale,

but it shows a pond at the surface, the water can seep down through the bottom of the pond, until it reaches one of these clay layers, which impedes its flow somewhat enough to create a perched water body.

In the case of below TRA, there are two layers in the subsurface which has caused this to happen. The first one is about 40 to 50 feet deep. This one is about 150 feet deep. The Snake River Plain Aquifer is about 450 feet deep, the top of it. So there are about 300 feet between the bottom of the first water body and the aquifer.

Now over the years, as this water has gone through the subsurface, this contaminated water - - it is contaminated water. We do know now that there is contamination in these perched water bodies, as well as in the aquifer. We also know it's not a tremendous amount of contamination, but in some ways it is above drinking water standards. It's important to note, like Andy said, this is over a long period of time. Things have been done to take the contamination out of the water that's going, and like he said, the one waste pond is going to be replaced.

But nonetheless, we do know there is contamination down there, and the obvious problem is we don't want that contamination to have a significant

impact on the Snake River Plain Aquifer. So that is what the study is all about.

This is just a diagram of the Test Reactor Area again. This is the one waste pond right there, and this blue line outlines the outside boundary of the perched water body. It's about a half mile across and a little bit less than a mile in length.

MS. BRAILSFORD: Is that the first layer down or the second layer?

MR. JENSEN: That is the second layer. The lower one is actually the bigger one, but the upper one, I believe, is actually little bodies under each pond pretty much.

Now I would like to talk to you just for a minute about the general cleanup decision process, the study process. Andy opened his talk with a little bit of an explanation, but under the Superfund Law, the study process is called the Remedial Investigation Feasibility Study. That has two main parts. One part is the remedial investigation, has three general goals. The first of that is to identify what contamination there is, also to find out what the extent of that contamination is, and then the last part of that is to do the risk assessment or to find out what effects that contamination could have on human health or the

environment.

The other part of the Study, the Feasibility Study, is to try to develop the alternatives which would be used to clean up the contamination. It's an interactive process. That's why the arrows go back and forth, because, of course, the remedial investigation determines what needs to be cleaned up, and the Feasibility Study determines different alternatives which could, for example, if I want to test an alternative, then I might do a treatability investigation, like we talked about with the Warm Waste Pond on the pilot scale.

But the ultimate goal then is to go through the study and come up with a plan for cleanup. Now Andy's project that he talked about is at this stage, proposed plan stage. These triangles represent public meetings. This is the one that we're doing in the case of Andy's project, so for the first perched water investigation, we're just getting started on developing alternatives. So even though we're doing the meetings at the same time tonight, they have a different purpose.

So as we come up with alternatives, as we start to develop alternatives, we went through the nine criteria under the Superfund Law that are used to evaluate the alternatives, so we can choose the best alternative for the cleanup. And as Andy went through

each of these, I won't go through them individually again, but as you comment, recognize that alternatives that you might suggest will be evaluated against these nine criteria, and that is how we will decide which one ultimately will be used.

One point to make is that the top two criteria are called threshold criteria. Any alternative that is even considered must meet those two criteria. Those are the bare minimum, if you will.

Now we've just started to put together, brainstorm some of the alternatives we might use to clean up the perched water. In general, the first one we could take the perched water, drill some wells, pump the water out of the ground and then treat it to take the contaminants out. Another possibility might be once it's pumped out, put it into an evaporation pond and evaporate the water off and collect the contaminated residue.

Another is we could manage the water differently, like Andy has said, the Warm Waste Pond itself is going to be replaced. Perhaps there are other things that could be done to effect a cleanup in those ways.

The next to the last one, institutional control, there are several ways, perhaps, that access to

the perched water could be restricted to prevent harm from happening to human health or the environment. Maybe we could put up a fence or restrict drilling of wells, whatever. Those types of things are institutional controls.

And then, of course, we will consider the no action alternative. It could turn out that the perched water body doesn't need to be cleaned up. In that case, it's a viable alternative. Otherwise, it would be used for comparison to compare the other alternatives to it to see how much each one of those would reduce the risk.

So again, to summarize. What we're doing tonight for this part of the meeting is since we are starting to now look at different alternatives for cleaning up the perched water, if there are things you think are important, either in the way the study should be conducted, as far as environmental impacts you feel should be considered, we'd like to have your input on that.

And in order for us to best utilize that, we'd like it by September 10th, because then it would best fit into the process and the schedule that we have, but, of course, comments are always welcome.

MS. WELLES: Thanks, Nolan. Could we have

the lights, please? The Court Reporter has told me that she's having a hard time hearing people in the audience, and I've also been told people toward the back are having a hard time hearing people as they speaker closer to the front. So we're going to have to use the microphone. I had hoped they could be left off, but we need to use them. So maybe you can help us with the mike. Does anybody have a question of clarification, anything in Nolan's presentation you specifically want to ask him? Okay, there's somebody behind me I understand has a question. Can you come up to the mike and let us know who you are? Meanwhile, if anybody has any cards, Mike is going to be picking them up in the aisle.

MR. VESSER: Yes, my name is Bob Vesser. I have a few questions on this presentation. The word contaminated risk, significant impact. I think perhaps these words ought to be defined, and I wonder if - - apparently he's putting away his projector. We talked about how close the drinking water wells are to the perched site, and how many of them are below drinking water standards and where the actual center of the work in the course, closest communities might be affected by such wells.

MR. JENSEN: By the way, we have a couple of other people who are working on this project. Don Vernon,

right here in the front is the contractor project manager on the Site. Right now the well that the Test Reactor Area which pumps water for the facility or the employees to drink, for example, that water is clean. It's upgradient.

MR. VESSER: We're down to the aquifer you mean.

MR. JENSEN: Right, those are aquifer water wells, and let's see, what was that?

MS. GREEN: It's upgradient.

MR. JENSEN: Right, it's upgradient to the contamination.

MR. VESSER: I would like to follow that question up. We've seen this water leach for a period of, what, 40 years? And over that 40-year period, the drinking water standards in this area are still within -- fitting under EPA standards for human consumption.

MR. PIERRE: There was a monitoring well that had chromium above drinking water standards. We are concerned about the perched aquifer, because of the source that represents the Snake River Plain Aquifer. Frm the studies we don't believe at this time that there is information to make a decision on, and we're looking at what this perched water represents.

MS. VESSER: Again, sir, we're using the word

risk and contaminated, and the question is this: After 40 years of experience, we ought to be able to tell something about what the leach rate is, and if there is any threat to public health or employee health.

MR. PIERRE: There's a tritium plume that starts in the Test Reactor Area and goes down to the boundary of INEL. That plume, in part, was created by discharges from the Test Reactor Area.

MR. VESSER: Yes, I understand that, but that tritium plume is receding, is it not?

MR. PIERRE: Based on the data right now it appears to be receding.

MR. VESSER: That is trace levels of tritium, is it not?

MR. PIERRE: No, that's not correct. It's above.

MR. VESSER: It's not above trace levels at the boundary of the site?

MR. PIERRE: That's correct, trace levels at the boundary.

MR. VESSER: And it's not above drinking water standards on drinking water wells, is it?

MR. PIERRE: Let me just answer this one. In the National Contingency Plan, if you've had an opportunity to take a look at it, March 8, 1990 Federal Register, the

criteria for Superfund cleanup which federal agency and private parties must perform is not only whether or nc someone drinking the water today is at risk. It is also groundwater protection when you have groundwaters that are usable aquifers. And in the case of Idaho's Snake River Plain Aquifer, that are the potential sole source of drinking water supplies.

MR. VESSER: Yes, sir, but again, we're looking at the expenditure, perhaps, thousands of millions of dollars. And there's some question, I mean the amount of tritium, there's absolutely nothing can be done about that tritium, regardless of the amount of money, is that true?

MS. WELLES: Sir, the purpose of this part of the meeting is to ask very specific questions and - -

MR. VESSER: Well, I'm trying to nail these people down, ma'am, to the risks.

MS. WELLES: There will be a time for statements - -

MR. VESSER: Well, I'll sit down and give somebody else a chance.

MS. WELLES: There will be an opportunity for you to make a comment shortly.

Please come to the mike.

MR. WOOD: My name is George Wood. I'm from

Pocatello, Idaho, and I have a question about the illustration of a perched water there. What is the volume of that water? What volume are we talking about and how does that compare with the volume of water in the aquifer? Can you give it to me in such things as acre feet or something of that sort, so that we know how much water is in that perched water and how does that compare to the aquifer in a percentage, a part per million or whatever?

MR. JENSEN: Do you have that off the top of your head, Don?

I know in the case of the Snake River Aquifer, I've heard terms like there's as much water down there as in Lake Eerie. There's a lot of water. It's a significant aquifer.

MR. WOOD: But how much perched water do we have?

MR. VERNON: We're in the process of getting that detailed quantity right now. That's part of our study we're doing. There's been some preliminary estimates like, what, 500 million gallons? They're large volumes, but the problem with the perched water, like the first guy said, it's moving through, it changes shape and size, depending on where you're at at the time, how much water is being discharged.

MR. JENSEN: The perched water is a manmade body of water. It comes from the disposal of the pon You know, you could do a rough calculation like on the slides. It's about, you know, half a mile by a mile, but that's real general, obviously.

MR. VERNON: But it's early in the process. That's the key point. We will determine that as we go into writing documents for this.

MR. JENSEN: Like the other gentleman said, this has been studied for awhile, and there are those who have a much better feel for that than I do and probably think they know what's there pretty well.

AUDIENCE MEMBER: Will you get the dilutio rate when you finally get through comparing these perched ponds with the whole aquifer?

MR. PIERRE: One of the things that is being developed as part of the Remedial Investigation Feasibility Study is a model which we'll look at what's called the loading or the potential for contamination in the Snake River Aquifer and make a decision on whether or not it does represent something that needs to be addressed or doesn't need to be addressed. We are not here to say we have a problem in the perched aquifer, and we need to do something about it. We are here to to say that we are investigating the perched aquifer to

determine whether or not remedial action is worthwhile. We are here today to say we are investigating the time it would take for the perched aquifer to dry up if it no longer has a source going into it.

So what we're asking for is your patience and a little bit of time to get this information, but we're telling you what we plan to do. We can't tell you what the answers are, because we don't have them.

MS. WELLES: Okay, it looks like we're ready to take questions from the cards. Lisa?

MR. JENSEN: I've got one here. It says: What contaminants are in the perched water? Are contaminants more concentrated in the upper or lower level?

You want to field that one? You probably would be more accurate.

MR. VERNON: The contaminants, you know, are distributed widely. There's no real concentration gradient per se. But again, you know, we've got a set of - - we've got all this historical data for 40 years. We'll be assessing that. We completed last January, February and March another detailed sampling analysis, gave us another set of information to determine what the concentrations of the contaminants really are.

We mentioned earlier we're above the drinking water standards in some locations. Other wells are not,

so these bodies aren't consistent like a flowing aquifer like we have in the Snake River Aquifer. You don't see concentrations that are all over and vastly spread. They do change by location and a lot of it in how close are the wells to the various ponds.

MR. JENSEN: Like the fact sheet says, two of the ones we know we're concerned with are chromium and tritium. At this point those are two we know we need to look at carefully.

MS. WELLES: Again, this needs to be in the form of a question.

MS. BRAILSFORD: Are the contaminants, is it like the pond that there are more contaminants at the bottom of the body of perched water, or is it in the, you know, the top level of perched water as it seeps down to the second level, presumably leaves some of its contaminants on top of the clay at the bottom of the first level?

MR. VERNON: We took some samples from some of the clay layers, and we didn't really see a concentration across them. So it appears the water, which is a well, you have a certain distinct interval injection sample, so those points, and some are higher and some are lower. We really didn't see a distinct difference in that regard.

MS. BRAILSFORD: So we are talking about cleaning up water, not cleaning up soil and water?

MR. JENSEN: Dave has a very interesting question. I'd like to know the answer.

MR. HOVLAND: I have a question that says what's the average annual rainfall in the Amazon Jungle?

MS. WELLES: That one is off point.

MR. HOVLAND: I guess I can maybe talk about this in a relative sense. If you look at the INEL area, we could be looking at, say, nine or ten inches a year. I suspect in a rain forest, you would be looking at an order of magnitude higher.

So there's the comparison. Did that answer the question?

MS. WELLES: So we need to take the next question.

MS. GREEN: Has the source of the perched water been - - this is a three-phased question, so I'll answer your questions as I can.

Has the source of the perched water been stopped?

The source of the water from the pond, as we mentioned before, is continuing to discharge to the pond at lower rates of contamination than in the past.

How long after stopping the source will the

perched water disappear?

That question is something that we will answer, attempt to get a good answer for through our investigation using this groundwater modeling effort.

And the third question is: How many other "perched water sources" are at INEL?

I don't have the exact number of perched water sources at the INEL. Perched water is present at or beneath several other percolation ponds at the INEL.

Nolan, do you have any better feel for that?

MR. JENSEN: I was just going to mention last night we had one of the scientists that worked at the INEL and has for a number of years gave a statement. And his feeling was - - and it is a manmade body, and it wouldn't take that long for it to - - I don't know how many.

MR. PIERRE: I think the answer is in that kind of a salt flow, if you have recharged basin ponds, that there's some perching condition under each of those. That's probably the easiest answer to give right now.

MR. JENSEN: This question is: Are we concerned about radionuclides or other contaminants in the perched water?

Of course we're concerned with both. Any contaminants are a concern. I mentioned two of the ones

we know are of highest concern, chromium and tritium. There have been others detected, and we'll be looking at those. They will be evaluated in the Risk Assessment when we get to that point.

What impact might come from removal of the perched water?

Well, we're hoping you could help us with that. Off the top of my head, for example, if we decided to pump a significant amount of water, put it into a tank, the tank could leak. Evaporation.

AUDIENCE MEMBER: Expense.

MS. GREEN: If we have - - that is the type of information we're specifically - - one of the types we're specifically requesting through this meeting, so we would like your input on what types of impact should be considered in this study. So fill out your forms or please stand up to the mike and enter your comments onto the record.

MS. WELLES: What I need to clarify is each person who's going to make a statement needs to keep within the five-minute timing, and if you want to come up and - -

MR. WOOD: I just have one question.

MS. WELLES: Go right ahead.

MR. WOOD: Are we concerned about the danger

to the environment, to people, to plants, to animals and so forth from this perched water? Is that the - - is that the question that we're trying to - -

MR. PIERRE: The perched water represents a source to the Snake River Aquifer, so the primary is called the exposure route. The primary exposure route we'll be looking at is the threat to the drinking water supply, Snake River Plain Aquifer.

MR. WOOD: So the perched water itself is not the problem, it is what it is going to do to the aquifer, and so the question is the volume of the aquifer versus the volume of the perched water is a valid question.

MR. PIERRE: Is a valid question, and again when we talk to you about problems, we're talking to you about the source. We'll be looking at the source and what effect it has on the receptor, so that's how the risk assessment process works. We have these contaminants at a source. One of the receptors that are affected to that, may be affected tomorrow, what is the threat to those receptors, whether it's animals, whether it's crops or people.

MS. WELLES: I think we have another response that - - you'd like to say something on that?

MR. VERNON: No.

MS. WELLES: No, okay. I didn't mean to push

that at you.

Do you have a question?

MR. VESSER: Yes, I'd like to address this to Mr. Pierre. There seems to be something that's inconsistent here, and that is is there a threat? It was mentioned the flow of pond, rapids obviously this perched water is below them. Is there a threat to - - I mean you mentioned the aquifer. Are you suggesting that this water leaching into the aquifer would present a public health threat? I mean, for 40 years it's leaked. The USGS has monitored, and it seems to me we might be overemphasizing the risk of any threat.

MR. PIERRE: If I could answer that, number one, we have not made a decision, and we are not here tonight to say there is a threat that needs to be acted on.

What we are saying is that we are looking at the potential threat that that perched zone represents to the Snake River Plain Aquifer. Yes, the aquifer is contaminated. We are not here tonight to take a look at how to address that problem. We will be here in the future to talk to you about how to address the Snake River Plain Aquifer.

Tonight what we're talking about is here is another potential source of contamination to that drinking

water body, not the top, not the floor. Here's a source of contamination to that drinking water aquifer. Should we do something about it? We don't know. We need to collect data. We're stating or asking, what type of data should we collect? What type of information do we need to make a decision on whether we do anything about the perched aquifer? We are not stating that the perched aquifer represents a nonacceptable threat to the Snake River Plain Aquifer. It represents a potential threat that needs to be studied, and that's what we're here to talk about.

MR. VESSER: Yes, sir, and I'd like to follow up on that question with another question: Are you suggesting that the volume of the Snake River Aquifer could be contaminated beyond drinking water standards with the amount of chromium salts and the amount of tritium that are reaching from these ponds?

MR. PIERRE: I'm suggesting that a volume, a volume, the Snake River - -

MR. VESSER: No, the volume is the word I used.

MR. PIERRE: That is not how the groundwater is evaluated, as I think I mentioned earlier tonight. The groundwater protection policy stated in the Super fund regulations and DOE and EPA apply, is that the goal,

the requirements are to protect groundwater resources throughout the plume of contamination anywhere in the Snake River Plain Aquifer, so that it does not exceed drinking water standards.

MR. VESSER: Yes, sir. I suggest that even an outhouse might contaminate the local groundwater, but when we're talking about a relatively barren site - -

MR. PIERRE: There are drinking water wells, for example, at TAN, which had to have a treatment system employed on them because workers were exposed, they're other wells in the area, the Test Reactor Area which have shown contamination at levels of concern in the past.

The Snake River Plain Aquifer cannot be looked at as a giant tub of water, and if I put in a drop of iodine or something in it, and it has an effect. It has to be looked at in terms of if there is a well placed in this area at some time in the future and people drink the water, will they be in danger?

MR. VESSER: Yes, sir, is this area or any area of the INEL, is there any area that is not serviced by local potable water wells with at least drinking water - -

MR. PIERRE: There are two wells at INEL - -

MR. VESSER: No doubt there are some wells in

these areas, but is any area not serviced by potable water wells?

MR. PIERRE: With the treatment system at TAN, areas are serviced by potable wells today. There's a treatment system at TAN to make the water potable, and this actually is the question that I would suggest that may be best served in September when we're talking about how all the various pieces come together. Our discussion tonight is really limited to what we need to do to have enough information to reach a decision on the perched aquifer and what effect it represents on the Snake River Plain Aquifer.

MR. VESSER: Yes, sir, and another questio The DOE, USDS and now the USEPA. I read the USEPA initial report, and they were more concerned with salt and leaching into the system from both acid and alkaline flushes, but as you look at the volume of the aquifer, and as you look at the probability of damage to the aquifer, especially that it might threaten the public health, again, you're looking at the expenditure. According to this report you're pumping this - -

MS. WELLES: Sir, we need to get your question.

MR. VESSER: Well, I'm leading to the question, ma'am. Pumping this water through processing, essent...ly

aren't you looking at secondary factors of possible - - in fact, you have human endeavors and this sort of thing causing more contamination than you're really removing in the water.

MR. PIERRE: We're not looking at any treatment technologies. We don't know treatment technology is required at this time. We're looking at understanding what's happening. This is the investigation, and we're looking at potential alternatives, but we may come to you and state that the perched aquifer does not represent an unacceptable threat. We do not know at this time. We're in the study part.

MR. VESSER: Yes, following up on that statement, has it not been in the past - -

MS. WELLES: Sir, I really need to ask you to stop. It sounds like you're making a statement, and there is going to be a time - -

MR. VESSER: Well, I'm trying to get to the bottom line. This is a considerable amount of money, ma'am.

MS. WELLES: I do understand that, and I think places in making a comment.

I see another gentleman does have a question. We will get to comments.

MR. FRESHMAN: I'm Charles Freshman, and I was

wondering, do you still have an injection well in the TRA area?

MR. JENSEN: It still exists. Nothing is being injected into it.

MR. FRESHMAN: How deep was that and did that add to the perching?

MR. JENSEN: It goes clear to the aquifer.

MR. VERNON: Currently right now that well has been capped off, and it's only used as a monitoring well. No waste has been put into it. It was originally about 1200 feet deep through some - -

MR. FRESHMAN: It went through the aquifer?

MR. VERNON: It went through the aquifer and, what is it, about 500 feet to where the well has been broke off or cut off at that point.

MR. FRESHMAN: On the discharge, now are you using ion exchange in any type of cleanup?

MS. GREEN: The discharge that currently goes to the Warm Waste Pond runs through an ion exchange prior to being discharged to the pond.

MR. FRESHMAN: And do you still have all the hot waste storage tanks out there?

MS. GREEN: We have several hot waste storage tanks there. I don't know if they have all of them.

MR. FRESHMAN: If the contaminant in the hot

waste storage, what do you do with that, ship them to the Chem Plant?

MR. VERNON: That's right.

MS. GREEN: That's a little bit off the subject.

MR. FRESHMAN: It's all part of the subject.

MR. JENSEN: The hot liquid waste goes to the Chem Plant.

MS. GREEN: It does not get discharged to this pond we're talking about.

MR. FRESHMAN: Right, but if you're going to dissolve the solids, why don't you pump it all the way to the source and take it to the Chem Plant for chemical extraction?

MR. JENSEN: Oh, to the Warm Waste Pond?

MR. FRESHMAN: The Warm Waste Pond, either that or pump the water up through ion exchange, the perched water.

MR. JENSEN: That's a good comment for us to consider.

MR. PIERRE: We should add that to the comments on the Warm Waste Pond. Again, this is the second half, but I would ask that we add that as a comment or a very good comment for the Warm Waste Pond.

MS. WELLES: I think the Court Reporter noted

that, and I appreciate the comment. Again, we were still focusing on the perched water. Do you have a question, sir?

MR. HARTEN: I'm Kenneth Harten, Pocatello. The whole aquifer has water that moves at a rated flow. Do you have that figure? Do you know how fast it moves?

MR. VERNON: Eleven feet per day is what the published numbers say.

MR. HOVLAND: In the TRA area?

MR. VERNON: Right, the TRA area. That would probably be about right. At the Site it ranges from, say, four to five feet per day to maybe 20. So it's variable across the Site.

MR. HARTEN: It varies throughout the whole Site.

MR. HOVLAND: That's probably a good figure for the TRA.

MR. VERNON: Yes, TRA.

MR. HARTEN: Would this be a lot less in the perched spots, or would they be more stabilized? In other words, are they sort of set?

MR. VERNON: The perching ponds in the watering filtrates, you know, in a wide broad area of gravels going in, all the liquid wastes go in. The perching layers, we're testing to get those exact numbers,

to find out where we're at. But they are, I believe, quite a bit less than what we're seeing in the aquifer.

MR. HARTEN: Now this whole aquifer we have in Idaho isn't like a lake. The water is all in underground lava strata and gravel?

MR. HOVLAND: What material is the aquifer passing through?

MR. HARTEN: Yes.

MR. HOVLAND: It's interbedded in volcanic flows, some masses, some fractured, and it also has sedimentary interbeds consisting of silt, sand, maybe some larger particles, gravel. That's, in essence, what it's passing through.

MS. WELLES: Any other questions? At this point we really will move to the comment period, and again, I'll remind you that this is an opportunity for you to make your comments to the agency and for the agency to listen to these.

As a result, the answers, we will not be responding to them this evening. They will be thoughtfully considering them.

Could I have the first comment, and please note that your comments need to address themselves to the perched water.

It appears there are no comments on perched.

water.

MR. VERNON: Is there a comment from the gentleman behind you there, Andy? I know he stopped a little bit earlier.

MR. VESSER: We signed the sheet in the back, now are you working from that sheet, or is that a call for public comment other than people on the sheet?

MS. WELLES: What I want to do is wait and make sure this gentleman doesn't have a comment on perched water, and if he doesn't, do you have a question in general? No, okay.

All right, then what I'd like to do is call up the first person who indicated that she did have a prepared comment to make and, Barbara? I don't know if you had a chance to make your comment.

MS. MARSH: I'm fine.

MS. WELLES: Okay, then the next person is George Wood.

MR. WOOD: Do you want me to confine it to perched water? Or is this a general comment you're asking for?

MS. WELLES: This is confined to perched water.

MR. WOOD: I'm not ready for that.

MS. WELLES: Kenneth Harten?

MR. HARTEN: That's me, not yet.

MS. WELLES: Bob Vesser?

MR. VESSER: Now it's my turn to make a comment?

MS. WELLES: And, again, Bob, your card is under the seat. You're more than welcome to take up to five minutes.

MR. VESSER: Would you tell me when I exceed my five minutes?

MS. WELLES: I sure will.

MR. VESSER: Yes, I have a comment on the perched water. It's my understanding talking to the - - and I won't say exactly who, because the government policy on this has been, in my mind, has been to expand a problem that never existed. And I say this as speaking to people who have monitored the problem, USGS, which has been monitoring this problem for decades.

To me, the worst contamination from the Site was from the injection well at Test Area North. Indeed, there were trace uranium isotopes and other hazardous materials that went into that well when they cleaned up the aircraft, AMP aircraft, nuclear project many years ago.

Again, we talk about 20 feet a day. Again, have green sand in the aquifer itself as it's passing

through the strata is purifying. We have a lot of illustrations. I mean this is saying trying to assess something USGS has sufficient records to assess this problem. I'd think before investing thousands of millions of dollars or millions of dollars, and is currently being done on the so-called assessment of the problem, I suggest the problem has been assessed over the years. It has never been deemed a threat to the public health.

Now there are some wells here that are contaminated beyond what's become known as drinking water standards. But those standards have been more or less locked to an ability to determine the amount of trace elements, and as the sensitivity of the test increased, so has the drinking water standard decreased for these contaminants.

As to whether these levels are a real threat to the people that are taking them is arbitrary. It's not demonstratable that people that have been drinking these so-called contaminated wells have had any physical ailments.

Anyway, of course, as we look at the question that was asked here, is this perched water moving? Obviously, there would be some leaching. And what is the result on the actual - - you measured some chromium

contamination. Again, this is trace level. We might say that it's been put this trace level has been determined to be a possible or potential threat to human health. Again, at these levels it's not demonstratable.

Chromium is a mineral that's been around a long time. A serious area of chromium contamination in industrial in this country for years at levels of orders of magnitude above the drinking water standard. Thousands of millions of dollars are projected to be used for projects that I think are questionable.

I also feel that - - I support the Site, but at the same time I think that this money ought to be spent in a fashion to produce something. Now we've seen activists that more or less shut down Hanford, Savannah River, Rocky Flats and various other areas without real risk assessment. This country, of course, as most people in this room are aware, we have - - right now our submarines go out, essentially, without weapon systems because tritium is not in abundance enough to provide the levels required to maintain our thermonuclear weapons.

Rocky Flats cannot manufacture pits for new weapons. Essentially, what the U.S. Government nuclear endeavors in this country have ground to a halt. And I suggest that perhaps instead of increasing their funding, it ought to be decreased, because the level of production

has decreased. And I know we can - -

MS. WELLES: If you could find a place to stop, that would be a good idea.

MR. VESSER: Is my five minutes up?

MS. WELLES: You have about 20 seconds.

MR. VESSER: My suggestion is this, that the real threat of these things is the idea of squandering thousands of millions of dollars at a time when our country is unable to answer the real question of excessive public debt. Thank you.

MS. WELLES: Thank you very much. Jay, I think this would be a good time to take your comments. At this point, we ought to move to general comments, because I gather that's your category.

MR. WOOD: General comments you want now?

MS. WELLES: Yes.

MR. WOOD: I want to quote from a couple of places here, "Two decades after American launched crusade to control pollution, we still haven't figured out what is really worth worrying about." This comes from Fortune Magazine, May 20, 1990, discussing the Risk Assessment and how we haven't properly assessed the real environmental threat from the perceived one. And hence my question awhile ago that is this coming from a perceived threat or was it actual observation of the illnesses that

have been caused?

The effect of - - again, I quote: "The effect of turning up the intensity of warnings on low risk chemicals is to blur the distinction between high and low risk. Crying wolf over trivial risks lowers our vigilance for the real risks. It is important to restore a sense of proportion." This is from a Dr. Michael Seegal, urologist and neuroscientist, Harvard Medical School in The Wall Street Journal, July 9th, 1991. Mr. Seegal is referring to excessive occupational safety and health administration labeling requirements on common substances, such as table salt and paraffin candle wax. In the case of sodium chloride spill, one label advised: "Use a respirator, chemical safety goggles, rubber boots and heavy gloves." For you who don't know, chemical chloride is common table salt.

I want to read to you now from a Common Sense of Nuclear Energy, one little comment here: "Older people who recall photographs of damaged conditions of survivors of Hiroshima and Nagasaki will be surprised to learn that the life expectation of survivors has been slightly but significantly - - significantly better than that on comparable control groups among normal Japanese population."

And out of the Health Effects of Exposures to

Low Levels of Ionizing Radiations, the Beir IV report, I want to read, and I quote: "There has not been a general increase in cancer rates in individuals living in the vicinity of nuclear installations."

And I think one of the things that we need to do is to look at these things in their perspective, and need to do some calculating time ahead of time, rather than try to find something that is nonexistent. It's very difficult to calculate a risk of something that has never occurred. So we need to turn around and say hey, what are the probabilities of that amount of contaminated water damaging the aquifer to the point where it will make the aquifer unsafe to anybody or anything? We ne to look at it from the other side, not go down to the infinity. Someone mentioned something, doing this - - this being done in perpetuity on radioactive materials. That we do not need to worry about, because eventually they will no longer be radioactive. The only metals and only elements that we need to worry about there are nonradioactive elements, such as arsenic, for instance. It's always poisonous, and it will never get less poisonous.

On the other hand, if we take tritium, it will - - it is slightly dangerous, but it has a relatively short half-life, and eventually it's not going

to be dangerous at all. And all of our radioactive materials are that way. And I think we need less emphasis on the danger of radioactive materials, and we need more study on how much it takes. And these books have them, but for some reason people go on and declare, well, gee, they don't know anything about it, because there are disclaimers in these books about large amounts of radioactivity. Thank you very much.

MS. WELLES: Thank you. We have one additional commenter on the list. Mr. Harter?

MR. HARTEN: Harten, H-a-r-t-e-n.

MR. WOOD: Just 'cause he can't write.

MR. HARTEN: I was a Senator for Idaho State from Pocatello 20 years ago, and the Governor called for a blue ribbon hearing at Idaho State University. Some of the things that came up at that time were historically important, I think. One of them was - - I asked the question you use the garbage dumps that you had in the ADC facilities just like any gypsy or any homeowner would have thrown the stuff out the back door and it lights where it lights and it stays there. And they said yes. Now some of those things had set there for more than 20 years, so I asked the question how far was the penetration of those solids in determining the rate or the distance that the contamination had gone

down, and I think the answer was seven inches.

So then the next question was, how far was to the aquifer? And I think they've answered that, it was 185 feet. So it looked to me like it would be forever before that solid pollution would get down to where it would do some damage.

Another question come up at that time in the injection wells, and I was shocked to hear they were using these. I think everybody at the hearing was. And it wasn't long after that, this was just about 20 years ago, that the injection wells were closed down and capped and not used anymore, because it looked awfully foolish to anybody to think of putting that, no matter how small it was, it would eventually fill up, so they closed it down.

Another thing I questioned, the rainfall. This is a desert area out there, and like you said, get probably nine inches of rainfall a year. So I remarked at that time, the day prior to the hearing at ISU they had 10.2 inches of rain in Kansas City. It looks to me like INEL is a lot safer place for anything you want to do in the open than anyplace you could do like, well, Hanford would get a lot more rain. But certainly Denver and Rocky Flats would get more and Savannah would get a lot more. A lot of areas aren't adaptable to the dry

climate that we have out here for protection against the contamination going down through the soils.

Looking at the history like that, it may help determine what you have to do to clean up and how far you might have to go in being able to cut out the expense that may be unnecessary at this time. Thank you.

MS. WELLES: Thank you. We have another comment. Would you come to the microphone, please? Your name for the record?

MS. MARSH: Barbara Marsh, Pocatello. Three metals, radioactive metals, plutonium 239, half life 24,000 years, radiation alpha, small amount of weak gamma, hazardous when inhaled as particles or accidentally deposited in wound. It is difficult to detect from outside the body.

Plutonium - - sorry, correction. Strontium 90, half life 28 years, radiation strong beta, a product of nuclear fission and an important part of fallout. Main source of intake is the diet. In the body it behaves like calcium, depositing in bone, where if deposited in large enough doses may produce cancer.

Radium 226, half life 1,620 years, radiation alpha and gamma, a naturally occurring radioactive element when injected internally. It seeks bone and is a potent cause of cancer.

And to give some statistics on the micro-curies which is allowable from these radioactive sources, tritium, chemical form water, 2000 microcuries.

Carbon 14, chemical form carbon dioxide, allowable - - this is maximum allowable - - 400 micro-curies.

Strontium 90, water soluble salt. It attacks bone, 40. Allowable in the bone, four.

Iodine 131, water soluble salt, allowable in the body 50 microcuries. Permissible in the thyroid, .8.

Cesium 137, water soluble salt, allowable in the body, 30.

Radiant 220, chemical form water soluble salt, allowable in the body .2. Allowable in the bone, .1.

Uranium, chemical form, water soluble salt. Allowable in the body, .2. Allowable in the kidney, .005.

Plutonium, water soluble salt, allowable in the body .4, allowable in the bone .04.

The maximum allowable for drinking water and, again, I'll state the authority that this comes from after I've finished.

Strontium, again, allowable in drinking water .001 per liter and in the air it's .00001.

All of this information is gathered from the Encyclopedia Brittanica, 1982 edition, fifth volume, 15.

MS. WELLES: Thank you. Are there any other comments?

MR. VESSER: Do we limit it to one comment? Can we raise a question about some comments?

MS. WELLES: What I'd like to be able to do now is let people know that these comments may go on for awhile, and if you would like to stay, you're certainly more than welcome to.

If you have another comment for the record, please take up to five minutes.

MR. VESSER: Yes, I'd like to follow up that presentation, ma'am.

USADC, of course the USDOE, which followed, has instances of individuals being exposed to millions of times these so-called minimum levels, and the amount of even plutonium that's been tolerated and the time that it's been tolerated is fairly interesting, just on a few cases been released. I would challenge the DOE to start releasing a few more figures from its own personnel that have been exposed to extreme levels of internal contamination.

We're talking perhaps billions of times some of the standards, and I would challenge the DOE to start

releasing some of its own statistics. Thank you.

MS. WELLES: Thank you. Are there other comments? For the Court Reporter, that gentleman's name was Bob Vesser.

MR. TURNER: My name is Roger Turner, and I live in Pocatello. I wanted to make a comment, but I was wondering if I could ask a question that I forgot to ask before the comment period. That was I missed exactly where we're at on this, on the track of this perched pond, in terms of the RISS.

What milestone are we presently at, in terms of the action plan?

MS. WELLES: And that has bearing on your comment?

MR. TURNER: And then I'll make my comment, yes.

MS. WELLES: That's very straightforward and a factual question. Why don't you take it.

MR. JENSEN: We're just starting to determine what alternatives we should evaluate, so like has been stated here tonight, there's been a lot of study. We have a lot of data, but now we need to assimilate that data and evaluate the alternatives for cleanup. So on a schedule right now, we should be to the same point as we are in the warm waste pond with a Proposed Plan in

about a year.

MR. PIERRE: Maybe we could add a little bit to that. One of the things that Nolan said in his overview and caused some difficulty tonight that made you inquire about it, in order to try to reach a decision in as quick a time as possible, paper studies are done on alternatives that may come into play, but that is a paper study. At the same time, that Risk Assessment information is being compiled to determine whether an alternative needs to be, I should say remedial action needs to be undertaken. So what you see is a parallel process.

What Nolan is indicating is that data has been collected. It's being evaluated right now to determine whether or not there is a transport of significance to the Snake River Aquifer. Concurrent with that, at the same time evaluation of alternatives that may come into play, if the decision is there is a non-acceptable risk from that data.

So this is a parallel process, and it is a paper study at this time. But what Nolan says we're looking at alternatives, concurrent with that we're collecting data, putting it together, trying to figure out the transport and trying to determine there's a non-acceptable risk.

MR. TURNER: Thank you. My comment relates to, I guess, mostly the process a little bit. The act plan states specific guidelines that the process will take in terms of coming up with an RISS. Tonight I came here hoping to get a little bit more information that we could sink our teeth into. It looks like, for example, there has already been a draft statement of work for review, and I don't see any summary of that or enough information here today to show that. I also believe that there's data, a data needs assessment, that's part of the CERCLA process. There's other parts of the Health Assessment Plan that could, in fact, be summarized, and the data summarized so that we can make comments o the next phase, based on information that's provided here.

Now I realize there's probably information at the public library and that type of thing, but I think that you're leaving - - you're separating - - if there is that kind of data in detail at the public library, you're separating that too much from the public in terms of these - - tonight's type of presentation. I know the difficulty you're under, as far as meeting all the levels or the types of questions that people have, but really it looks like we're at a situation where there's a lot of data out there. There's a lot of opportunities that the public or people could make in terms of the ... t

milestone based on that data.

What about wildlife studies? How can I make a comment tonight, you know, how can I make a comment tonight about wildlife studies, about economic issues, about how could we make any comments about the health, the availability of health data? I don't think there should be a mountain of information sitting here. I think people are responsible, should be responsible to do a little bit of their homework. But my point is that in the case of this evening's, I hope in this evening's presentation there is a lot of people here obviously of real interest and some expertise on the issue, and we really haven't got any meat here to take a look at. There isn't any real technical data available or summaries of that data. I think there needs to be a little bit more in the future, perhaps, phased in, phased in access to this information that more closely relates to your schedule.

I see nothing in here about what was your draft statement of work that you dealt with. Where is your data leads assessment and what were the comments on those assessments made by the State of Idaho, for example?

I guess in summary, I'd like to see a little bit more technical data available to the public at these,

or presented at these meetings, or at least have - - one option would be to have technical data here and allow people access to it an hour or two ahead of time, so we could take a look at it before these meetings, especially for those of us who have difficulty getting access to the repository.

MS. WELLES: Thank you very much. Any other comments?

MR. WOOD: Yes, I have one or two comments that I wanted to take on of the Health Risks of Radon and Other Internally Deposited Alpha-Emitters, and plutonium, of course, was mentioned here as an alpha emitter primarily.

This is Beir IV report, 1988: Health Risks of Radon and Other Internally Deposited Alpha-Emitters, Beir IV. It says: "Although cancer risk estimates have been derived from animal studies, extrapolation of these numericals to humans produces uncertainty and technical difficulties." They're just saying they're ineffective. You can't really translate straight across on it. In general, general population risks associated with natural uranium is very low and might be negligible. And these are coming out of this book. One other - - and then I'm sorry. I have lost the other one. I'll have to get that.

MS. WELLES: Thank you. It appears to me that this gentleman has one more comment he'd like to make.

MR. VESSER: My name is Bob Vesser, and I'd like to follow up on some comments. There is a problem with standards. We have the records of Hiroshima and Nagasaki, and it was brought out by Mr. Wood that indeed those who were exposed to measureable amounts compared to control elements that were not exposed at all in the same society, they, indeed, live longer. We have naturally occurring radium in water in many parts of this country that far exceed the drinking water standards, yet no effort is made to remove them.

We have people in Southern Utah that were exposed to a considerable amount of ionizing radiation from internal contaminants. They were not warned to wash their garden produce and this sort of thing, due to atmospheric testing. Yet their carcinomas, radium cancers, thyroid, stomach and bowel, and that sort of thing was statistically insignificant.

And the government just decided to back it up, all people who decided they might have a claim. What I'm saying is now Chernobyl, and there have been other terrible accidents in the Soviet Union where they've had waste storage and criticality accidents. There are

considerable records of low level exposure. And I suggest that those records will indicate that the things we're talking about at the Site - - I hate to use the word contamination, risk, and this sort of thing has to be to me a probable threat to the public health or potential threat. And I suggest that the level of contamination that the public is exposed to do not fit in this category.

MS. WELLES: Thank you. At this point I'd like to hand the mike back over to Lisa Green, who will close the meeting.

MS. GREEN: We appreciate each and every one of you, your attention, your input, comments, suggestions at tonight's meeting, and we look forward to seeing you again in our future meetings and hope to be seeing you in our public meetings on the IAG Action Plan next month.

Reuel just held up the comment forms in the back of the room. If there is a comment that you have not expressed already tonight and would like to put down on the form, either to give to us tonight or mail in at a later date, please be sure and get the form and document your comments and provide them to us.

Thank you very much.

(The hearing was adjourned.)

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REPORTER'S AFFIDAVIT

STATE OF IDAHO)
) ss.
County of Bonneville)

I, KAREN KONVALINKA, do hereby certify that I am a Certified Shorthand Reporter and a Notary Public in and for the State of Idaho;

That I took down the proceedings aforesaid at the time and place therein named and thereafter reduced the same to typewriting under my direction and control.

I further certify that I have no interest in the event of the action.

WITNESS MY HAND AND SEAL this the 15th day of August, 1991.

(Signature) Karen Konvalinka

KAREN KONVALINKA, C. S. R.,
Notary Public in and for the
State of Idaho, residing at
Idaho Falls, Idaho.

(Seal)

My commission expires: Perpetual

UNITED STATES DEPARTMENT OF ENERGY

PUBLIC COMMENT MEETING CONCERNING PROPOSED CLEANUP PROJECTS AT THE TEST REACTOR AREA AT THE IDAHO NATIONAL ENGINEERING LABORATORY

WARM WASTE POND PROPOSED PLAN AND PERCHED WATER PROJECT SCOPING

August 13, 1991
6:30 P. M.
Canyon Springs Inn
1357 Bluelakes Blvd, North
Twin Falls, Idaho

Panel Members: Jerry Lyle
D O E - Idaho

Shawn Rosenburger
State of Idaho

Presentations: Andy Baumer - Warm Waste Pond Proposed Plan

Nolan Jensen - Perched Water Project

Moderator: Deborah Welles
Advanced Sciences, Inc.

Reported by:
Wiiliam S. Walden

HEDRICK
COURT REPORTING
537 W. Bannock
Suite 205
P.O. Box 578
Boise, Idaho 83701
(208) 336-9208

TWIN FALLS, IDAHO, AUGUST 13, 1991, 6:33 P.M.

MR. ALLGOOD: For those of you that don't know me -- I don't see anybody that doesn't know me -- I'm Lane Allgood. I'm at the INEL outreach office there. We're going on to our third year. And some of you I've got to know very well, and some of you I've just got to know well.

But we appreciate you coming out, and thanks a million. And hopefully we'll have a few more folks come in. The purpose of tonight's meeting is hopefully to have a discussion, answer some questions and receive comments on two cleanup projects designated for the TRA area.

So tonight we hope to address those and answer some of your questions. We would hope, due to the time factor, that you would keep your questions and comments relative to the projects this evening.

However, if you do have questions on other INEL related issues, of course, you have two avenues tonight. One, of course, is to contact me, and we will try and research anything for you through our office.

I've left a stack of cards on the back, the back table, with our new address on. Our office is one of the locales with the information repository, along with a

lot of other INEL related information.

We also have John Walsh. John, wave your hand. John Walsh is from the Public Affairs Office in Idaho Falls. Should you have questions that are not pertinent to tonight's program, but you still would like to talk to John, please feel free to chat with him during the break or after the tonight's program.

Or if you really can't -- can't stay that long and still have something you want to chat with John about, I'm sure, if you just tap him on the shoulder, he'll be more than happy to step out of the room and discuss that with you.

So with that we'll turn the time over to our moderator, Debbie Welles. Debbie's based in Denver. And she's been retained by the Department of Energy to ensure that everyone here gets a fair and equal opportunity to ask questions and comment on these projects. So Debbie?

MS. WELLES: Thanks, Lane. Well, I'd like to begin by introducing you to several of the people you'll be hearing from tonight so that you know who in the room is part of the panel. I'd like to begin just by letting you know that Jerry Lyle will be here this evening representing the Department Energy for Idaho.

And next to him is Shawn Rosenburger. And Shawn is representing the Idaho field -- the Idaho Falls

field office of the Idaho Department of Health and Welfare. Both of these individuals are here tonight to represent DOE in the state's role in the cleanup of these two projects.

They're also here to listen carefully to what you have to say and to clarify policy issues that you might have. Next to Shawn is Andy Baumer, who will be giving a presentation tonight on the warm waste pond.

And then also Nolan Jensen, who is in the front row and will be up in a little while, who will be talking about the perched water project. Both of these presenters are geologists, and they have had extensive experience with environmental cleanup.

They're also here tonight as resources to answer any questions you may have relative to their projects and to help you really understand what's going on with the two projects.

In terms of additional individuals, we have two contractors here tonight, Don Vernon. Don, where are you? Okay. And Doug Greenwell. And I'm pointing these people out because they may be asked at some point later this evening to assist with some technical questions. And at that point it's important that you know who they are.

There are two additional INEL staff. You've been introduced to both of them, of course, Lane and John. And their purpose here tonight is to assist you in

answering any other questions that may come up. They, of course, may or may not have the answers. But if they don't have them, they certainly will be very happy to hook you up with somebody who can assist you.

Most important of all, we have those of you who have come out tonight. And we appreciate your interest in this project.

The agencies have heard from you in the past and know you want to be kept in the loop early and with good information. This is an attempt tonight to do just that.

Along those lines, as Lane has said, your purpose here tonight should be to ask good questions, and also to provide comments for the record. And there will be two times when you can do that, one for each project.

Some additional outcomes of the meeting tonight, the agencies want you to know the status of the warm waste pond and the perched water projects so that you are aware of the situation on each project and have the information regarding what's being planned.

Second additional outcome would be that the agencies also want you to know what cleanup alternatives have been generated to date for each project.

And in the case of the warm waste ponds, they want you to know which alternative is currently

preferred by DOE, EPA, and the State.

Going on to what will happen to the information that is collected this evening, and during the comment periods, I first should say that we're dealing with two different projects tonight. The warm waste pond proposed plan, and, secondly, the perched water scoping project.

There are comment periods with specific end dates for each one of them. The end date for the comment period for the warm waste ponds is August 28th. And the comment period for perched water ends September 10th.

I should also mention two more meetings as the one we're having tonight have been held in Idaho Falls and Pocatello last week, and will be held this week.

In addition to Twin Falls, we will have a meeting tomorrow night in Boise, and the following night in Moscow.

After the comment period on the warm waste pond proposed plan has ended on August 28th, DOE, EPA, and the State will use the comments that have been made, both in writing -- and I'll mention that in a few minutes -- and at the meetings like we're having tonight.

They will be using the information collected from these comment periods as one factor in making their selection of the final cleanup method for warm waste

ponds.

The comment period for the perched water project is a bit different from the warm waste ponds because that project is not as far along in its development. Nolan will go into more detail about that when he makes his presentation on perched water.

As you came in tonight, each one of you should have picked up an agenda. And you might just want to pick that up right now.

As you can see the flow of this evening's meeting, in just a few minutes DOE and EPA -- excuse me -- and the State will make their opening remarks, give you a little bit of context. And then we will go into the perched -- excuse me -- warm waste pond project and then the perched water project.

After each presentation is made, you'll have an opportunity to ask questions. And once those have been fielded, an opportunity to make comments for the record.

Going on to a couple of ground rules for this evening, what we're going to ask you to do tonight is to put any questions that you may have for the panel on the note cards. And we're doing this for two very specific reasons.

First of all, it gives everybody an

opportunity to ask a question, even those who may not be comfortable coming to a microphone. And the second reason is, once we've collected those cards, they will come up to the front table and they will be given to the respondents.

You see, we have three respondents. And so Jerry Lyle will give those cards to various panelists. And they will have just a moment to review the question and try to give you a very thoughtful answer.

We have used this method in two other cities and it seemed to work quite well. Bear with us. I think you'll find that it is an effective tool.

Questions on topics other than the warm waste pond or the perched water, as Lane mentioned in his comments, will be directed to either Lane or to John Walsh.

And I want to stress that the agencies want to take your questions tonight and are going to consider them very seriously and give them the attention that they deserve.

Also, so that the court reporter, who is with us tonight doing a verbatim transcript of the meeting, will be able to hear all that is said, I have to ask you to use the microphone when you make comments. And that's real important.

Also, if you have oral comment for the record at this meeting, you're welcome to take up to five

minutes on that. And I want to just give you a little forewarning so that you know what's coming up further on in the program.

With that, Jerry, I'd like to turn it over to you.

MR. LYLE: Well, I'd like to welcome you all to this meeting tonight. As I'm sure you're aware, the three agencies, the State, EPA, and the Department of Energy has negotiated an interagency agreement, which is a three-party agreement. We are working under the action plan as laid out in that agreement.

That agreement is going through a public comment period, and we will be holding meetings during the month of September where the public can comment on that. We would encourage you all to participate in that public comment period.

This is for the TRA warm waste pond and perched water. First two remedial actions that we're bringing to you under the interagency agreement. The perched warm waste pond is for an interim action. And then the perched water we are asking for comments on what proposed alternatives could be for addressing that problem.

And there are two ways, as Debbie indicated, for you to comment on these projects. One is here tonight with oral comment, and then also written

comments that can be supplied or given to us during this comment period. And with that I'll turn it over to Shawn.

MR. ROSENBURGER: As you know, the Idaho National Engineering Laboratory was listed as a national priority on the national priorities list in November of 1989.

And since that time DOE, EPA, and the State have both -- all worked hard to develop a plan of action to address the remedial concerns. This plan is the interagency agreement. And it basically provides a road map towards cleanup of the INEL.

This is really an exciting time for all three agencies because this proposed plan represents the first of many upcoming proposals that will be available for public comment.

The State supports this action which involves taking contaminants from an uncontrolled environment to a controlled situation. The State has been an active participant in the process, acting as both auditor and partner in coming up with this interim action.

The State has also established a field office in Idaho Falls to better audit the process and verify operations and site investigations through that office.

You, the public, are also auditors by providing your public comments and questions through this

hearing, either written -- either spoken or written.

Remember this is a proposed plan. It's not a final action. And tonight we're here to take your comments and questions about it.

EPA was unable to make it here tonight. But I'd like to say a few words on their behalf. They are also auditors and partners in this agreement.

And any proposed plan they must agree to and sign to as well. And that depends on public input. As part of the public input process, you can obtain technical assistance in reviewing site investigations, plans, cleanup operations through technical assistance grants.

And those go up to $50,000. And those you can obtain through EPA. The contact for that would be Bob Linzell. And his number is 206-553-6901. He's with EPA and he's in Seattle.

With that, we encourage your input tonight. And I'd like to turn it back over to Debbie. Thank you.

MS. WELLES: Great. Thanks, Shawn. The next item on the agenda, then, will be the presentation by Andy on the proposed plan on cleanup of the warm waste pond sediment. And if you don't have a copy, you should have picked one up at the back of the room. There are plenty of them back there.

As you may know, a proposed plan is a

specific document. It's about a ten-page document. And Andy's presentation tonight will essentially be a synopsis of that. Andy will start off by giving you an overview of the project.

He'll provide a description of the alternatives. He's also going to tell you a little bit about why DOE, EPA and the State proposed the preferred alternative.

And when you hand in your note cards at the end of the meeting, just as soon as that presentation's concluded, we'll take about 15 minutes for these questions and then move on to the oral comments.

So with that, Andy?

MR. BAUMER: Okay. As everybody said, we have two projects tonight to talk about. The first one is the warm waste pond interim action as to the test reactor area.

The proposed plan is for an interim action. And before we jump into this, we should discuss what an interim action is.

Under CERCLA, the Superfund Law, when you need to study an area, determine what's there, what the risks are, and what's the best way to clean it up, is the -- you go through a study called remedial investigation feasibility study.

If you already have enough information, or during that study you develop enough information to select a cleanup remedy, you can go to an interim action which is a cleanup.

An interim action can range from something simple, which -- to knock the risk down real quick, if you find you have a real high risk which has to be dealt with quickly, all the way to a final remedial action.

And a -- an interim action is selected -- is -- the process is the same as if you go through a full remedial investigation and feasibility study. In any case, there are nine criteria established by the Superfund Law which are used to evaluate remedial alternatives.

The agencies evaluate the alternatives based on the first eight of those criteria, and then recommend in a document called a proposed plan the -- a preferred remedial alternative. Which then the proposed plan goes out to generate public comment because the 9th criteria is community acceptance. And that's where we are here tonight.

The proposed plan is out. The agencies have recommended a preferred alternative in the proposed plan, and we're now in public comment period so that we can get the information we need to evaluate community acceptance of the recommended alternative as well as any other

alternatives.

And since this is the first proposed plan at the INEL, your comments get a double whammy, so to speak, because they not only impact this particular project, but they also impact what you'll see in future proposed plans. So that's why we're here tonight, is to provide the information you need and to get your input on the process.

If you came last time, you remember I said there was four things you need to know before you can clean up a site. You had to know what was there, what -- how bad was it, how could it be cleaned up, and what's the best way to clean it up. So let's go into that.

This is the test reactor area at the INEL. This is the warm waste pond over here. It's been used for disposal of radioactive waste water for almost 40 years, and was used for ten years for disposal of all non-sewage waste water at the test reactor area.

So what's in it? Well, all the contaminants fall into two categories. Most of the contaminants fall into two categories, metals and radionuclides.

The metals are there in a much greater quantity by weight and concentration, but based on our risk assessment they don't pose a threat to human health.

The radionuclides, there's 19 of them known

to be in the ponds' sediments. Of which, cesium and cobalt are the biggest problem from a risk standpoint. And that is mainly because they are there in the largest quantity and the greatest concentration. And just for instance here, just to give you an idea, these numbers here, eleven and a half and 4.6, nanocuries per gram.

The Department of Transportation considers anything under two nanocuries per gram to be nonradioactive for shipping purposes. You can't eat it or drink it, but you can ship it.

Now when we get to the risk assessments, the half-life becomes important. Because in an interim action we can either do one of two things. We can knock down the risk right now that is there or we can go ahead and do a permanent remedy.

If we are going to look to permanent remedies, we have to decide what's a future possible use of the INEL. And so what we did was evaluate a scenario starting in a hundred years.

And in that case, the cesium will have decayed to only about a tenth of what it is now. Whereas the cobalt-60 would have decayed to about a half millionth of what it is right now. So right now we have to deal with both. But in a hundred years, we only have to deal with the cesium.

Okay. That's what's in there. How bad is it? Well, to determine how bad it is, you do a risk assessment, which is composed of two parts, toxicity assessment, exposure assessment. A toxicity assessment is how bad is it, and falls out into two categories. Is -- are the contaminants cancer causing carcinogens and -- and/or are there other health risks associated with them.

And what we found in this case, with the risk assessments, was that if we took all the combinations of metals and radionuclides, cancer causing and -- cancer causing or other health risks, we found that the only category which was -- provided a risk -- had potential risk to human health and environment was the cancer causing affects of radionuclides.

The other half of the risk assessment is exposure assessment, which consists of pathways and receptors. For example, one of the scenarios we evaluated was the inhalation of contaminated dust. In which case, inhalation is the pathways and a worker is the receptor, who we have to assume is at a given location for a given number of hours per week for a given number of years.

In this case, we did three scenarios. And what we found was -- before I jump into that, under the Superfund Law there is a target risk range, which decides if you're above that target risk range you have to clean down

to within or below that range.

So what we found in this case was we evaluated the present situation. Okay? And the two scenarios we did there were inhalation of contaminated dust and external exposure to the radiation field.

And what we found was, in that case was, the only one of those two which was above the target risk range, and, therefore, would have to be addressed, is the external exposure to radiation.

Now I should say that the DOE and the contractors have standards, procedures, etcetera, in place to keep people from getting that level of radiation. But it is a potential risk and has to be dealt with.

In our future scenario, we evaluated ingestion of dirt as we assume that a family would move to the site of the test reactor area and kids would eat dirt and things like that.

What we found was that these two, both were below that target risk range individually, but together they're above the target risk range. And the impact of that was is if we wanted to go in and just knock down the risk right now, do a short-term solution, we could just do the external exposure.

But since these two together are above the risk range, if we want to come up with a permanent remedy,

we also have to deal with that.

Okay. So what's in there? How bad is it? How could we clean it up? Well, if we go to EPA guidance documents on cleanup of radiologically contaminated soils, not only do they describe what that knowledge is, but they also give a kind of a status report of how proven they are, if you will.

And what we found is that the only two technologies which actually have been used to clean up a radiologically contaminated site are capping, which is backfilling the hole and covering with something impermeable and -- like clay -- and encapsulation, which is basically digging it up, putting it in a container, taking it somewhere else and covering it up.

So if we want to go to the next category of provenness that's demonstrated in the field on radioactive materials, although it actually hasn't been used to clean up a site. And in the category we find stabilization, which is mixing the soil or sediment up with cement type stuff and making it into a solid mass which would bind up the contaminants.

Vitrification, which is melting it, and when it cools it forms a glass which ties up the contaminants.

Chemical extraction, which is leaching the

contaminants out of the sediments using acid or something like that. And physical separation, which is based on some physical properties of the contaminants, we can separate them from the soil.

So the next step is to decide which of these should be further evaluated for this particular project. And as we look at them, we tap into the standard technology commonly used. So we pursued that.

Land encapsulation, digging it up, moving it somewhere else. The volume here would just be horrendous and precluded that one.

Stabilization is commonly used for treating radioactive waste streams, not soils, but waste streams. And so it has potential. Vitrification has -- this is pushing the limits of -- a field -- a project of this size is beyond the proven capabilities of vitrification.

Chemical extraction is commonly used in the mining industry to extract ores -- excuse me -- radionuclides from ores. And so it seems appropriate.

What we found is, that if we wanted to pursue chemical extraction, we were going to combine that with physical separation because the sediments of the warm waste pond contain a lot of gravel, sand, cobbles, etcetera.

But the contaminants are mainly tied up in the silt and clay size particles. So what we found is if we

could just separate the silt and clay size from the gravel, etcetera, we could get a volume reduction of 60 to 80 percent which would make our chemical extraction process a lot more efficient.

So we pursued capping, stabilization, and the combination of separation, extraction.

Okay. So now we know how we could clean it up. What's the best way? These are the nine criteria I spoke of earlier that are in Superfund that are used to evaluate remedial alternatives.

The way it works is that the agencies evaluate the alternatives based on the first eight criteria and recommend in a proposed plan a preferred alternative which then goes out to generate comments so that community acceptance can be evaluated prior to selecting a remedy.

So let's go through those line by line. Oh. And I should say that the first two of these are called threshold criteria and have to be met by any -- any alternative that is selected. And we'll see here in a second how that impacts us.

In this case, does it reduce the risks we've identified. Well, if we're looking for a permanent remedy, capping does not prevent future ingestion, and, therefore, does not reduce all three risks, and, therefore, would not be acceptable as a permanent remedy. But it does

reduce the external exposure and, therefore, could be used as a short-term solution.

Stabilization and separation/extraction both reduce all three risks, and, therefore, meet -- really meet criteria.

Second one is does it comply with all State, Federal environmental laws. And under this one, the agencies tend to address all the appropriate environmental laws, and so these all get equal weighting on that. What's the long-term liability of it?

Well, caps are designed for a hundred years. Unfortunately in this case, the cesium probably wouldn't decay to an acceptable level for something like 400 years. And, therefore, that isn't a permanent solution.

Stabilization in theory is a permanent remedy. But based upon some of the work that's been done on radioactive waste streams, they've found that after ten years or so it starts to decompose and they've had some problems with that.

Separation/extraction, by actually removing a majority of the contaminants concerned from the pond sediments permanently reduces those risks, all three risks.

Production, toxicity, mobility or volume, in the Superfund there is a built-in preference for treatment options versus non-treatment options. So does it

involve a treatment, and, if so, does the treatment reduce the toxicity mobility or volume?

No action and capping, both do not involve treatment, and, therefore, do not meet the criterion.

Stabilization reduces the toxicity and mobility of the contaminants by tying them up, but actually increases the volume of contaminated materials.

And separation/extraction reduces the toxicity and mobility as well as reduce the volume. Short-term effects, how quick will it reduce the risk? In this case, all three would be implemented within a year or two. Once implementation begins, capping can be done quicker than the other two.

Does the alternative pose a risk to the communities, workers, on the environment? All health and safety standards, ALAR, familiar with that, as low as reasonably achievable, which is the radiation dose thing, DOE guidelines. All of those things will be equally implemented for any of the alternatives.

Implementability. Well, as I showed you earlier, the only one of these that has actually been used to clean up a site is -- a radiologically contaminated site is capping. So it fully meets the criterion.

The stabilization and separation/extraction both would require a pilot scale treatment study prior to

implementation of the remedy. How much will it cost? No action has no short-term cost. Capping is 2.8 million to design and build a cap.

And no -- since that would not be a permanent remedy, we did not include maintenance and operating costs and things like that in there because we figure that in five to ten years we'd have to go in there and do the permanent remedy.

Stabilization, 5.3 million. And separation/ extraction 6.9 million. In both cases that includes design, construction, includes the pilot scale study.

And in the separation/extraction includes the treatment of the residual coming out of the other end of the process.

So based on the first seven criteria, this is the summary. No action doesn't meet any of the criteria.

Capping meets -- would work for a short-term remedy but not a permanent remedy because it doesn't reduce all three risks. It does not involve treatment and is not a permanent remedy. But it is a proven to clean up radiologically contaminated sites, and is the lowest cost of the three action alternatives.

Stabilization reduces all three risks, but the long-term effectiveness is a concern. It increases the

volume of radiologically contaminated material and would require a pilot scale study.

Separation/extraction reduces all three risks, is permanent, and reduces toxicity, mobility, and volume, but would require pilot scale study and is the most expensive of three action alternatives.

Based on this analysis, DOE, EPA and the State have recommended separation/extraction as the preferred remedial alternative in the proposed plan.

The State has added the condition that the concentrated residual, which is created as a result of this project, be stored such that it can be visually monitored until the final disposition of those materials is determined. This is an interim action. And those materials will be dealt with in a later Record of Decision.

Okay. So that's where we are here tonight. The proposed plan is out. We're in the middle of public comment period which ends on August 28th. Written comments receive equal weight as verbal comments.

And all comments will be addressed in the response of the summary, which is a part of the Record of Decision, which is a document in which the EPA, State, and DOE say which remedial alternative was selected and how all comments were addressed.

MS. WELLES: Thank you. This is the part

where we're going to use the note cards. And so anybody who has a question, if you'll please write it down on the note card, and Mike will be around to pick it up and pass it in.

And I might add, if you come up with additional questions -- again, the purpose of this question period is to focus on the warm waste pond.

But as additional questions come to your mind, please just raise your hand with the card and Mike will see it, and he'll be happy to bring it up to Jerry who will read the question and then ask one of the panelists to go ahead and answer it.

MR. LYLE: I guess I'll go through a couple of these before I sort through the rest of these. The first one, "How many sites at INEL have been identified for cleanup?"

Approximately 370 of those sites. I will tell you that we are also continuing to find a few as we continue to review our operations. We've identified some, even this year, that have the potential to go on that cleanup list. And as we identify those, those get put into our interagency agreement process.

"Why or what were the reasons the retired health physicist John Herandon, Idaho Falls" -- I believe that's what he's referring to -- "called these projects gold-plated, basically pork barrels?"

All I can tell you is the reason that he stated in the meeting was that he did not believe, as I recall anyway -- he did not believe that there was sufficient risk with these projects to justify spending 76.9 million dollars.

"What was the priority process for which projects got attention first?"

First off, in the interagency agreements, the EPA, State, and Department of Energy, we went through, and for each and every project, each and every one of these units, tried to identify what the potential was for risk at these units. We also looked at which projects do we know enough about to do something with right now.

TRA warm waste ponds fits into that category, where we know what's there. We know that there's enough of a hazard there that we need to take action, so we're going to take action there.

This is one of several projects that's undergoing the interagency agreement process right now. And there will be several others that you will see over the next year that we're going to come out for and bring up for public review.

MR. BAUMER: This one is, "Are containment structures going to be built around the ponds before options two, three, or four are performed?"

The answer is yes. Well, it's no actually. We're not going to build containment structures. We're going to spray a dust suppressant on the pond. And that's supposed to be done before the end of August.

MR. RICKARDS: What kind of dust suppressant?

MR. BAUMER: Wendon, or Wingdon, something like that. It's a soil surfactant.

MR. RICKARDS: Is it liquid?

MR. BAUMER: It's liquid when it goes on and it forms a crust on top.

MR. RICKARDS: And is it tested to any miles per hour wind or what have you here?

MR. BAUMER: That's a good question. I don't know.

MR. VERNON: I could --

MR. BAUMER: Doug Greenwell here might help us with this question.

MS. WELLES: Doug, would you come to the microphone so the court reporter can hear you?

MR. GREENWELL: I'm Doug Greenwell. I'm a contractor with the Department of Energy, Nuclear Geotech.

MS. WELLES: You might want to go ahead and move the microphone around and address the audience, Doug. This equipment is very versatile.

MR. GREENWELL: I just want to expand a little bit on the Wendon product. It's been used on other hazardous waste products.

One in particular I know about is a Denver radium Superfund site that had low-level radiation contamination involved with that project.

There was a series of tests done by the NRC on different soil types, and spray rigs, and things like that to define what's the best application rate, and how long you could expect the polymer to last, things like that.

MR. RICKARDS: So how many miles per hour will it stand?

MR. GREENWELL: Well, again it would depend on the type of soil that you spray and the application rate.

MR. RICKARDS: The soil we're talking about is the warm water waste pond at INEL.

MS. WELLES: What you need to do, is if you have a question, you need to state it as a follow-up question

MR. RICKARDS: You don't want me to interrupt him?

MS. WELLES: We need to give him a chance to answer the question.

MR. RICKARDS: Well, he wasn't answering the question. That's why I stopped him.

MS. WELLES: Do you have a follow-up question?

MR. RICKARDS: At the INEL, with that soil, what is the strength of this polymer in the miles per hour wind.

MR. GREENWELL: That would be determined in the design of the application of the polymer. I wouldn't speculate on the exact mile per hour that's been established for --

MR. BAUMER: I can throw something in there. When we apply the polymer to the pond, we're also going to apply it to another area near the pond, but outside of the pond, so the people can -- it can be monitored without going into the radiologically contaminated area. And, therefore, we can keep track of the condition of the surfactant.

And actually that, being up on top of the ground, would be exposed to more wind than the sediment in the bottom of the pond.

MS. WELLES: Okay. You have a direct follow-up question to that?

MR. RICKARDS: Yeah.

MS. WELLES: Okay.

MR. RICKARDS: Let's say you took option number four and you were extracting soil for the purpose of

chemical and physical extraction. Once you've broken through the surface crust, at the point that soil is totally exposed to any wind which might blow up any contamination, and you don't plan to have any containment structures to block the wind; is that correct?

MR. GREENWELL: I don't think that's the case. You're right the surfactant would be broke. But there are many types of engineering controls that could be applied, such as applying water to the soil or putting up a dust barrier, something like that.

What we're getting into is actually design questions which really are beyond the scope of determining which technology is preferred for the alternative. The specifics of dust will be handled -- will be determined as part of the design of the project.

MS. WELLES: Okay. If you have another question on point -- let me just ask the court reporter, are you able to here questions from the back? I think he probably needs people to come to the microphone.

Peter, it seems to me that we need to take the next question. We can come back to it.

It would be very helpful if you have follow-up questions to go ahead and put them on the note card. Okay. Next question.

MR. BAUMER: "How much plutonium 239 is in

the pond? Answer in curies, pounds, and number of particles, since each plutonium particle can cause lung cancer inhaled."

The number, I used to have it on my -- the slide in the 45-minute version of my speech. I think it was something like .001 grams or something like that. We could work it out, you know, based on the -- the numbers and conceptual model and the risk assessments.

But from a risk standpoint, the risk assessment, the plutonium was well below regulatory concerns. And I think it was down to ten to the minus nine, ten to the minus tenth range, which is something like one out of a hundred billion people exposed would get -- potentially get cancer who otherwise wouldn't.

MS. WELLES: Okay. So there's another question there for you.

MR. BAUMER: "Since your documents say vitrification for option three is promising but not fully developed in time for warm waste pond ROD, why are you putting on a cleanup show before the PEIS waste management ROD illegally?"

Well, that's several questions.

MS. WELLES: Andy, I think maybe if we just take the first one and work our way through that, and then take the second one.

MR. BAUMER: Now I'm confused here on the vitrification for option three. Option three was stabilization in this. Vitrification is -- at this point is not well-developed for a project of this scope, and in addition is significantly more expensive than the other all alternatives.

As far as the PEIS, this is an interim action which rolls into the Waste Area Group 2 Record of Decision, which rolls into the overall INEL Record of Decision.

MR. LYLE: In answer to the question why are you rushing -- putting on a cleanup show before the PEIS waste management ROD illegally, first off, it's not illegally.

Vitrification is something that may turn out to be useful in projects and may be even in a project like this. What we have is a risk that's shown now, that shows that we should take action now. So the prudent thing to do is go out and take this action now.

The programmatic PEIS, as you know, that's in the works. We do not believe that that is -- can or should prevent us from proceeding with cleanup when we have identified risks that we need to take care of now.

MS. WELLES: Okay. Are there some additional questions that can come in on note cards?

Jerry, have you answered all of them, or -- you went through all of them.

Okay. If these are the questions for clarification, then what I'd like to do is move to the next section of the meeting which is the comment period. And the purpose of the comment period is for the agencies to hear what you have to say.

If you signed up at the list at the front door saying that you do have a comment that you'd like to make, this is the time to make the comments on the warm waste pond.

You will have up to five minutes to make your comments, and I will help you by signaling you have one minute left. If you are here on behalf of an organization here this evening, you may speak up to five minutes on behalf of the organization.

If you then wish to make your own personal comments, you may take an additional five minutes to do so. If you're going to do both, if you would, please let me know. And we need to break between the comments and reidentify your orientation for the court reporter.

Panelists, after the commentor has concluded his or her remarks, if there is something about that remark that you need to ask a question of clarification on, please know that that's welcomed.

The purpose tonight at this meeting is to have a good exchange of information, and you should feel welcome to do that.

Okay. Is there somebody who would like to comment on the warm waste pond?

Peter?

MR. RICKARDS: Okay. Start the timer. It appeared to me that option number four, which would be the extraction and physical separation, chemical separation, would allow them to take the radioactive particles and separate them, since they were solely radioactive, and, with or without the State of Idaho's permission, bury that as low-level waste at the radioactive waste management complex.

I gather that that's the tri-party agreement, and the State have agreed, at least on paper, to not bury it at the RWNC. But it's important to note, that once it becomes solely radioactive, it doesn't matter if the Department of Energy signed the tri-party agreement or not.

If they decide to bury there, they will. And I can't imagine any other state accepting our waste, and I can't imagine the DOE going to the expense of transporting it to some other state.

The other options would not allow that since it would be stabilized in mixed form. But at any

rate, the importance of vitrification and why it applies to this, this is your manual here, the INEL administrative record at the test reactor area, warm water waste pond interim action Operable Unit 210. And let's see here.

This is PBA9-122121 technological approaches to the cleanup of radiologically contaminated Superfund sites from August '88. And on page 17 it talks about vitrification as a potential application to advantages of insitu vitrification.

Materials don't require excavation, the process can be applied with minimal prior preparation. And what they basically say is that it does have a lot of applications for solidifying it first. And this would totally reduce the amount of inhalable contaminants.

And literally what it says here in your documents is that, because of the time and the expediency that is required on the Superfund list, they don't have the time to develop the technology.

And as far as I've seen at the INEL, listening to Jerry Lyle and all this, experiments have gone well and they are nearly completed. And if we obey the EPA law, and these questions are answered about the ISV technique waste management programmatic impact statement, literally that could be the best way to go.

But if you stabilized it with cement, you

would ruin the options for vitrification, and you are not allowed to take options that would limit your choices.

So vitrification does apply. Vitrification should be studied. It should be studied in vitrifying it first and then removing it from that area.

The thing about stabilizing it with cement is that cement cracks and dries, and it is a flood zone. It has flooded before. And in the long run you don't want to be washing through cracks of cement and end up with the same situation.

If you vitrify it and reduce it, that would be good. Other things you have to study with the vitrification, when you burn off those gases, etcetera, you have to compare that with the carcinogenic potential of using the stabilization and then removing that in cement and putting it in barrels.

If you stabilized it with cement temporarily, you wouldn't be burning off the gases with the insitu vitrification, and you could remove it. It does seem, though, that the State of Idaho is going to lose control if they allow pure separation to occur.

I do have a question about how decontamination went. I couldn't find that in the documents. So I'd like to understand that.

The containment importance is literally --

your calculation is the worse case scenario with dry ponds with the wind blowing. I wondered, one, if you eliminated resuspension from your inhalation calculations like the WIPP, NEPA documents does on the Volume II of the draft summary on page 279.

MS. WELLES: You now have 30 seconds left

MR. RICKARDS: Okay. I think I'll take a group thing, a group called Right Thinking Americans. I'll speak for them.

But literally, on that, that should be an option that's studied. And as I stated before, when you break through that crust and polymer level, you don't want to be depending on what winds will blow in Idaho at what point.

We need to know the cost of containment like around the transuranic storage area. You're building a very similar containment thing. Stand up to 50 mile an hour winds, it totally eliminates what you consider the worse case scenario with the winds.

MS. WELLES: Peter, thank you.

MR. LYLE: Are you now going to your group thing? I mean that was Peter Rickard, right?

MS. WELLES: Okay. Peter, would you now like to make a statement on behalf of an organization? Okay. You need to tell me which organization.

MR. GREENWELL: The Right Thinking Americans.

MR. RICKARDS: I don't have much more to say, but I did want to complete it. The basic other questions that I've entered into are the programmatic impact statement for the waste management.

It occurs to me that plutonium 239, even at .001 grams -- and let me clarify this. Your documents say here, despite the small number that you gave us -- let me get the section out here.

This would be conceptual model and description of the effect on the environment for TRA warm water waste ponds EE&G dash --

MS. WELLES: EG&G.

MR. RICKARDS: Dash ER dash 8644 from October 1989 written by L.C. Hall for the INEL. It talks about the curies of transuranic elements present in the warm waste pond sediments. No inventories of disposed transuranic elements are available for the warm water waste ponds.

Also, fewer samples were analyzed for transuranic elements than for other analyzed types because of the high cost of analysis. And I think that is another example of where it would cost too much for them to identify how much plutonium was in the pond so they decided not to.

And the important thing is that if plutonium 239, a beast of another nature, if ten millirems of background radiation is the same as ten millirems of plutonium in the lung.

The effect on the infant, when I was talking with Bryce Rich from INEL in the three-day hearing we had on this transuranic storage area, he admitted that a single isolated plutonium particle could cause lung cancer.

That was basically backed up by the National Academy of Sciences saying that each single isolated small particle remains a potential threat and does give off appreciable radiation.

Internally to the body we need to know how many particles are there. That's relevant and important. Because when we're choosing stabilization first before removal, we need to know these things.

When you have the preferred alternative being the chemical and physical extraction of this, and we don't know how efficient HEPA filters are to the exact degree for these type of particles, every time you juggle material you lose some.

And your option not only gives the INEL the right to bury that radioactive waste, but it digs it up and exposes it through HEPA filters, puts more waste and spreads it out more on your solvents and everything else

that you're going to be using for this.

So I would like to recommend a few of the options of no action alternative until the programmatic environmental statements are done and more thorough studies are done. We don't want to pass by ISV.

Basically, a capping would be appropriate under a containment. It's not exactly a no action. Putting up a wind containment, stopping the percolation of the waters through these, and putting a foot or two of dirt on top probably wouldn't hurt, as far what I could see, in terms of waiting.

Perched water -- I guess we're going to wait on that.

MS. WELLES: We need to wait on that.

MR. RICKARDS: You bet. I guess the last thing I want to say in terms of public participation, it does appear as if you want to get the show on the road.

As you said, you have something you think you know how to do. It does bother me that in other public participation I've been denied NEPA documents. At this moment, I haven't seen an environmental assessment done on any of these proposals.

But in particular, other situations, transuranic storage area, GFC pilot plant evaporation pond, I've asked for two years for some of these environmental

assessments and they haven't given them up.

The public participation, Jerry Lyle was at a meeting we have public record of where the answer on my HEPA filter questions were HEPA filters filter out all impurities. That's what they said in writing. And that's what you consider answering public comment.

And as we know, they don't filter out all impurities, not a hundred percent. And as I've shown against your witnesses, what you say in the detailed plan, 99.97 percent, actually isn't true for the smaller particles. And that'll be about it for my comments.

Thank you.

MS. WELLES: Thank you, Peter.

Is there anybody else in the audience who would like to comment? You should come on up to the microphone.

MR. LYLE: There were two questions included in that. Should we address those before we go on this comment or should we wait?

MS. WELLES: Jerry, could I have you hold them to the end?

MR. LYLE: Sure.

MS. WELLES: And then I agree with you that we ought to take them at that point and time.

Okay. What is your name?

MR. CHISHOLM: Bill Chisholm. First of all, I guess I'm glad that I'm here not facing one more of your projects that is going to necessarily add waste.

You know, I'm not particularly happy that we are dealing with waste because I don't believe that if the people who had been in charge with the INEL and their predecessor, Department of Energy would have been using their heads at all, that we'd be at this stage right now.

But one thing -- Albert Einstein, father of the nuclear age, said, "All things change for this moment but our mode of thinking."

In a spherical reality, most of us, because of an education system, news media, on and on, are mono-reductive linear thinkers.

They see one thing. They put it in their head and they go for it without recognizing the first law of physics, that for every action there's a reaction.

This is a thing that I used at a grade school. They seemed to catch it. So I've used it now at a couple public hearings in hopes that you folks that have been monolinear thinkers for a longer period of time may understand what I'm talking about.

I have here a goldfish bowl. It's full of beans, marbles of different colors, represents biological diversity, cultural diversity, spiritual diversity,

geological diversity.

I even have a little money in here representing economics. Most people think the whole thing should be money and that's all we deal with.

I say not only as spherical thinkers, but try spherical thinking, that simultaneously allowing for physical reality existing spherically, they also exist mentally and spiritually, that there is nothing that can be isolated in and of itself that does not have those three components, and that for every action there is a reaction.

I defy anybody here to remove the middle bean without having the effect on these other aspects. And that's where we're at. We've been monolinear thinkers. This problem that we have here at INEL is a result of that mono-reductive linear thinking.

The solution -- the solution is not going to come from that same type of thinking. You know, the fact that there aren't more people in the audience tonight is part of the cause and effect relationship.

Yes, we've been hollering about cleanup for a long time. Why aren't there more people here? Part of it is we don't trust you. You've got not only a cleanup situation out there that is very big.

And I'm glad that Peter Rickards is a technical man that likes to ask more technical questions.

I'm more of a philosopher. You have to ask all kinds of questions.

We have to note -- you know, this is, as Peter maybe alludes to here, is, is this the first sign that we're going to have some cleanup and people are going to relax, when maybe this isn't even the best form of cleanup?

Maybe this isn't the best priority for the problems that we have out there. And I was asking them earlier how about the money.

You know, last month, Senator John Glen proposed in a rider to Department of Energy an amendment to a Department of Energy funding bill, I guess it was, that they take a hundred and eighty million dollars out of all these proposed projects that create the waste cycle and put that hundred and eighty million dollars into cleanup. Well it was defeated.

Now we have 370 some sites at INEL. How many of the other sites around here? You know, are we just going to get another little show and tell thing and not in fact get cleanup that is necessary? And what about all the other projects that are generating waste in the meantime? What are we going to do with those?

You know, I recognize that -- I don't see any Admiral Watsons here or George Bush or anybody else. I recognize that you are not the policy decision makers. But

I also know that you talk to somebody upstairs. Maybe even up there with any luck.

Maybe you are spiritual thinkers. But they need to know that there is deep distrust among the people, for not only the projects that they're proposing at us all the time, but your cleanup projects.

Now the types of questions that Peter asked, that access -- we ask the question, we want an answer. You know, we don't want it hidden, oh, well, we can't do that for all kinds of reasons. We need those kinds of answers if you're going to have the trust.

The taxpayer's paying this bill, paying your salaries, to know that when we invest this money, you know, 6.9 million is a lot of money, we want to know that that fact is part of something that is a true solution to the problem and not more of the sort of public relations approach that we often get.

I suggest you think about it. Try spherical thinking. It's going to have to expand the role that most of us take, but it's the only way we're going to get a solution to our problem.

MS. WELLES: Is there anybody who hasn't made a comment that would like to make one at this time?

Okay. It seems to me that this would be a good time to address additional questions that you feel have

come up.

MR. BAUMER: There was a question about the depth of the contamination. And based on -- in 1988 they sampled down to -- most of the samples were down 10 feet, and some were down to 15 feet. And virtually with every contaminant, 90 percent of the contaminants were in the upper two feet. So that's what the cleanup is addressed towards.

Since it is cesium and cobalt which are the focus of remedial efforts, you know, we can use field gamma instruments as we're going along to determine, you know, that we're getting as much as we need to get, regardless of which alternative's used, except for capping, obviously.

MS. WELLES: Is this a follow-up question on that specific topic?

MR. RICKARDS: In options three and four there in your plans for, let's say, stabilization with cement, how deep do you plan to mix it? And on the extraction, how deep do you plan to dig it to take it out?

MR. BAUMER: In both cases, the average would be two feet. But we would use field instruments to determine if there were any spots that needed, you know, deeper as we went. We would dig more.

There was another question about the inhalation risk assessments scenario and resuspension.

MR. RICKARDS: Yeah.

MR. BAUMER: And I'm not sure exactly what the answer is, but I can tell you what we did. At the test reactor area they do have particulate monitors which actually -- they know how much particulates are in the air, okay, at the test reactor area.

And for the purpose of risk assessment, we assume that all of that particulate matter was average dirt under the warm waste pond, which gives you a cautious approach, if you will . Because you know how much wind there is blowing out there at the site, and not all the dirt is coming out of the warm waste pond.

MS. WELLES: Did you have a specific follow-up on that?

Peter, why don't you just come up to the microphone. I think that's a good idea. I think the court reporter is having a hard time hearing, so we need to speak slowly and use the microphones.

MS. WELLES: Peter, what's appropriate is a question at this point.

MR. RICKARDS: On the inhalation?

MS. WELLES: Right.

MR. RICKARDS: He reminded me that the question --

MS. WELLES: We now have the court reporter

hooked up. These things happen every once in a while. We just have to bear with it.

MR. RICKARDS: A follow-up on the question on the card about the number of plutonium particles and the question on inhalation and resuspension. Literally what your goal is is to make sure that if there's 10,000 people exposed in the area and there's only one excess cancer death.

And I guess in Idaho Falls there's a population of 40,000, so we're talking about a cleanup operation that would only kill four people. The thing I want to know on the number of particles is that each particle can cause lung cancer. Literally on resuspension, if you have a million particles, you cannot say in the next 240,000 years that you won't have a million deaths. It's not one in 10,000 or anything.

And also it appears on the lung cancer --

MS. WELLES: Peter, I'm not sure what the question is.

MR. RICKARDS: How many particles in a pound of plutonium -- how many particles are in there?

MS. WELLES: So that's a question you want them to answer?

MR. RICKARDS: Yeah.

MS. WELLES: Okay.

MR. BAUMER: I don't know the answer. We can figure it out, you know, based on Avogadro's number and all that, 86.023 times 10 to the 24th atoms per whatever it is.

MR. LYLE: We don't have that answer up here. But we can certainly get that. We just don't have that information with us.

MR. RICKARDS: I guess the point is is when you're evaluating different techniques, and you're studying stabilization of any form versus digging up and extracting them, you must be factoring resuspension, and you must factoring in inhalation by the particle as opposed to -- the other question.

MS. WELLES: Is that a question?

MR. RICKARDS: It's a follow-up almost.

MS. WELLES: Okay. But the part that you've just described now, is that -- I'm having a hard time figuring out -- in order for these people to answer a question they need to have a question.

MR. RICKARDS: Okay. Let me just wipe the slate clean. When you studied inhalation and you studied lung cancer, some lung cancers are curable. And your rates that you're going for are cancer deaths in 10,000 people.

And what I'm curious about is do you calculate people that have lung cancer and don't put them in

the file calculations because you assume it can be cured?

MR. BAUMER: All of this -- all of the risk calculations are based on the EPA guidance which was developed with toxicologists and medical people. And it's excess cancers, not excess -- excess occurrence of cancer, not excess cancer deaths.

MR. RICKARDS: It's not cancer deaths?

MS. WELLES: Andy, isn't there some information with EPA?

MR. BAUMER: We have a handout there which -- maybe we can look at it at break.

MS. WELLES: Okay. Risk assessment's obviously a very complex subject, and I think breaking the question down into small increments would be very helpful.

Okay. Or answer -- what I really need is answerable elements. Okay. With that, it looks like we have gotten the questions and fielded many of them, and that we've also had an opportunity to take comments.

So at this point I think what we need to do is take a break. Before we do that, though, I'd like to mention that Rule Smith, standing at the end of the room, has some comment forms.

And as Jerry said, if you didn't have a chance to make a comment this evening, or if there are additional comments you'd like to make, Rule Smith is showing you one

of the forms. There's one for perched water and one for warm waste.

You should feel free to fill it out, either bring it to the mike or hand it in. The address to send it to is noticed at the top of that. Also, if you feel at any point that you'd like to send in additional comments, you can find the address in the fact sheets that are at the back of the room as well.

So with that, let's take about a ten-minute break and focus on perched water.

(Recess at 7:50 to 8:11 p.m.)

MS. WELLES: Okay. I'd like to ask you to please take your seats so we can get going on the perched water presentation.

Okay. As we were talking a little bit earlier in the evening, the perched water project is at an earlier stage in it's development than the warm waste pond.

DOE will take oral and written comments made during the comment period into consideration as they progress to the point that a proposed plan can be written.

The comment period on the perched water ends September 10th. And Nolan's presentation tonight is a synopsis of the fact sheet that you picked up at the end of the room when you came in this evening.

Nolan, in his presentation, will give an

overview of the project. He'll provide a description of the alternatives as they have been developed to date. In addition, Jim has asked me to read the following to you so we know exactly where they are in the process.

Once a remedy is selected for the operable unit, and if it is determined that an EIS will need to be prepared, there are three things that you need to know.

EIS scoping will be formally noticed and reopened at that time. All comments made tonight on perched water will be considered as part of an EIS scoping process, should an EIS be deemed necessary at a future point and time.

And, also, that the comments that you make tonight will be used as DOE moves forward in considering the most appropriate remedy for the perched site in the coming months.

So you're comments tonight will definitely be factored into the approach that DOE will be taking on this problem.

Okay. With that, Nolan, we're probably ready for your slide show. After Nolan is finished, we will use the same process that we did on the warm waste, with questions on the note cards.

If you need note cards during the presentation, why don't you go ahead and raise your hand and

Mike will make sure you get what you need. Okay?

MR. JENSEN: Okay. Again, like Debbie said, this project is at a far different stage than the one that you heard about when Andy talked about the warm waste pond interim action.

In the case of the perched water study, we're way back at the beginning of the study. We're just now just barely beginning to develop some of the alternatives that we think we will evaluate for determining how the perched water might be cleaned up.

So tonight the main thing that we would like to do is get your comments on what are things you think should be considered during this study, what are alternatives you think should be considered for cleanup, and what potential environmental impacts of those alternatives should we consider.

Now that was a slide I just talked about. Okay. I'm going to back way up now and talk more, more generally about the process that we're going through, where Andy didn't really have time to do that much on his project.

As Jerry said at the beginning of the meeting, we're just at the point of going out to public comment with an agreement between EPA, DOE, and State of Idaho on how we will manage and how we will approach the cleanup and study effort at INEL.

It's a big site. And like Jerry said, there are upwards of 400 sites now that we will be looking at in some degree or another. And in order to manage that much work effectively we've had to break it down somewhat.

And so the first breakdown is that the INEL has been divided into ten waste area groups. And basically that's just dividing it into the different facilities at INEL.

The test reactor area, which we're talking about tonight, the Waste Area Group Number 2, or WAG-2. The next breakdown, since the test reactor area is still a fair amount of work, and there are several different issues at the test reactor area, it's broken down into the operable units.

And there's nothing magic about either of those terms. It's just a way to break down the work into bite-sized pieces so that we can manage it effectively.

The perched water study is one of those operable units. There are thirteen test reactor areas. The warm waste area that Andy talked about is another of the thirteen.

Okay. Let's talk about what perched water is. Perched water is ground water, obviously. It is water that has gone down, in this case seeped through the waste water disposal ponds at the test reactor area, and on its

way into the subsurface has encountered a layer of sediments like clay that is relatively impermeable. And it slows down or impedes the downward flow of that water enough that the water mounds up as it fills in the void spaces in the sediment.

And so it's called a perched water body, because it's perched above this clay layer. Now the perched water, as far as we know, didn't come from the disposal of waste water from the test reactor area facilities to the disposal ponds. And it's about 300 feet above the Snake River Plain Aquifer. But I'll go through that a little bit more in detail.

As Andy showed you earlier, this is an aerial view of the test reactor area. This series of ponds is the warm waste ponds that he talked about. And then there are these other waste water disposal ponds, all which contribute to the perched water body beneath the test reactor area.

Now if we took a slice through one of those ponds, a vertical slice, this is a diagram that represents the general idea of how the perched water, or what the perched water is. Again, we have a pond, disposal pond. And as it seeps down, it encounters a clay layer. And at the test reactor area there are two -- two perched water bodies that we mainly deal with here.

The first one is about 50 feet. This clay layer's about a hundred and fifty feet. And the top of the Snake River Plain Aquifer is about 450 feet. So there's about 350 between right there and there right now.

Now we do already know that this water has contaminants in it, and also the Snake River Plain Aquifer we know has some contaminants in it. In some cases it's above the drinking water standard. Not a great deal above them, but we do know that there's contaminant -- contamination above the drinking water standards at this time.

One other thing I should mention is that over the years we've changed practices at the test reactor area. There's a lot less water going into the ground now. Two of the main contaminants that we know we need to deal with are tritium and chromium.

And in 1972, they stopped using chromium. It was used as a rust inhibitor in the -- in the cooling tower system at the test reactor area. And they changed to a phosphate base rust inhibitor now.

And, also, in the fact sheet there's a mistake in there. It says chromium was stopped being used ten years ago. But it's actually about 19 years ago.

Okay. So generally what we're talking about here is the past previous practices did cause some

contamination that we do need to deal with.

Now how big is the perched water body? If you look at the lower of the two, which is the bigger, this is the outside boundary of the perched water system. So the focus of this study is that body of water right there.

And the main -- the main problem, of course, or the main concern, is this poses a potential threat to the Snake River Plain Aquifer. And we want to find out, first of all, what affect could this have on the Snake River Plain Aquifer. That's one of the main concerns.

Now let's talk just a little bit about the process that we'll go through. Again, in Andy's presentation, we're at the decision stage. We're at the proposed plan, where we've gone through the investigation enough that we believe that we can select a remedy.

And now we're under the Superfund Law. We're going out to public comment with our preferred alternative or our proposed plan. In the case of the perched water studies -- oh, each siting, by the way, represents public meetings or public comment period.

In the case of the perched water study, we're just getting into the process of identifying and developing alternatives. Now let me go through the process that we go through under the Superfund Law real briefly.

As Andy stated at the beginning of his

talk, the study is termed a remedial investigation feasibility study under the Superfund Law.

The remedial investigation part of the study is to answer three basic questions. What contaminants are there, where are they and to what extent, and what risk do they pose.

The feasibility part of the study answers the questions, well, now we know what's there and how bad they are, how do we best clean them up.

The scoping part, it's shown at the beginning of the process, but it actually could continue on. The scoping part of the study is just planning, deciding what the objectives of the study are, what kinds of issues do we need to deal with.

And so tonight this is a scoping meeting. We want to have your help or input on things you think we should consider as we're going through the study on perched water.

And according to our current schedule that we've negotiated with EPA and State of Idaho, we should be to the proposed plan stage in about a year. So we'll be coming back here in a about year to do another public meeting on the proposed plan for this study.

Okay. Andy talked about the alternatives that are used under Superfund to decide how or what

alternative will be used to clean up contaminants. And, again, in this case I won't be through them individually. But the same nine criteria will be used to evaluate all alternatives that we will consider.

And like Andy mentioned, these top two alternatives, protection of human health and the environment, and compliance of environmental laws are considered threshold criteria.

Any alternative that's evaluated has to at least meet those criteria. Those are the bare minimum. And also, as you think about alternatives you think should be considered, or if you have comments on the ones that I'll talk to you about in just a minute, keep in mind that these are the alternatives that we will be using. So keep that in mind so your input's most effective.

Now, again, we're just barely starting to identify alternatives. But this is a list of some of the very general types of cleanup alternatives that we will probably be considering.

The first one, removal of water followed by treatment to remove the contaminants. It's just that. We can take -- drill some wells that will pump the contaminated water out of the ground and then treat it to remove contaminants out of the water.

The second one is similar in that we would

remove the water from the ground by pumping. But then in that case maybe we could put it into an evaporation pond and evaporate the water and collect the residues that are left over at that point.

The next, live waste management practices, this is a general category of perhaps there are things we can do better as far as our water management.

For example, the warm waste pond is being replaced next fall. We'll no longer be putting waste water into leaking ponds. Another thing that we've already done, like I said, is we stopped using chromium in the cooling towers to remove contaminants. Those are the types of things that we would consider in this category.

The next one, institutional controls, is just a broad category of administrative type things that we could do to reduce the risk. Maybe it's set up a fence to eliminate the possibility of exposure. Perhaps it's putting a restriction on wells that are drilled so we can't get contaminated water out of the ground, those types of things.

The last one, the no action alternative. At this point, that may be a very viable alternative. We don't know yet that action must be taken. But if we do determine that action is necessary, then no action alternative will be used to compare the other alternatives to see how much they reduce the risk relative to no action.

Now that was a very brief and quick overview of the broad -- broadly of how we're approaching this perched water study and the things that we're considering right now.

So again, what we're hoping for is to have your comments on the kinds of alternatives that you think ought to be considered, things that we should consider in our study, potential environmental impacts that ought to be considered.

And, again, as Debbie mentioned, we would hope, in order to best fit the schedule we're working to right now, that we could get those comments by September 10th. But, of course, we'd accept comments at any time. Thank you.

MS. WELLES: Thank you for that presentation. The format now is identical to the one that we used with the warm waste ponds. If you have any questions on the note cards, if you want to hold your hand up, and Mike Hart will pick up any note cards you have and bring them up to the front of the room.

As Nolan said, this particular project is at a much earlier stage in its development and DOE has attempted to respond to some of your questions and your comments, in saying that you'd like earlier information, and so the chance to try to get some early foundation and

clarification from Nolan and Jerry and Shawn as well.

These seem to be pretty technical questions because Jerry referred them to Nolan.

MR. JENSEN: Also, Don Vernon, over by Debbie, is the EG&G project manager over this project, and he's up front to bail me out.

"What happens to the contaminants removed from the water?"

Again, we're just barely beginning to evaluate alternatives, or identify alternatives that we could consider. So it's premature to know what we would be doing with them. But, of course, they would be collected. We would evaluate what type of waste it is, whether it's a hazardous waste. And then we would meet the appropriate standards and meet appropriate disposal standards for those wastes.

MR. LYLE: And that would be part of the alternative.

MR. JENSEN: Right. "Are ponds still being used to hold tritium contaminated water at INEL?" Don, do you want to answer that one?

MR. VERNON: My name's Don Vernon.

MS. WELLES: Don works really closely with Nolan.

MR. VERNON: Right. The warm waste pond,

which is what now is used for disposal of the tritiated water is still in use. And the plan is that next year that pond will be replaced with a new lining evaporation pond system.

So at that time disposal of tritiated water to the ground should stop.

MR. JENSEN: "How many sites like this are there at INEL?"

MR. LYLE: The other one that I know of where there's tritiated water stored in ponds is at the chemical processing plant. There's a project called liquid effluent treatment and disposal that is supposed to come on line sometime in 1992, and I don't remember what the month is, which will handle the discharge going to that pond. And then that pond will be closed. Those two ponds will be closed as well.

MR. JENSEN: The next question. "Do lined evaporation ponds eliminate the problem of perched water?"

That is the very intent the lined evaporation pond would be, to prevent water from seeping into the ground. And generally, when you would put a liner in, it's often a double liner with a collection system between the two liners, and monitoring to make sure that if the first liner fails then that is recognized right away before the second one fails

MS. SURSELY: What is the liner made of?

MR. JENSEN: It's generally -- it's called Hypalon. But it's plastic. And then there are, you know, sometimes clay layers or clay liners can be put in. I don't know if that would happen in this case. But that is done.

Also there are perched water bodies at INEL that are natural from runoff like the Lost River. But that's not at the INEL.

MS. SURSELY: Could I ask a follow-up question?

MS. WELLES: Would you come up to the microphone? I hate to ask you to do that, but the court reporter really needs some help.

MS. WELLES: What's your name?

MS. SURSELY: My name is Kathy Sursely, S-u-r-s-e-l-y. My question is if this perched water occurs naturally, and it's water that actually does get into the aquifer, then these perched water bodies at INEL that are contaminated also have a good possibility of getting into the aquifer.

MR. JENSEN: Exactly.

MS. SURSELY: Because that's what feeds the aquifer, is these bodies of perched water.

MR. LYLE: Exactly. That's why we're trying to address these perched water bodies.

MS. SURSELY: I just wanted to be sure that this doesn't -- like something that was --

MR. LYLE: We don't believe that it'll act any differently than any other perched water bodies we have on the site, which we do know goes to the aquifer.

MS. SURSELY: Thank you.

MR. JENSEN: "Do the contaminants adhere to the clothes?" I can answer that very generally by depends on the contaminants. Some do.

MR. BAUMER: I can answer that.

VOICE: Andy, could you come to the microphone?

MR. VERNON: The rules apply to you, Andy, as everybody else.

MR. BAUMER: In the case of warm waste ponds, what we found based on those samplings is that the insoluble contaminants, which is basically everything but tritium and hexavalent chrome, keeps on going into the perched water.

Just about everything else -- in fact, the chromium gets reduced into the hexavalent chromium and that's an insoluble form and gets tied up.

The tritium and hexavalent chrome, which there's no hexavalent chrome going in anymore, but those are soluble and keep going. The rest stay.

MR. LYLE: Could you repeat those? I think you just switched the two.

MR. BAUMER: Hexavalent chromium are soluble and go through the soils into the perched water. The rest are insoluble and get caught up in the soils.

MR. LYLE: Which is why we see sediments of the warm waste pond --

MR. BAUMER: In the upper two feet.

MS. WELLES: Okay. Now what we need to do, really, we would need to have you come up. So if you want to sit close to the microphone that will be great.

MR. LYLE: So what in fact does happen in both of the sediments in the ponds as well as those -- those layers in there, you do get some filtering affect from those for everything but the tritium and hexavalent chromium.

Another question, "When you consider pumping up perched water -- when you consider pumping up perched water into the evaporation pond, have you considered how evaporated tritium will precipitate in the Teton Mountains and return via snow pack into the Snake River?"

I would say these alternatives that were shown up here, they were put up here to give you an idea of the spectrum, the range of alternatives we're going to look at. We have not evaluated any of those so far. We will have to consider all types of things for every one of those as we go

through.

MR. RICKARDS: I guess that would be a scoping question. That was one of my scoping questions for you.

VOICE: We're under the impression that some of these questions are not that you're going to answer them tonight, but as you do your studies you will answer those questions.

MR. LYLE: I understand. And I'm trying to give the you status of them now, and then I'll give all these to Rule. And we will be addressing these all as we go through this process.

MS. WELLES: So the comments are very instructive. And they will be added to what's going to be considered.

MR. JENSEN: Okay. One more question. "What was that uniformity of these clay layers?" From what I've read, and Don you can answer this, they're at least uniform enough to cause the water to perch. However, on the other hand, we do know there are some contamination in the aquifer. So I guess the bottom line is they are fairly uniform from what we know, but that does not mean they don't leak at all.

MS. WELLES: So is that the conclusion of the questions?

MR. LYLE: Unless he's got something to add.

MR. JENSEN: You want to add that?

MR. VERNON: That's fine.

MS. WELLES: Okay. If there's nothing to add to that -- is there another question?

MR. JENSEN: That's all I've got.

MS. WELLES: That's it.

Okay. Anybody else have any additional questions for note cards? Okay. Then we'll go back into the public comment period where, again, I'd like to remind you that you're welcome to take up to five minutes. And I'll be timing you.

And you need to be sure on whose behalf you're speaking, whether on your own or an organization. Is there anybody that would like to come to the microphone and make a comment?

MS. WELLES: Peter, come on up. Now, Peter, again, I would like to remind you that the court reporter needs some assistance here. Especially, when you go over the numbers and the documents, if you could slow down for him.

MR. RICKARDS: Okay. I might not have much to say here. I guess basically the situation by Jerry answered the question on has evaporation and return of that

precipitation from our Teton Mountains been studied for evaporation ponds.

And I think the answer was correct, that no it hasn't. And that will be handed in with the scoping of it. But I would like to point out at this moment, when they close this down, we are committed to the evaporation.

They've been trying to build it here for three years -- two years I'd have to say. And that, oh, is it -- who is the EPA guy from Washington? Is it Jerry Little? Is there a Jerry Little there?

MR. LYLE: There's a a Jerry Leach.

MR. RICKARDS: Leach. There you go. And basically he did agree on the contested case hearing for the evaporation pond that -- all the analyses were done basically for an evaporation pond in Nebraska. It would be the same as the one they studied here, and that they hadn't studied our unique geology where most of the precipitation -- you know, you get 200, 500 inches of snow on the Tetons, and it returns, you know, the water volumes go up and down yearly with the snow pack, and those kinds of recyclings of the tritium, you definitely have to consider when you're committing us to these situations.

So is it possible to make a couple comments from the warm water waste ponds?

MS. WELLES: You know, at this point, it's

not because we're on the record focusing on this particular topic.

MR. LYLE: I'm sorry. On your question I misunderstood. I thought your question was aimed at the alternative where we would pump out the perched water into an evaporation pond.

MR. RICKARDS: Uh-huh.

MR. LYLE: Rather than this pond that Nolan indicated would be on line in the fall.

MR. RICKARDS: Right.

MR. LYLE: And I don't know if that was addressed at all. I don't know that.

MR. RICKARDS: Okay. Well, it is on the public record, Jerry Leach saying that. And the situation would be the same whether it was for this tritium or the perched tritium, or the tritium that's going to come for the next 30 years.

You basically haven't considered our unique geology here. I mean we literally want to avoid making the situation worse. And evaporation ponds make tritium immediately available to the public.

Whereas Jack Barrett pond data on the tritium, if it were to leave that perch and enter the aquifer, it should be basically disintegrated by the time it reaches civilization. So the chromium would be the one

thing you have to check on that.

And on the chromium, I guess the things to scope would be the biological affects of inhalation versus ingestion. I know a lot of different substances are much better to drinking water than to inhale, plutonium for one. And that would just be things you have to scope on, hexavalent chromium.

That's all.

MS. WELLES: Thanks, Peter. Any other comments?

MR. CHISHOLM: Bill Chisholm again. One thing I guess that I feel maybe a little more positive than in the past is that before people from INEL always came, and the Department of Energy and their predecessors, were always so sure of what they were saying, and there was very little room for doubt to comment.

But it's obvious, as we talk about the clay layer, we don't know what it looks like. We haven't taken the top off it and assessed this thing.

So I guess a part of this process goes on. And from our side, civilians and taxpayers that are paying this thing, that you acknowledge your humanness, that you acknowledge that you don't have all the information, just impossible to have all the information, that you keep doubt in there, and that we go forward with this in a sense that

we're going to solve the problem and not that we're going to cover INEL and DOE's ass.

But that we've got a serious problem, acknowledge that we have a serious problem, and that we're going to take the steps that are necessary to solve the problem and not merely have one more show go down the road. But I guess just as a comment, that, you know, I hope you all sort of keep your humility right up there at the top rather than your degrees and everything else.

Because, as you know, in the final analysis, the solution is probably going to come from acknowledging our mistakes.

MS. WELLES: Thanks, Bill. Are there any other comments? Okay. At this point, then, Jerry I'm going to hand it back to you to close the meeting.

MR. LYLE: Again, I'd like to thank you all for coming to this meeting. We do want to take everybody's comments. And don't forget that just because the meeting's ended doesn't mean you can't give us additional comments. We will be taking written comments.

And I would again like to remind you all of the meetings that we'll be holding on the interagency agreement on this three-party agreement. And we would very much like to have your input with that. And again I'd like to thank you, and good night. (Concluded at 8:45 p.m.)

REPORTER'S CERTIFICATE

STATE OF IDAHO)
) ss.
County of Canyon)

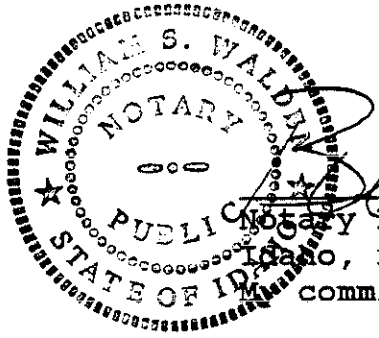
I, WILLIAM S. WALDEN, a Notary Public in and for the State of Idaho, do hereby certify:

That prior to being examined, the witness named in the foregoing deposition was duly sworn to testify the truth, the whole truth and nothing but the truth;

That said deposition was taken down by me in shorthand at the time and place therein named and thereafter transcribed by means of computer-aided transcription, and that the foregoing transcript contains a full, true and verbatim record of the said deposition;

I further certify that I have no interest in the event of the action.

WITNESS my hand and seal this 19th day of August, 1991.



Notary Public in and for the State of Idaho, residing in Caldwell, Idaho.
My commission expires 10-23-93.

UNITED STATES DEPARTMENT OF ENERGY

PUBLIC COMMENT MEETING CONCERNING PROPOSED CLEANUP PROJECTS AT THE TEST REACTOR AREA AT THE IDAHO NATIONAL ENGINEERING LABORATORY

WARM WASTE POND PROPOSED PLAN AND PERCHED WATER PROJECT SCOPING

August 14, 1991
6:30 P. M.
Boise Public Library
715 S. Capitol Blvd.
Boise, Idaho

Panel Members:	Lisa Green D O E - Idaho
	Dean Nygard State of Idaho
Presentations:	Andy Baumer - Warm Waste Pond Proposed Plan
	Nolan Jensen - Perched Water Project
Moderator:	Deborah Welles Advanced Sciences, Inc.

Reported by :
Wendy Jo Knain

HEDRICK COURT REPORTING
537 W. Bannock
Suite 205
P.O. Box 578
Boise, Idaho 83701
(208) 336-9208

BOISE, IDAHO, WEDNESDAY, AUGUST 14, 1991, 6:30 P.M.

MR. RICK TREMBLAY: My name is Rick Tremblay, and I run the INEL Boise office. All of us here at the INEL would like to extend a cordial welcome to everybody that has decided to come tonight. We appreciate that very much because without your interest and input, we're going to have a difficult time holding these public meetings unless it's required by law. So, we encourage you to attend whenever you see an announcement in the paper, and invite your friends, get as many people as you can coming to these meetings so that as many folks statewide as possible have an opportunity to participate, not only by listening to presentations, but by providing input themselves.

And I recognize most of you and I welcome you. It's good to see so many old friends here -- David and Helen and Sheila and Liz and John -- and it's very good and I thank you for coming. I know there's a lot of other things we could be doing right now, like Alive After Five just a couple blocks down the road with a great band.

Nathan, hi.

We're here today --

THE SOUND MAN: You didn't say hi to me.

MR. RICK TREMBLAY: Sounds good to me.

We're here today to seek input, all of us at the INEL, on two cleanup projects at the Test Reactor Area of the Idaho National Engineering Laboratory, and we're holding these meetings in five different locations statewide. There is one to go, we've already done three; and the last one will be in Moscow August 15th, so if you have any friends up in Northern Idaho, at the University perhaps, don't hesitate to call and encourage them to be at the University Inn tomorrow night.

We're asking for public input on these two cleanup projects, the Perched Water Investigation and the Warm Waste Pond. Both areas are believed to be contaminated with radioactive and/or hazardous materials, and it's very important that we clean up those sites.

These meetings serve as scoping meetings to take public comment on the impact and issues the DOE must evaluate while studying cleanup methods, and you will be asked to comment on several alternatives that have been arrived at with the State regulatory compliance people, the EPA people, and the Department of Energy folks.

There's four alternatives and they will be addressed during this meeting with one alternati. that is recommended by these three agencies, but you may have your own recommendations and those recommendations are -- are -- are solicited. You may want to send it all to the moon, and we want to hear that too.

So, with that, I would like to introduce Debbie Welles at my right, and she will be the moderator of this meeting.

If there are any technical questions at all not related to these two cleanup projects, don't hesitate to see myself, or John Walsh in the back corner with the striped shirt. If we don't have the answers, we'll find them for you.

And if you haven't signed in, I encourage you to do so because that way, we can put you on a mailing list and be sure that you get an update on what's occurring, as well as for future meetings.

Thanks very much.

Debbie, if you will.

MS. DEBBIE WELLES: Thanks, Rick.

I'd like to begin by introducing myse I am the moderator for the meeting this evening and

I'm an independent contractor to DOE.

I'd also like to introduce a couple of the people who are here tonight to talk with you, and I'd like to begin first of all with our two panelists, Lisa Green from the Department of Energy, and Dean Nygard representing the Idaho Department of Health and Welfare. They are here, as I mentioned, representing DOE and the State's role in the cleanup of these two projects, and they are here to listen very carefully to what you have to say tonight.

We also have two presenters: Andy Baumer, who will be giving a presentation on the Warm Waste Pond, and Nolan Jensen, who's in the front here, who will be giving a presentation on Perched Water. Both of these gentlemen have prepared slide shows and they are here to answer any questions that you may have, and they also want very much to help you understand what's going on regarding these two projects.

I'll also mention that there are two contractors that support the Warm Waste Pond Project, as well as the Perched Water Project. They are Don Vernon -- Don, where are you? -- and also, Doug Greenwell. And when we get to the question and answer period, we may end up asking these guys to come

up and answer some technical questions as well. They are very well versed in many aspects of those two projects.

As you know, Rick Tremblay is here tonight as a resource and John Walsh is as well, and John is with the INEL public affairs office, and they are here specifically tonight to answer any questions that are out of bounds from the two topics that we're addressing.

Most important is you all, the audience, and you're the reason that we're here tonight, and we want very much to make sure that you understand these two projects and have a chance to interact with the people that have a lot of information about them, as well as to make comments; and there will be a portion of the meeting where we ask anybody that's made a prepared -- or, prepared statement that you'd like to make to come to the mike at that point.

There's some additional outcomes that we'd like to achieve in this meeting:

Again, the agencies want you to know the status of the Warm Waste Pond and the Perched Water Projects so that you are aware of the situation on each project and have information about what has be planned for the cleanup.

The agencies also want you to know what cleanup alternatives have been generated to date for each project, and I stress to date because the final decisions have not been made and your input is clearly being asked for this evening.

They also want you to know which alternative is currently preferred by DOE, EPA, and the State on the Warm Waste Pond. That project is much further along in its development than the Perched Water.

In addition and as I just mentioned, an important outcome of this meeting is that you ask questions on the two projects and have an opportunity to comment.

We often get asked what will happen to the information collected during a meeting such as the one we're having tonight and that we've had in three other cities and will have tomorrow night in Moscow. As I mentioned, we're dealing with two different projects, the Warm Waste and the Perched Water, and each project has a comment period associated with it. The comment period for the Warm Waste Pond ends August 28th, and you might want to note that; it's also noted in the Facts Sheet at the back of the room. And the comment period for the Perched Water

Project ends September 10th.

After the comment period on the Warm Waste Pond Proposed Plan has ended on August 28th, DOE, EPA, and the State will use the comments that have been made in writing and in the meetings such as the one we're having tonight as one factor in making their selection for the final cleanup effort for the Warm Waste Pond.

The comment period for the Perched Water Project is a bit different from the Warm Waste Pond and that's because that project is not as far along, and Nolan, when he gives his presentation, will go into a bit more detail about that.

As you walked in tonight, you picked up an agenda, and you might want to just take a look at it right now so that you understand kind of our road map for this evening.

In just a moment, Lisa Green will make a few comments about the Department of Energy's involvement in these projects, followed by Dean, and then we will go to Andy's presentation. After Andy's presentation, we will have questions and we will have about 15 minutes of questions, and then the opportunity to comment. Then, there'll be a short break and we'll switch to the Perched Water Project.

There are a couple of ground rules for this evening that will just help us make it through the evening in good order. As I mentioned, there will be a question period. We're going to be handing out note cards for you, and as you listen to first Andy's presentation and then Nolan's, if you would write questions that you have on the note cards and then hand them to the center aisle; and if you're not ready right by the end of the presentation to hand them in, if you'll just hold up your note card, one of the gentlemen in the back will pick it up and bring it up to the front desk.

We're using note cards for two specific reasons: First, it gives everyone an opportunity to ask questions, even those who prefer not to come to the microphone. And, second, as you will see in a little bit, it gives the respondent a moment to read through your question and just give you a very thoughtful answer, and we want to make sure that that happens.

So that the court reporter and also the people sitting behind you can hear what's being said tonight, even though it is a little awkward, we do ask that you use the microphone and ask if you do have a follow-up question, reserve it for the comment period.

Please help us with that. It's very important so that our court reporter can be well-informed and hear exactly what's going on.

If you do have an oral comment that you'd like to make this evening, you'll have up to five minutes to make it, and I'll help you with that but I wanted to mention that now just so you can arrange your thinking along those lines.

At this point, I would like to introduce Lisa Green from the DOE field office in Idaho.

MS. LISA GREEN: I'd like to welcome you all here tonight.

I guess I need my microphone on.

DOE is here tonight because we are the lead agency responsible for cleaning up the INEL. The purpose tonight is to specifically receive public input on two INEL cleanup projects at the Test Reactor Area -- TRA. These will be the first of many cleanup projects that will be brought to you for your input.

This -- I'd also like to remind you that, or alert you, that our Interagency Agreement is out for public comment also. September will be the time frame for public meetings and hearings on -- on that Agreement and the Action Plan.

And, finally, I just want to remind you

that both written comments are also being received for both -- both of the -- of tonight's subjects and also will be received for the comments on the Interagency Agreement and Action Plan, and written comments do carry the same weight as those given orally.

With that, I'll turn it over to Dean Nygard.

MR. DEAN NYGARD: Thank you, Lisa.

First off, a little bit of who I am and who I represent. My name is Dean Nygard. I represent the Idaho Division of Environmental Quality, which is a division of the Idaho Department of Health and Welfare. In that position, I supervise the technical staff in which oversees the cleanup activities at the INEL from both the technical and regulatory perspective. In that role, we serve as a partner in that we work with Energy on a constant basis to insure that the schedules and plans that are developed meet State requirements, meet the purpose of the Interagency Agreement, and address what we hope public's concerns about the sites.

In the auditor role, we insure that the plans that are put forth and presented to you are carried out as -- as we indicate.

The State is here tonight for a couple

of reasons: On July 22nd, Governor Andrus signed a Notice of Intent to enter into an Interagency Agreement, a cleanup agreement with both the Department of Energy and the United States Environmental Protection Agency. Through that Notice of Intent, we currently have put out for public comment both the Action Plan and a legal Agreement for your public comment, as Lisa indicated. This is just one of the many cleanups required under that Agreement.

You may be somewhat curious about why a certain action is being -- this cleanup action is being taken on such an expedient timetable when it' just one of the many elements to be included in the Action Plan and mediated under the Interagency Agreement, and hopefully that's something that the State feels is -- is a real -- a real plus is to get -- get some kind of cleanup activity ongoing out there at INEL, and so we're very pleased and very supportive of Energy's work on these projects.

Just a final note before I turn this meeting over, and that is is that EPA could not attend this evening's meeting but asked me to pass along to you that they are also supportive of the Proposed Plan.

Thank you very much.

MS. DEBBIE WEILES: Dean, thank you.

The Warm Waste Pond presentation that you'll hear in just a moment, it's on the Proposed Plan, and a Proposed Plan is about a ten-page document and you probably picked one up on your way in. It was one of the documents at the back table. It was also sent out several weeks ago. Basically what Andy will be doing is giving you a synopsis of what's in that document, and so you may want to refer to it after you leave the meeting; it's -- it's really quite comprehensive.

First of all, Andy will give you an overview of the project that he's working on; he will provide a description of the alternatives. He will also tell you why DOE, EPA, and the State have proposed what is known as a preferred alternative. Then, you will hand in your note cards and we'll take about 15 minutes for questions on the project. And then after that, there will be an opportunity for any one of you in the audience who would like to make a five-minute or up to a five-minute comment on that Plan to come to the microphone and just go ahead and make that.

If you do not make an oral comment

tonight for any reason, there's several things you can do in the alternative: There are comment forms that are provided at the back of the room; one says Perched Water and the other says Warm Waste Pond. You should feel free to fill one of those out tonight and leave it if you wish. If you want to take it with you, the return address is also on it, and that return address is also in the Facts Sheet and the Proposed Plan that you picked up at the back of the room. So, either oral comments or comments in writing are more than welcome.

And with that, Andy, if you'd like to give us your presentation, that would be great.

MR. ANDY BAUMER: Okay. Hello. Test. There we go. Okay, is this thing on?

THE SOUND MAN: Uh-huh.

MR. ANDY BAUMER: What we're here to talk about is the Proposed Plan to clean up the Warm Waste Pond at the Test Reactor Area at the INEL, and this is an interim action, and before we jump into this I'll explain -- let me explain what an interim action is.

Under the Superfund Law, if you have to -- when you need to evaluate what's in a site, w the risks are, and what the best way to clean it up

is, you go through a study called a Remedial Investigation/Feasibility Study. Now, prior to implementing that or during it, if enough information is available to select a remedial alternative, you can go to an interim action; and an interim action can range from something real quick to knock the risk down, all the way to a final remedy. In either case, you would -- you still go through this same process to select the remedy.

There are nine criteria under Superfund Law which are used to evaluate remedial cleanup methods or alternatives. The agencies evaluate the first eight of those and come to a concurrence on a recommended cleanup method which is put into a document called a Proposed Plan. The Proposed Plan -- the purpose of the Proposed Plan is to generate public comment, because the ninth criteria under the Superfund Law is community acceptance. So, the Proposed Plan goes out based on the first eight criteria, it gets -- generates public comment to evaluate the ninth criteria, then the agencies can select a remedy which is put into the Record of Decision.

So, that's where we are tonight on this thing is that a Proposed Plan has been generated by

the agencies recommending preferred alternative based on the first eight criteria, and we're now in the public comment period trying to get your input on not only the recommended alternative, but any other alternatives as well.

So, if you came to our last one, you heard me say that there's four things you need to know before you can clean up a site. You have know what's in there, how bad is it, how can it be cleaned up, and then what's the best way to clean it up. So, let's go through that.

This is a Test Reactor Area -- which is extremely out of focus and it's staying out of focus. There we go. In any case, there have been as many as three reactors running at one time at the Test Reactor Area.

And this is the Warm Waste Pond over here, has been used for almost 40 years for disposal of radioactive waste water and was used for about ten to 12 years for the disposal of all waste water except sewage at the Test Reactor Area.

So, what's in it? Well, the contaminants fall into two categories -- metals and radionuclides -- and what we've found is that even though the metals are there in significantly larger

quantities and concentrations based on our risk assessment, they -- they don't pose a threat to human health. The radionuclides, on the other hand, are there in much smaller quantities, but do, in fact, present a risk -- a risk.

The two of the 19 radionuclides known to be in the Pond sediments, cesium and cobalt are there in the largest quantity and therefore provide -- create the greatest risk. And one thing becomes -- well, as you can see there, there are 11 and a half to four and a half nanocuries per gram, which is a real wonderful unit; but just for reference purposes, the Department of Transportation uses two nanocuries per gram as the -- the cutoff for shipping purposes. If it's below two, then it's considered nonradioactive. So, you could ship it, but you couldn't eat it if it was below two grams.

But in any case, what becomes important here on a risk assessment is this: Remember, on an interim action, we could either quick fix it or we can go for a permanent fix the first time, and so what happens is that since co -- cesium has a half-life of 30 years, well, what we do is if we're going to look for a permanent remedy, we have to evaluate future use, and so what we've done in this case is assume

that in 100 years the INEL would become -- would revert to private ownership -- you know, hypothetic situation -- and then -- and so what we have to do is evaluate present -- the present condition of the Pond -- is there a risk right now -- and also, what -- will there be a risk in 100 years.

Well, if -- in 100 years cesium would have gone through over three half-lives and would have decayed to about a tenth of what it is now, whereas the cobalt would have decayed to about a half millionth of what it is now, so right now we have to deal with the cobalt and cesium, but for the 100 years we only have to deal with the cesium. So, that's what's in there.

How bad is it? Well, we do a risk assessment to discover how bad it is, and that's composed of two parts: Toxicity assessment and exposure assessment. The toxicity assessment is -- is the how bad is it, what are in there, and that's composed of two parts. Well, there's two -- two ways that can fall out. Is it a -- are they carcinogens, known carcinogens, and/or do they pose other health risks. And what we found in this case, in our risk assessment, was that with all the combinations with the cancer-causing or other health effects, the only

category which proved to be of significant risk was the cancer-causing -- potential cancer-causing facts of the radionuclides; all the other categories did not pose a risk.

So, the other half of the risk assessment is the exposure specimen, which is composed of two parts: Pathways and receptors. And, in fact, in this case, for example, one of the scenarios we evaluated was inhalation of dust, and in that case, inhalation is the pathway and the receptor would be a worker who we would assume is at a given location for a given number of hours per week for a given number of weeks and years. And in this case, we evaluated three sets of -- three sets of pathways and receptors.

Now, under Superfund Law, there is a risk level which what been established which if the risk is above that, then you'd have to clean down below or -- within or below that risk range. The three scenarios we evaluated, two were based on the present: Is there a problem right now. And what we found is the external exposure to radiation was above the target risk range and must be dealt with.

The -- the -- the other two categories were inhalation of dust at the present time based on the contaminants in the Warm Waste Pond and ingestion

starting in 100 years, ingestion in our future use scenario. And what we found was that, okay, based this, we know that we have to reduce the external exposure to radiation in any case, but what it also means is that while both of these were below the target risk range individually, but together were above it. So, what happens is if we want to do a permanent remedy, we have to deal with all three risks.

Now, I should say that the Department of Energy has standards, procedures, et cetera, in place to make sure that people don't get this dose that's represented by that risk, but it certainly is a possibility and has to be dealt with under the Superfund Law.

Okay, so now we know what's in there and how bad is it.

How can we clean it up? Well, if we go into the Super -- EPA guidance documents on --

MR. JAMES DILLON: Physical separation; pretty much that's the bottom line.

MS. DEBBIE WELLES: There'll be a verbal time in a few minutes.

MR. JAMES DILLON: I'm sorry. I'm sorry.

MS. DEBBIE WELLES: Just go ahead.

MR. ANDY BAUMER: If we go to the Superfund guidance documents on the cleanup of radiologically contaminated soil, well, not only do they give kind of a status, a listing, and a description of the technologies, but they also give kind of a status report of how proven they are. And what we find is that there are only two technologies which are -- have been used to clean up a radiologically contaminated site, and those are: Capping, which is backfilling the Pond and putting an impermeable barrier on it; and land encapsulation, which is digging it up, putting it in a container, and taking it somewhere else and covering it up.

Now, if we wanted to go to the next category of proven-ness, that is the category that has been -- the technologies have been demonstrated on radioactive materials in the field but have never actually been used to clean up the site. Those technologies are stabilization, which is mixing the sediment up with cement or something like that, which creates a solid mass and binds up the contaminants; vitrification, which is melting it, and when it cools, it forms a glass which binds up the contaminants; chemical extraction, which is using acid or something

like that, you leach the contaminants out of the sediment and physical separation is due to some property of the contaminants, you can remove them from the bulk of the sediment.

So, as we're pursuing this, these technologies, as far as their applicability to the Warm Waste Pond, capping is commonly used and would certainly knock down the external exposure, and so therefore, would be an effective short-term remedy. Land encapsulation for just the sheer volume of material we're talking about here makes that unacceptable. Stabilization is probably used in the treatment of radioactive waste streams, and therefo is appropriate. Vitrification is -- just the scale of this project is kind of above and beyond anything that's been done in that category.

Chemical extraction is commonly used for extracting radionuclides from others, so that seems appropriate. And what we found is that if we wanted to do chemical extraction, we would have to precede it with physical separation, and that's because the sediment in the Warm Waste Pond contains a lot of gravel, sand, cobbles, et cetera, and the contaminants are mainly tied up with silt clay-sized particles. So, if we can just screen it, for example, and get

everything bigger than sand -- sand and bigger out, we can reduce the volume of contaminated material by something like 60 to 80 percent, which makes our chemical extraction process much more efficient.

So, capping, stabilization, and a combination of separation/extraction are the ones that got evaluated for this Proposed Plan.

These are the nine criteria I spoke of under the Superfund Law, and you'll notice we've added the no action to compare against here. And the State, EPA, and DOE together have evaluated these alternatives based on the first eight criteria and recommended an alternative in the Proposed Plan which is out now for community acceptance. So, let's go through those line by line. Now, as we go through here, let me just say the slash means it does not meet the criteria, a blue dot means it partially meets it, and a black dot means it fully meets it.

Okay, first one -- and I should say back here too that -- that these two criteria are called threshold criteria that have to be met for any alternative, okay, for any final remedy.

Okay, does it reduce the risks that we've found; first one. Capping -- a no action obviously doesn't. Capping reduces the external

exposure scenario but does not reduce the potential for future ingestion. Stabilization and separation/extraction both reduce all three risks.

Does it comply with all state and federal environmental laws? Well, DOE, EPA, and the State intend to address all applicable laws as required by Superfund Law, so these all three get equal weight, they are all equally --

Long-term effectiveness; how reliable is it? Well, a cap has a design life of 100 years, and since it couldn't be the final remedy -- well, cesium in this case would not decay naturally to an acceptable level for something like 400 years, so e if our cap did last 100 years, it wouldn't be -- it wouldn't be long enough. And the same problem exists with stabilization: We just don't know that stabilization is going to last for 400 years even though it -- you know, theoretically, it would. And then separation/extraction by actually removing the majority of the contaminants concerned from the sediments, it presently reduces the risk associated with those sediments.

Reduction of toxicity, mobility, or volume. Well, under the Superfund Law, there's a built-in preference for treatment over nontreatment

remedial alternatives, and so does it actually use treatment -- the alternative -- and if so, does it reduce the toxicity, mobility, or volume? Capping and no action involve no treatment so do not meet the criteria. Stabilization reduces the toxicity and mobility but actually increases the volume of contaminated material. And separation/extraction by removing the contaminants from the sediment reduces toxicity, mobility, and volume of the contaminated material.

Short-term effectiveness: How quickly would it reduce the risks? In each case, implementation would be within a year and a half to two years, so they all get kind of an equal weight in that respect, and by the same token does approach a risk -- the workers, the community, et cetera. In each case, all applicable health and safety standards, worker protection, things like that, would be met to minimize any risk to workers and community-wise.

Implementability. Well, as I showed, capping is the only one that has actually been used to clean up a radiologically contaminated site. The other two would require a pilot-scale test prior to implementation to prove that they would work and to fine-tune the process.

And, cost. No action has no short-term cost associated with it. Capping, 2.8 million to design and build a cap, and we didn't add in maintenance and operating expenses on that because it would not be a final remedy, and therefore, we assume that the cap would last until the final Record of Decision for the Waste Area Group within five or six years, something like that. Stabilization, 5.3 million; and separation/extraction, 6.9 million. Those costs include design and construction and as well as that pilot-scale study that I -- that I mentioned.

Okay, so that's the first seven criteria, so let's just look at a recap here:

No action doesn't meet most of the criteria.

Capping reduces the present risk, okay, and could be used as a temporary fixed interim action but wouldn't be a final remedy, and it -- and it does not involve a treatment.

Stabilization reduces all three risks, there is a question about the length of long-term effectiveness, and it increases the volume of contaminated material but reduces the toxicity and mobility. It would require a pilot-scale study and is

intermediate in cost.

Separation/extraction reduces all the risks; it's a permanent solution; it reduces toxicity, mobility, and volume. It would require a pilot-scale study, and is the most expensive of the three options.

So, based on that recommenda- -- on that analysis, the DOE, EPA, and the State have recommended separation/extraction as the preferred remedial alternative to clean up the Warm Waste Pond sediments. The State has added the condition that the concentrated residuals which are a result of this project be stored such that they can be visually monitored until their final disposition is determined in -- in the final ROD for the Waste Area Group.

So, based on that, we are now -- the Proposed Plan's out, we are in the public comment period, and we need your input on -- too so that the ninth criteria -- community acceptance -- can be evaluated. Written comments are equally weighted as verbal comments that you might give tonight; and all comments, verbal or written, will be addressed in the response of the summary which is part of the Record of Decision, which is the document which the agencies produce -- excuse me -- to say which remedy has been selected and why.

MS. DEBBIE WELLES: Andy, thank you.

For those of you who came in late, wh we are going to do to take questions is there are lots of note cards at the back of the room, and if you will write a question, if you have one, using one note card per question would be what would work best for the panelists; and then we'll just collect them and bring them up, and the panel will do their best to respond to them. So, Mike, catching some questions here?

MR. MIKE HART: A few.

MS. DEBBIE WELLES: The purpose of writing the questions down is, as I mentioned earlier, some people are somewhat reluctant to come to the microphone, in which case we want to make it equally possible for each person. And the second reason is it gives the panelists just a moment to think through the questions so they can give a really thoughtful answer. And we found that this worked really very well in the last two cities, three cities, that we've been in, and if you'll bear with us tonight, I think you'll find that this is a effective way to try to get your answers responded to.

MR. ANDY BAUMER: All right, the first question is How does the cleanup method affect the half-life of a radionuclide?

As far as I know, it doesn't affect it at all.

And, specifically, it says If stored anaerobically, does it take longer to break down?

I don't think it has any affect whatsoever on it, and, in fact, if you could get it to break down quicker, we would be real happy to have that technology.

With alternative four, after extraction what becomes of the waste? How can we be sure it meets long-term effectiveness criteria?

The waste, as it comes out of the extrac- -- the separation/extraction procedure, it would come out in a dry filter cake material more than likely, which would then be -- probably be stabilized so that it would meet all of the acceptance criteria for current storage in disposal facilities.

As far as How can we be sure it meets long-term effectiveness criteria, that's one of the reasons right now why we are -- the State has asked that it be visually monitored. We have to deal with the storage -- long-term storage of the stuff in the Record of Decision for the waste area group, okay, and because this is an interim action, this kind of rolls it into that, that Record of Decision which is

supposed to be in five or six years, something like that.

Why isn't there any mention of contaminants in airborne particulates?

Well, that is the inhalation scenario that we evaluated, and what we did there is we assume -- they have particulate monitors at the Test Reactor Area and so they know how much dust blows by the Test Reactor Area. What we did in the risk assessment is we assumed that the dust, all of that dust represented average dust, dirt, out of the Warm Waste Pond, and therefore, gives you a high side estimate of the amount of contaminants that could ingested; and in that scenario as we saw the -- that alone is not above the risk range which needs to be dealt with. So, it was -- it was evaluated.

The facts sheet talks current releases. What about details of past releases and cumulative data?

I think this may be about the Perched Water, but we could --

The Warm Waste Pond has been and is being used for disposal of radioactive waste water. In the past, it was used for a lot more water than is being used for now and the water was a lot more

contaminated than it is now. As I said, at one time there were three reactors running and it was dumping a lot of water in there at that time. The water -- amount water has gone down significantly in the last few years, and as a matter of fact, has -- has dropped just since last year. And that type of information and available in the Admin Record too.

Please explain streamline risk assessment, and was it the basis for the Warm Waste Pond?

Well, the -- the -- the -- the streamline versus full base line risk assessment I think is the question, and that's in the Remedial Investigation/Feasibility Study, which is the normal CERCLA process you go through. You basically evaluate every single risk scenario that you could, you know, leaching into the groundwater, dust, ingestion, inhalation, and everything.

And for an interim action, you really only have to evaluate -- all you have to do really is prove there's a risk. And in this case, the external exposure to radiation was, in fact, enough of a risk to justify an interim action. But in addition -- but it doesn't make sense to -- to not look at the other options just to make sure that when -- if you want to

go for final cleanup, you need to make sure that you're going to address all the risks that you're going to deal with. And so that's what we did in this case was we did enough of a risk assessment so that we knew there's a risk right now, but that we also knew that we would be addressing the future risks with our preferred alternative.

How much spin-off --

They are supposed to get a couple of these.

How much spin-off will occur from the separation -- the chemical separation studies? Will it have to be repeated in full at other similar, bu not identical, sites?

Right now, we are approaching the end of a bench-scale test, which is a laboratory analysis of this procedure. The pilot-scale study, which is the next step, is we would actually go out to the Warm Waste Pond and build a miniature processing plant, and the main thing we have to worry about on this thing is the chemical side. The -- the sieving or screening we can feel fairly certain from bench-scale results, you know, what size particles we want to cut out, so it's not a lot of fine tuning on that end. What we need deal with is the technical extraction side and the

dealing with the residuals. So, it would -- so, I hope that answers the question.

What kind of laboratory studies have been done on chemical extraction? Are other cleanup efforts being initiated using this technology?

Unfortunately, the results from that thing are -- the leaching with the various acids and that sort of stuff has all been done but we're waiting on the analysis, you know, of analytical results, so I can't share that with you tonight. But that -- that's what's been done to date on the chemical extraction, okay, specifically. If this, in fact, does work, it may be applicable to a variety of sites at the INEL, as well as nationwide.

Do the Ponds have to be dried to perform tests or take the interim action?

Well, there's three cells. One of them has been dry for something like 19 years, and so -- and one of them's completely covered with water, and one of them is, say, 25 percent covered with water. To perform tests, we can go in there and work just in the dry areas, and, in fact, in the interim action itself, we could go through and do kind of a staged approach working on the dry areas and shipping of water, et cetera. Now, the Warm Waste Pond is

supposed to be taken out of service next summer and the water would go into a lined evaporation pond, a at that point the whole Pond would dry up, and that should be in time for the interim action.

Where are the costs of final disposal of contaminants? Would these costs vary according to which alternative is selected?

The final costs of the disposal -- at this time, we don't know what the final disposal is. We know we will have to treat it to meet storage and disposal criteria, but as far as the actual cost of putting it somewhere, that cost -- we haven't addressed that cost in this interim action.

Would these vary according to which alternative is selected?

Certainly, they would. Capping would not generate any disposal costs. Stabilization, if we assume that we stabilize it in the Pond or stabilize it and put it back in the Pond, would not generate any contaminants. So, both of those would not involve a large amount of disposal. Now, in any case, we're going to generate disposables like personal protective equipment and things like that, but I don't think that's what you meant by the question.

Why are cost estimates based on allowing

the current Pond to dry up?

I think in any case it would be -- of any of the three alternatives -- we would have to -- they are much easier to implement if the Pond is dry and the timing of the new pond should insure that they are dry, and so that's why we base the cost estimates on that.

MS. DEBBIE WELLES: So, Lisa, you have a question that you're willing to answer.

MS. LISA GREEN: We have a couple questions up here.

Why are you still using the Warm Waste Pond? What reactor operation is driving its continued use?

I think Andy briefly touched on that. We're using -- continuing to use the Warm Waste Pond pending construction of the new lined evaporation pond. The reactor operation that uses that pond is the Advanced Test Reactor at the Test Reactor Area.

We have a question How is it possible that there are less contaminants in the Pond now than there was before?

And, Andy, correct me if I'm wrong, I think the statement was that less, lower contam- -- lower levels of contamination are entering the Pond

now than they were previously. Is that --

MR. ANDY BAUMER: Right.

MS. LISA GREEN: -- what the statement was intended?

MR. ANDY BAUMER: Right. Yeah, when back in the good old days there were a number -- for one thing, there were three reactors going at one time and so a lot of gallons were being put into the Pond, and since then, they have added -- now there's only one reactor running and they have also added treatment -- water treatment systems to the discharge so that only minimal amounts of contaminants are still in the water.

MR. DEAN NYGARD: Andy mentioned that chemical extraction process works could be used at other areas of the INEL. The question here is What if it doesn't work?

I think that, as Andy mentioned, the test is based on the remedy, we hope will be based on the success of the pilot test which is currently being done. Both the State and EPA feel confident that this process will work, otherwise we would not be here this evening. If the process does not work, if the pilot test shows us that this is -- is not a -- a good interim action for the Warm Waste Pond, we would

revise the -- the Proposed Plan and either bring it out for public comment or resort to capping. Those are two -- two possibilities.

MR. ANDY BAUMER: What type of heavy metals are in the Ponds? The predominant one is chromium -- tri-beta chromium -- which is the -- from the cooling towers years ago. I think they quit using chromium in '72, and for a rust inhibitor or biocide or something like that by volume is the largest. There's also zinc, lead, silver, arsenic, cadmium; a variety of metals.

MR. DEAN NYGARD: Why aren't any other DOE sites evaluating testing adopting chemical separation/extraction methods for cleanup?

I'll answer this as it relates to the -- to the INEL. I'll say that this is the first time -- that this is the best site to try out this technology. If it is successful at this site, it has broader implication that other perhaps percolation ponds that will be remediated under the Interagency Agreement. Variations on the separation/extraction technology could be applied at perhaps areas of the subservice disposal area. These are primarily mining-type technologies that have been around for quite some time and have many different uses for many different types

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of wastes.

MS. LISA GREEN: The last question I believe that we have right now is Why doesn't the INEL get rid of the waste when they make it?

The appropriate disposal area for the waste can only be determined when -- when you have characterized the waste sufficiently to determine where it's allowed to go by regulation. So, I guess if there is an appropriate site that's available at the time that it is generated, it would be disposed there.

MR. DEAN NYGARD: What Lisa said is correct. I'd just like to add to that is that on a large scale, you may not realize that disposing of radioactive waste has been quite an issue for some time, probably always will be a very debated issue as to how do we dispose of these various types of wastes. I think the best thing we can say right now is that wastes were disposed of at the time they were disposed of using either the best judgment at the time or management decisions that were made at that time.

Can also say that what we need to do from this point on is where wastes have been disposed or placed in areas in a technically unsound area, geologically unsound area, we need to make efforts to

clean those up or mediate those where there's a risk posed. That's what this Interagency Agreement's all about. That's what this cleanup is all about. This is what refining technology to deal with the problem is all about. There is a problem, nobody denies it, and this is one step towards dealing with that problem.

MS. DEBBIE WELLES: Thanks, Dean.

Reuel, are there any other questions that are coming back there?

MR. REUEL SMITH: No, we don't have any more cards, unless there are some you'd like to hand in now.

MS. DEBBIE WELLES: All right. Where we are in the meeting is we're now ready to move to the comment period where if you have a comment that you'd like to make -- let's go ahead and put the mike up there -- you can take up to five -- there are a couple of introductory comments -- you're more than welcome to take up to five minutes to make your comment. I will help you by letting you know when you have one minute left, and then I will need to ask you to conclude your remarks.

If you signed up at the front door saying that you have something that you'd like to say,

this now is the time to address issues related to the Warm Waste Pond, and that is because --

MR. JAMES DILLON: Why didn't anybody let me know about this when I walked in?

MS. DEBBIE WELLES: Well, we've been talking about it --

MR. JAMES DILLON: All right, so obviously it's a biased situation. There's nothing to be done about it. It's an obvious scam. So let's just go ahead and fuck up the state right now.

MR. JAMES DILLON: All right, let's --

THE COURT REPORTER: Wait. Wait. Wait.

MR. JAMES DILLON: Let's kill people. That's the only reason we're here: Because we want to kill people. (Inaudible.)

A VOICE: Good-bye now.

MS. DEBBIE WELLES: Okay, we can go on now with the meeting.

MR. JAMES DILLON: U. S. A. is a scam. CIA come and get me. James Dillon. 546-59-7025.

MS. DEBBIE WELLES: Okay. If you were -- if you were here representing an organization and would like to take five minutes to speak on behalf of that organization, just please let us know that that's what you're planning to do and feel free to

take up to five minutes.

What I'd like to tell the panelists is -- for you all -- is if after you have listened to the comments and you need to ask a question for clarification, the purpose of this meeting tonight is to make sure that you do understand where the public is coming from, and if you do have something that you would like to ask the individual to clarify, that you should feel welcome to do that.

I will say, however, that the comment period does not provide an opportunity too for the agencies to respond to you. I know that can seem a little strange when you come up here and talk to them. But what we will be doing is after the meeting -- the comments are being recorded by the court reporter, and the agencies will sit down and consider what you've said very thoughtfully. And what I need to ask you is you remember as you come to the microphone that they are listening very carefully and you will be heard.

So, with that, if there's somebody that would like to make a comment, this would be a great time to do it. Come on up and be sure to tell us who you are.

BY MR. JOE GARMENDIA: My name is

Joe Garmendia, and I'm going to direct my question to Dean:

You indicated that the EPA was not here tonight. Have they been to the other meetings? And if not, why not?

MS. DEBBIE WELLES: Sir, this is a formal comment opportunity, but I think you do have a very good question and I think it would be --

MR. DEAN NYGARD: I'd like to -- I'd like to address that if I could.

I was asked by Wayne Pierre, who is the EPA project manager for this site -- his number is on the Proposed Plan if you would care to give him a call -- to inform you that they would not be able to make it to tonight's meeting. They did attend the Pocatello meeting and Idaho Falls meeting; that was a convenient time to have a meeting as we were all having technical meetings for a number of days in Idaho Falls, so that worked out very conveniently for EPA.

Wayne Pierre also asked me to pass along that they could not be present here because of resource constraints at the present time.

MS. LISA GREEN: We might also add th they will be here for next month's review of public

comment period on the Interagency Agreement.

MS. DEBBIE WELLES: Okay, that was a good question. Thank you for that.

This really is a comment period and so comments are really what we're looking for.

Please come on up and let us know who you are. Yes, I'm looking at you.

MS. CARRIE COOK: My name is Carrie Cook. You probably will need to tell me at four minutes --

MS. DEBBIE WELLES: I'd be happy to.

MS. CARRIE COOK: -- because I have a whole list of questions and I didn't get them all written on the cards.

I do have a comment I want to make, and it's on behalf of the Snake River Alliance. I want to say that like most other Idahoans, we do support cleanup at INEL and we're very happy that we're even having this conversation. Certainly a lot of progress over the last ten years if you look at it that way.

Alliance members, like other Idahoans, are also very confused about what INEL cleanup really means. And I must say when I hear capping called cleanup, I get kind of worried. I'm afraid we're going to start calling all sorts of activities

cleanup, and I think we should stop that right now. I'd like to very strongly say that capping a probl is not cleaning it up and I would like to hope that after tonight we'll never talk about capping as though it were cleaning up a mess.

I must say that based on the Proposed Plan for the Warm Waste Pond cleanup and on possible cleanup scenarios for parts of the Radioactive Waste Management Complex, it's becoming apparent that INEL cleanup is going to be DOE containerization. Certainly, it seems reasonable that containing nuclear waste offers less of a threat to the environment than uncontained waste. But once waste is retrieved, perhaps successfully treated and/or reduced and put into 55-gallon drums, a dilemma familiar in Idaho takes shape: Low level waste can and is, of course, disposed of out at INEL, but there is no disposal site for mixed waste.

If the final cost of this innovative treatment technique is -- in which INEL places such confidence -- is mixed waste, the 100 or 1,000 or 10,000 drums of it will stay in interim storage right here in Idaho. At some point, INEL must begin responding candidly to Idahoans' questions. Is it true there's no place to put this waste?

Now, I must say tonight just in talking I think you did address that and in maybe a little bit of a roundabout way did say there is not a place to put most of the waste, but I don't believe in your printed material you've addressed that properly; you are still using the same language that's been going on for ten years where you refer to disposal sites that don't exist. And, I mean, this is just not the way to start this process everyone's been waiting on for so long. We all know there's no place to put the waste. Let's not say it's going to be disposed of or it's going to go someplace.

I would also like to say that the Snake River Alliance has been trying as far as for the last two years to be the ones to tell Idahoans that that's the case, the waste isn't going anywhere, and we'd be real glad if the three agencies involved in cleanup would take on some of the load of telling Idahoans the truth about the waste.

Now, we are very interested in where you came up with the mission statement for INEL in the -- in this. We noticed that it's reactor technology and waste management, and again, we find that very interesting. We would seriously like to know where you found that mission statement or where it was

developed. We have been working over the last few months on DOE's plan for bomb production out at INEL and the U. S. Department of Energy is referring to INEL as a nuclear weapons production site. So, we'd like to know: Which is it? What is the mission of INEL? Is it the one that they're using in Washington, DC, or at the hearings last month, or the one they're using now? Because it would be nice if we all knew exactly what it was INEL is out there to do.

I would like to leave with you, in case you don't have it in the record yet, the executive summary of the Department of Energy's Tiger Team assessment of INEL that came out this week. I would like to say we are very concerned about what this Tiger Team report said; I would sincerely hope you are too.

One of the things that the Tiger Team report talks about is the fact that the best they found was mismanagement, and in many cases they found no management, and they were particularly critical of EG&G; and since EG&G seems to be very much involved in the cleanup plans, I want to say that we are quite concerned with having the corporation that has been in charge of creating a lot of the mess now in charge cleaning it up. And we would like to know and have it

spelled out in this plan as it progresses how we can expect what's going to happen with the cleanup to be done better than what's already been done.

Four minutes?

Okay, I want to ask clarification of this: Leo Duffy yesterday at the NAS meeting in Idaho Falls said that he thought that cleanup should be postponed until it could all be done remotely. One of the questions I was going to put on a card today -- tonight and I didn't have time was What are you going to do to protect the workers since as far as we can tell from your plan, the boundary you're talking about is kind of like a rope around it to say this is what's dangerous and this is what isn't, but we couldn't quite understand how it is that you're actually going to be protecting the workers. Someone's going to have to get a little closer than that, and we'd like to know how -- what you think about what Leo Duffy said and is that the philosophy.

The last thing I'll ask and then I guess I'll try to get the rest on cards --

MS. DEBBIE WELLES: You're at your time.

MS. CARRIE CLARK: Right.

I would like to ask about the budget. I would like to say if the Department of Energy is

funding your '93 budget request, is it adequate for the cleanup that you've suggested? What happens next?

And I would like to say that alternatives one, two, and three are not cleanup and we strongly say those should not be considered as part of a cleanup plan; and we even, though we do have many questions, we do support at this point alternative four, although we'd like to know what else there is to consider.

Thank you.

MS. DEBBIE WELLES: Okay, there were a number of questions asked in that statement, and w I would like to recommend that we do is if there is time after we've been through the statements that you all would like to make, some of those do fall within the bounds of the topic that we're really working with now on the Warm Waste Pond and if I've got time we're going to try to have the panel address some of those.

If there's another comment, this would be a good time to come up to the mike. Sir.

MR. MIKE USHMAN: My name is Mike Ushman. I'm from Emmett.

And it appears that through the news media, some of the information you felt in giving them

seems to be kind of disturbing to me, such as the perched water on the contaminants being 200 feet above the Aquifer, the Snake River Aquifer, which poses basically no threat. And, gentlemen, aquifers recharge from above, and in that area there you probably have around six aquifers and they are all separated by clay linings or clay barriers which overlap each other but are open-ended and one feeds into the next one. Any hydrologist work this out will tell you this and show you a diagram of it.

And in some of the news media scenarios, they've said that this is a area that is highly volcanic and of a conglomerate-type material which poses no threat for recharge. Now, there again, any hydrologist will tell you that those type of areas are aquifers.

And as far as clay barriers, most all clay barriers are saturated with water. They do recharge to some degree, one to the other, and this has been proven throughout many areas throughout the United States.

And I would like to personally see your hydrologist's map on what's underground out there and how many aquifers that are there and how many actual core drillings were done to determine at what depth,

what type of clay, what type of materials between each one. This should have all been done prior to anyt g ever being done.

As far as solving the problem for the cleanup, now, through EPA's own findings for years, like as in Casmelia, California, clay-lined ponds, plastic-lined ponds, have leaked and always will leak. Clay cap with detrinite or anything always poses a problem; it's not a solution. But through chemical extraction, you will extract toxic metals which I've just heard stated here pose absolutely no threat to human health. These eventually end up in the aquifers, they do. Every one is a cancer-causing heavy metal. These can be extracted through, as you said, simple mining practices through either flotation or tabling.

The object here is not to encase nuclear waste in glass because scientists will tell you that cosmic rays generate heat, which fracture glass.

And as far as encasing it in concrete, anyone that knows concrete knows you have to have a perfect mix, and it is not anything permanent. There noted -- they are actually called sugar cubes: They dissolve in about 50 years. So, this poses absolu y no solution.

I think there should be more money spent on research, and if our scientists are not capable, we should go overseas and seek help from other scientists to render nuclear waste harmless or put it to a viable working solution on this.

Thank you.

MS. DEBBIE WELLES: Thank you very much.

Is there anybody else that would like to come to the microphone? Please come on up.

MS. LIZ PAUL: My name is Liz Paul.

I agree that there is a risk at the Warm Waste Ponds and that it is an unacceptable risk and -- and deserves immediate attention. I think that aside from the alternatives that were evaluated, an immediate action needs to be taken to stabilize the contaminants. 1992 is too late. 1991 is too late but we're already here, so I think that immediately operation at the Advanced Test Reactor should be halted and all discharge to the Ponds should be stopped. And some sort of dust protection, some kind of covering, should be placed over the Ponds.

Halting the -- halting the operations of the Advanced Test Reactor will prevent any further introduction of contaminants into the -- into the environment, as well as allow the Ponds to dry up in

preparation for treatment.

There was no -- although you -- you know that at least tests will be able to begin in 1992, in the planning document there was no further information about when the lined pond will be available for use, and I would like -- I think further information needs to be provided: What is the funding on that? What are the -- what really is the timetable? Could we get the test done on the cleanup interim action technologies in '92 and still not have an alternative for disposal of those wastes until '95?

But, I believe that the Advanced Test Reactor should not -- should be -- should be -- th operation should be halted and it should not be restarted until a way is found to eliminate all radioactive, metallic, and toxic materials from the waste stream. I do not think that a lined pond is a solution and is a -- is a acceptable way to dispose of contaminants that shouldn't be introduced into our environment at all.

Even though this is an interim action, costs of the final disposal of the waste should be included in the altern- -- should be included so that we can use that to -- to better make up our minds choose -- choose the best alternative.

You evaluated whether or not the alternatives would interfere with the total site cleanup out at the Test Reactor Area, but you did not discuss whether or not -- how they would interfere or interface with the total national nuclear waste cleanup program, and I think that that also needs to be evaluated.

And probably most obvious would be how will -- you need to have a discussion of how this cleanup will relate with the Programmatic Environmental Impact Statement that's being done on cleanup nationwide. And we really have a catch-22 because that document's going to be huge, it's going to have to be -- it's going to have to be general, and it's got going to be ready for a while, but at least, you know, what you do know now and at least that sort of information should be provided.

The cost of alternative -- for the preferred alternative is very high or certainly higher than the others, and I would say that almost seven million is high; and I would like to know more about what we are getting from this investment besides hopefully the reduction of the toxicity and mobility and volume of the contaminants now in the environment in the Ponds. With the equipment that is used to do

the separation, would that be reusable? Is this something that's being looked at now? Would the design be transferable to other sites at the INEL, other sites within the DOE complex, within the military complex, and within the private industry?

I also think that attention must be paid to the holding tanks and the pipes that lead into the Ponds, because those -- those are areas that have potential contaminants in them and they could even, after there's no more water being introduced into the Warm Waste Ponds, those two areas could -- could add contaminants to the area.

And I want to emphasize what a previ speaker had said that capping is not -- has not been used to clean up radio -- a radioactive site, it's been used to reduce the present threat.

Thank you.

MS. DEBBIE WELLES: Thank you for your comment.

Are there any other comments? Is there anybody else that would like to get any comments on the Warm Waste Pond?

If not, what we'll need to do is to -- I want to come back to what you said -- Wendy? Is t! correct?

MS. CARRIE COOK: Carrie.

MS. DEBBIE WELLES: Carol.

MS. CARRIE COOK: Carrie.

MS. DEBBIE WELLES: Carrie, okay.

-- and -- but before doing it, I'd like to say that this is the last opportunity tonight to comment for the record on the Warm Waste Pond, so if you think of anything else while I just say what I want to about your questions, Carrie, I heard you ask at least five different questions and I wanted to suggest that if you would like to have conversation either with John Walsh or with Rick Tremblay, that either one of them would be very happy to talk with you about those questions; and if they don't have any answers tonight -- and you've asked some very good questions and they are tough ones -- they will do their best I know to hook you up with an answer and to work with you to get those questions addressed.

MS. CARRIE COOK: Excuse me. I would like to say that I deliberately wanted the questions asked on the record.

MS. DEBBIE WELLES: I understand that.

MS. CARRIE COOK: And so I would rather, frankly, not have them answered in a private conversation. I would like to see them answered

publicly.

MS. DEBBIE WELLES: Okay, and they w... be, so that's understandable and appropriate use of the process.

Okay, with that, let's take a ten-minute break, and when we come back we will talk about Perched Water Project.

(Recess.)

MS. DEBBIE WELLES: We're now going to move on to the Perched Water Project, and because this project is at an earlier stage in its development, DOE will take oral and written made during the comment period into consideration as they progress as to t point the Proposed Plan can be written. As I mentioned earlier, the comment period on the Perched Water Project ends September 10th.

Nolan's presentation tonight is a synopsis of what you will find in the Facts Sheet at the back of the room as you came in tonight. In his presentation, Nolan will first give you an overview of the project. He will provide you a description of the alternatives that have been considered so far in the process. As well as DOE has asked me to read the following to you so you will understand exactly wh they are in this particular process:

Once a remedy is selected for this operable unit and if it is determined that an EIS will need to be prepared, there are three things that you need to know:

The EIS scoping would be formally noticed and reopened at that time.

All comments made tonight on perched water will be considered as part of an EIS scoping process should an EIS be deemed necessary at a future point.

And, finally, the comments you make tonight will be used as DOE moves forward in considering the most appropriate remedy for the perched water site in the coming months.

With that, I'd like to introduce you to Nolan, and Nolan will show you his slides.

MR. NOLAN JENSEN: Need to get my gadget here first.

All right, tonight I'm going to be talking about the Perched Water Study, but before I do that, I need to have you shift gears in your mind quite a bit here. On the -- in the case of the Warm Waste Pond which Andy talked about, we were actually proposing a cleanup alternative. In the case of the Perched Water, we're just starting the process of

barely even developing the types of alternatives we think we should consider, so we're not near to the point we are on the Warm Waste Pond.

So, the purpose for this part of the meeting tonight since we're just starting is to get comment on -- there we go -- to get comment on what you think should be considered during the Perched Water Study, what kind of alternatives you think should be evaluated, what environmental impacts you think should be evaluated as we consider those alternatives. So, I'm going to take a little bit more of a broad view; where Andy focused right in on the Warm Water study, I'm going to try give you a litt more of a big picture.

Okay, where does the Perched Water Study fit in? The INEL in 19 -- the end of 1989 was put on the National Priorities List under the Superfund Law, which makes it subject to the Superfund cleanup and investigation process.

Now, the INEL is a big facility and it has several different -- different operating facilities in different parts of the -- of the INEL. So, what we did is we broke that -- we broke the INEL up into ten waste area groups, and the waste area groups essentially correspond to the different

operating facilities at INEL. TRA, or the Test Reactor Area, which both of these projects we're discussing tonight are located at, that is waste area group No. 2. Also, Tester Reactor Area is a pretty big chunk of work, so we have -- we've divided the Test Reactor Area further -- we've divided it further into what is called -- or, what are called operable units.

Now, there's nothing magic about either of those terms, it's just a way to break down the work so that we're focusing on a particular problem to do it more efficiently.

Now, 13 operable units of the Test Reactor Area. The Perched Water Study is one of those, the Warm Waste Pond which Andy talked about is another one, and in September when we talk about the Interagency Agreement, we'll give you a feel of how -- how the work is broken up. And if you have a copy of that Interagency Agreement and Action Plan, you can look at the operable units and see how they fall out.

Okay, now I'm going to talk a little bit about What is perched water? To do that, I'm going to start off again with the same picture of the -- of the Test Reactor Area. As Andy pointed out, there are several waste water disposal ponds around the Test

Reactor Area that have been used to dispose of industrial waste water over the years while the reactors have been running. Those ponds leak, and they're intended to have the water seep into the ground, and it has; contaminated water has gone into the ground.

As -- the next slide is a diagram -- diagram of what it might look like if we took a vertical slice through one of those ponds. Right there, we have a pond. Water seeps through the bottom of the pond until it encounters some relatively impermeable layer in the subsurface and the water then is impeded. It doesn't stop it, but it's impeded enough that it creates what we call a perched water body.

And so under the Test Reactor Area, we know there are at least two main bodies of water which are perched water bodies. The first one is about 50 feet. Below that it's about 150 feet to the bottom of this right here. And as the gentleman earlier mentioned, the water, even though it's impeded, it still can go down. And we know that the water in both the perched water body and in the Aquifer are contaminated. They are slightly above drinking wa levels in some cases; we know that already.

So, the focus -- well, let me go to the next slide.

How big is it? This is a diagram of the outside boundary of the perched water area. It's about a half mile across, a little less than a mile this way. That's the Test Reactor Area again, and this is the Warm Waste Pond that Andy talked about.

So, that is what the focus of this study is was that perched water body. We're concerned about again What is the risk exactly? What contaminants are there? What is the best way to deal with it?

Okay, now I'd like to talk again just a little bit about the general process we go through. Under the Superfund Law, the investigative process is called a Remedial Investigation/Feasibility Study. There's two parts to the study. The remedial investigation part is essentially to answer three questions that Andy referred to earlier:

One, What contaminants are there? To what extent are they? And, How bad are they; what is the risk they pose?

The other part of the study, the feasibility study, is to determine What is the best way to deal with those contaminants?

Now, we've got a couple of triangles

here on this diagram and these represent public meetings. In the case of the Warm Waste Pond, we're already here, we're actually proposing an alternative. In this case, we're just barely starting to develop what alternatives we think we should consider, so we're -- we're just starting the process.

Scoping here is kind of a general term that means determining what the objectives of the study are, those kinds of things, and so tonight for the perched water, this is considered a scoping meeting. We want your input on the things that you think we should consider during this process.

Okay, and as Andy went through the criteria for -- that are used under Superfund to determine what the cleanup alternative is -- there are nine criteria and I won't go through them again individually, but as you comment, the ideas you have for alternatives that should be considered, these are the criteria. You need to understand these are the criteria that we will evaluate against. And these top two, again, as Andy mentioned, are threshold criteria: Those two have to be met in all cases. We can't consider anything that won't meet at least those two criteria.

Okay. Now, this is just a very

general --

MR. MARK BRIGGS: Is there any chance you could move over so we can read that?

MR. NOLAN JENSEN: Let me try this. I'll blind the rest of the other half of the audience for a while.

MR. MARK BRIGGS: Thank you.

MR. NOLAN JENSEN: Does that work?

A VOICE: Now we can't see.

MR. NOLAN JENSEN: I could sit down.

A VOICE: You can step back there.

A VOICE: There you go; now you're out of the way.

MR. NOLAN JENSEN: Okay. Now, again, this list is just a preliminary list to give an idea of the kinds of things we're looking at. It's not the final list that we will be considering, it's just something to give you an idea of how the process works.

For example, cleanup alternatives in general terms, what we could consider are, first, removing the perched water from the ground. That would require installing some wells and pumping the water out of the ground. That could be followed by treating the water to take the contaminants out.

The second one is very similar. We could take -- pump the water out of the ground and put it into an evaporation pond, let the water evaporate, and collect the residue. That's another type of alternative.

The third one: Waste management practices. That's dealing better with the water before it goes into the ground. As Andy mentioned, in 1972, we stopped using chromium in the cooling tower, so chromium is no longer going into the -- into the ponds, but so in that case what we're dealing with is things that have happened in the past.

Another thing that's being done is we're already replacing the Warm Waste Ponds; that's another type of thing that could be done.

As far as institutional controls, that is just a general category of things that could be done to restrict access to the -- to the contamination. It may be something as simple as putting up a fence, restricting wells so nobody can drill into the -- into the perched water and use it, those types of things.

The no action alternative again will be considered. At this point, it may be a very viable alternative. We don't know yet what the risk is that

is posed by the perched water, but of course the concern is that it could impact the Snake River Plain Aquifer. If it is determined that this needs to be dealt with, then the no action alternative will be used as to compare to so that we can see the effect that the alternatives might have compared to no action.

So, that's just kind of a general idea of the kinds of things that we would consider or could consider in the Perched Water.

Okay, so this has been very brief, but again to summarize, we're just getting started on developing alternatives for this study. We would like to have your input in a couple of areas: Number one, what are the types of alternatives you think should be considered, what environmental impacts you think should be considered, or what types of things you think should be studied as we get into this process. Okay.

MS. DEBBIE WELLES: Okay, this is where the note cards come back in; and we want to take them slowly enough so that you do have a chance to ask your questions, so feel free to keep writing as we get on with answering some of them.

Mike, if you want to just see if anybody

has a card that they'd like to hand in, that would be a good idea.

MR. REUEL SMITH: Or if they need more cards.

MS. DEBBIE WELLES: You've got extras, do you?

MR. REUEL SMITH: Yeah.

MS. DEBBIE WELLES: Okay. This is a real good chance to use these people as a resource. And I know there's a lot of information that has been put out tonight, but Nolan's here and he's ready to answer anything you might have.

Well, Nolan, maybe your presentation s crystal-clear.

MR. NOLAN JENSEN: Okay, What is in the perched water?

I failed to mention that. The two things that we know for sure are contaminants of concern are chromium and tritium. Those are two big ones that we know about that will be evaluated in our risk assessment.

Don -- this is Don Vernon, by the way. He is -- works with Andy. He's the project manager for the actual investigation. If you want to add that. I know those are the two big ones, but there's

some others I'm sure.

MR. DON VERNON: Those are the two biggest ones. We're also just finishing a big data collection effort and out of that we'll quantify in much more detail which are the contaminants of concern, and I expect the list to grow slightly and we're just going to see what comes out of this effort. We haven't quite got all the numbers back together.

MR. NOLAN JENSEN: Okay, let me go ahead and read this: From literature, the impression is given -- or, given was that only the perched water ponds were contaminated at levels above the EPA drinking water standards. Did you not concede that measurements made indicated chromium/cesium levels actually in the Aquifer? Also, I consider this a clear-cut issue: Some remedy is pending. Even if not, comments have indicated concern that was not in the literature.

I will try to respond to this and let me know if I don't do a good enough job. I can't answer for what you read in the newspaper, but, yes, we are concerned about the Snake River Plain Aquifer, that's -- that's one of the biggest issues. We do know that there is chromium and tritium in the Aquifer

above drinking water standards; not a lot, but they are above that, so we do need to consider that.

Do you need any more than that?

MS. LISA GREEN: While Nolan's catching up on his, let me take a couple here.

What's the cost of the various alternatives?

The answer to that question is we are at a very preliminary stage of the investigation and have not gotten to that phase of determining what the costs would be. I think about a year from now is when the Proposed Plan -- projected date of the Proposed Plan for the Perched Water Study would -- would be comi out, and at that time, we would be prepared to respond to that question.

Second question here: What would be the risk to workers if water is pumped out?

Similar answer to that question is that that is one of the risks that would be analyzed in our study further on down the line, and we would be prepared to present those results at a later date sometime, at least at the Proposed Plan meeting on this project.

MR. NOLAN JENSEN: Okay, Don, I'm go to ask you to answer this one: How long has the

perched water been monitored and what changes have been observed?

Can you give us a general on that?

MR. DON VERNON: Okay, the USGS has been monitoring the perched water I'm going to say approximately 20 years: It's somewhere greater than 10 and less than 30, so I'll say approximately 30.

The water volume or the size of the volume seems to be directly related to how much water is being discharged to the ponds. As the ponds have had higher flows through the three reactors were operating, the perched water body grew, and it seems to be right now a little bit on the shrinking size because of only one reactor in operation and the amounts of flows from the ponds is at a low point.

MS. LIZ PAUL: How about the contamination levels?

MR. DON VERNON: Okay, the contamination in the last five years that I've looked at on tritium has decreased about half and the chromium has been fairly consistent, and that -- and the concentration has been --

MR. MIKE USHMAN: Are the contaminants suspended in solution in the aquifer?

MR. DON VERNON: We believe they are all

dissolved.

MR. NOLAN JENSEN: Okay, How can you remove tritium from the water?

I'm not a chemist, but I know it's not easy.

Do you want to --

MR. DON VERNON: Well, there really isn't a way to remove tritium from water; there's no technology available today.

MS. LISA GREEN: Don, I guess I -- maybe it's semantics, but isn't there a way of concentrating it when you have large enough concentrations? It seems, I think -- I'm not a chemical engineer or anything, but I believe that where you have larger -- very large concentrations of tritium, that you can collect it or whatever using a very expensive process, but it's not a removal from water. Do you see my --

MR. DON VERNON: Right. I guess in the low concentrations we're talking of -- 10s and 20s of picocuries per milliliter -- there really isn't a technique to remove it.

MR. DEAN NYGARD: Okay. What would be the air quality impacts of putting perched water in the evaporation ponds?

That's one of the issues that we're

going to have to deal with in this remedial investigation to determine exactly what the impacts would be of putting perched water in the evaporation ponds. As we've indicated, we have not considered all of the remedial alternatives in that level of detail. That's the point at which we are at right now. It's definitely a concern. Whenever we remove waste from one environ or medium to another, there are always trade-offs involved that we need to evaluate.

MR. NOLAN JENSEN: That's a good scoping comment. I mean, we'll take these into consideration as we go through the investigation.

Okay, Where has chromium and tritium been found in -- in drinking water level, and what effect has this water had on residents where the H2O was found?

Nobody is drinking the contaminated water --

Well, do you want go ahead with this one, Don?

MR. DON VERNON: Let me correct in that -- Nolan, is that the water that we use for drinking at the Test Reactor Area is collected up from where this water enters into the Aquifer, so there are no workers who are drinking it. Also, the perched

water body is not utilized for drinking and since it's man-made through the pond infiltration, no one is using that water. And as far as other on-site workers, you know, downgrading at the INEL, none of them are drinking water that is above any drinking water standards.

MS. DEANAH MESSENGER: Didn't you say that you found levels of chromium in the drinking water?

MR. DON VERNON: In the Aquifer.

MR. DOUG GREENWELL: In the Aquifer above drinking water standards.

MR. NOLAN JENSEN: Right, it's prese there. Nobody's drinking it.

MS. DEANAH MESSENGER: Okay.

MS. LISA GREEN: The question here: If the levels of tritium decrease and increase, where do they go?

(Laughter.)

A VOICE: That's a good question.

MS. LISA GREEN: Well, levels of tritium decrease -- a concentration in a given area of the Aquifer would decrease by a couple different mechanisms. One is bioradioactive decay. The half-life of tritium is 12 years, I believe, a

relatively short half-life, so it does go away in a relatively short period of time.

Levels of tritium increase by putting more tritium in.

I don't quite -- I don't -- is that --

Who asked the question, and if I'm really messing this one up, please --

MR. MARK BRIGGS: Well, do they -- do they -- does it decompose that fast that it will -- like, when you take another test, the decomposition of the tritium, does it decompose that much that it will change your test? Or where does it go? Because you're saying that it's basically just going away because it's breaking down or decomposing or whatever.

MS. LISA GREEN: Or it can go away through dilution or cleaner -- cleaner water or mixing with the contaminated water.

MR. DEAN NYGARD: To get right at your question I think you asked is Would you expect to see the tritium level decrease between tests, so if we took a test today and --

MR. MARK BRIGGS: Well, from it decomposing.

MR. DEAN NYGARD: From it decomposing, right, and it would depend on the length of time in

which you took the one test and the second test. If you took the one test today and you took another te 12.3 years from today, which is the half-life of tritium, you would find half as much.

MR. MARK BRIGGS: But are you taking your tests that far apart?

MR. DEAN NYGARD: No, no. Actually, testing is conducted on a fairly frequent basis. Depending on the unit at the INEL, tests have been conducted, as Don indicated, we've -- USGS has been involved in sampling out there for quite some time. I would say that for the most part, it's been done on more than an annual basis at many of the sites.

MS. LIZ PAUL: Okay, well, if there's half -- continue answering the question. If there's half as much tritium now as, you know, he said, the concentration levels are half as much as they were previously, so that can't all be to -- due to the -- right -- the radioactive decay, so go ahead and explain what you think the rest of it's attributable to.

MR. DEAN NYGARD: Oh, that could be -- that could be through dilution.

MR. DON VERNON: It's also due to other --

MS. LIZ PAUL: But -- but there's more water -- there's less water than there was, so how is dilution --

MR. DEAN NYGARD: Well, it could be a factor but it's probably not as much of a factor. If the water would be stagnant, it had tritium in it, suppose it just -- it just sat there, the mechanism for what the tritium would decay would be simply its half-life. I'm not aware of any other mechanisms by which it would decrease. You have dilution and you have half-life, or -- or -- or it's going somewhere.

MS. LIZ PAUL: Right. I mean --

MR. DEAN NYGARD: Right. I thought we were just talking about its decaying mechanisms.

MS. LIZ PAUL: Well, no, we're talking about the fact that you have 50 percent less concentration at one point than you did at a previous point, and so the gentleman's question is Why is it -- Why do you have this decreased level?

MR. DEAN NYGARD: Yeah, and it --

MS. LIZ PAUL: So, there's --

MR. DEAN NYGARD: -- could be going somewhere or its half-life.

MS. LISA GREEN: But if it is in a container, not in a -- an area that's uncontrolled, if

it's in a container, it's going to be half-life because it's not going anywhere.

MR. DON VERNON: Also, I think one of the other factors is there's been -- flows have been reduced into the Warm Waste Pond quite a bit in the last five years so we're adding less contaminants, so that would decrease the concentration as well. It's a combination of all of these things; it's not really one, per se, over another.

MR. MIKE USHMAN: If you guys did the NPR, would it increase?

MS. DEBBIE WELLES: I'm not sure we can hear that question, and it would be best if you co write it out. But I would really encourage you to write it out.

MR. DEAN NYGARD: Could I just follow up here with I have a question that's also related to tritium. The question is: If you can't remove tritium from water, how can you clean it up?

I am not aware of any technologies by which you can clean tritium up. It's a decay. Tritium, in a technical sense, has three hydrogens, water has two. It's essentially separable. I'm not a radiochemist, but that's what the radiochemists te' me. It has a half-life of 12.5 years. The way

radioactive -- or, 12.3 years. The way radioactivity goes away is that it decays. Radionuclides have known half-lives and tritium has a half-life of 12.3 years, which is fairly -- fairly short.

MS. DEANAH MESSENGER: Can I follow up that question then?

MR. DEAN NYGARD: Sure. Sure.

MS. DEANAH MESSENGER: If you can't remove the tritium from the water and what --

The other particle that you found is chromium. Is that what you said?

MR. DEAN NYGARD: Right.

MS. DEANAH MESSENGER: Then what's the purpose of cleaning up the perched pond? What -- what -- what are we doing here?

MR. DEAN NYGARD: Oh, okay. Tritium is one contaminant of concern. Chromium is another.

MS. DEANAH MESSENGER: So, obviously --

MR. DEAN NYGARD: It may be possible to clean up the chromium.

MS. DEANAH MESSENGER: And the tritium, obviously, is not what you're focusing on at all.

MR. DEAN NYGARD: Well, that's a difficult question. If tritium exceeds a risk, it should be cleaned up. However, it -- it -- it's like

what we talked about earlier. I think Carrie really hit it on the -- on the head when she pointed out that if you don't have the technology, say so; and I would be safe to say that right now if you look at tritium and what's available to clean up tritium, there isn't much out there, and I think that's a safe thing to say.

As far as chromium goes, there are techniques by which chromium can be removed.

Is there any -- Energy like to make any comments on that?

MR. DOUG GREENWELL: I could add to that.

MR. DEAN NYGARD: Go ahead.

MR. DOUG GREENWELL: I'd just like to add that part of the scoping process what you look at in evaluating the alternatives to make a determination of whether cleanup is required, it's not necessarily just the fact that there is a technology to treat that waste, there may be possibilities of isolating that waste from people being in contact or being receptors of that waste. So, there -- and that's kind of -- I want to tie that back to the purpose of this meeting is to try and get public comment on ways that you think we ought to be considering. Given the fact that

there are very limited options for cleaning up, per se, this waste, one of the things we should be thinking about is to eliminate that risk from the public.

MS. DEANAH MESSENGER: I guess I'm just confused. When you showed that diagram up there of the pond and then the next water table and then there was an aquifer, and all the arrows pointed down, that waste was going toward the Aquifer, so am I correct in my assumption that tritium is making it, or if it's not yet, it will be making it to the Aquifer? Right? So, the Aquifer which we all utilize in this state is going to have levels of tritium in it and already does have levels of tritium in it. That's an accurate assumption on my part, isn't it?

So then I guess my question is How are you going to protect that Aquifer and everybody in the state who utilizes that Aquifer from those radionuclides?

MR. NOLAN JENSEN: That's the --

Go ahead.

MS. LISA GREEN: There are -- there is tritium in the Aquifer. At this point in time, since --

Is that on?

MS. DEANAH MESSENGER: It is.

MS. LISA GREEN: -- we greatly minimi[illegible]d the, or ceased, ingestion of tritium-contaminated water directly into the aquifer, the concentrations of tritium are actually reduced. If you take a given concentration of tritium and track it over the last several years, the point at which it is detected has been moving actually backwards back into the INEL, so largely because of the combination of radioactive decay, lack of inventory, and the dilution.

MR. NOLAN JENSEN: One of the things that the study will address, though, is looking at the movement of the perched water into the Aquifer to and get a hand on where that perched water is going and how it will affect the Aquifer in the future. So, that's what it's all about, that's what we plan to do, but we don't have the answers tonight, obviously.

MS. LISA GREEN: Right. You need to look for the answers down the road here. We better be providing you those answers down the road; that's the purpose of this.

MS. DEANAH MESSENGER: Right. I understand that.

MS. LISA GREEN: If the NPR is built will it increase tritium levels?

I am not an expert on NPR design or how it's going to intend to manage waste, so I can't answer that question in the context of this meeting. Our public affairs person would be glad to research that answer to that question for you.

Is the perched water in an aquifer or is it spread out in the soil?

The perched water at Test Reactor Area has been created specifically by man by the use of the pond. It has created its own water table. It is above -- the deepest perched water is 300 feet above the Snake River Plain Aquifer, it is not in the Snake River Plain Aquifer. It is spread out over the clay layers above the basalt, as Nolan pointed out in his presentation.

MR. NOLAN JENSEN: Maybe I could add just a little bit to that: All of the water under the ground is groundwater. It's spilling in the voids in the rocks and the sediments. So, I guess the definition of an aquifer is if I drilled a well into that rock, could I get enough water out of it to actually pump out of the ground, that's what an aquifer is. And there is enough perched water down in those void spaces that, yeah, we can drill a well and pull it out. So, I guess you could call the perched

water body an aquifer in that sense, but the Snake River Plain Aquifer is the same thing: It's filling in the void spaces in the rock.

What health hazards does tritium pose? Do you have any?

MR. DEAN NYGARD: Do we have a toxicologist?

MR. NOLAN JENSEN: It's a radionuclide.

MR. DOUG GREENWELL: It's a radioactive nuclide and most radioactive nuclides have been identified as potentially carcinogenic, so there are potentially significant risks of being exposed to radionuclides if they are in high enough concentrations to pose a risk and if they are in a -- if they can migrate or travel to the point where they could be in contact by a person.

MS. LISA GREEN: You might also add that the Safe Drinking Water Act limits for drinking water with tritium in it are set at 20,000 picocuries per liter, I believe; that present concentrations detected near the south INEL boundary I believe are in the range of three -- three picocuries per liter. They are higher near the Test Reactor Area; I don't have those numbers, but --

What happens to tritium when water

evaporates?

Tritium evaporates too.

MR. NOLAN JENSEN: Well, tritium is water. Basically, it goes with it.

MS. DEBBIE WELLES: Nolan, that means it becomes airborne or --

MR. NOLAN JENSEN: It vaporizes, just like water.

MS. DEBBIE WELLES: Okay. Is there another question, Lisa?

MS. LISA GREEN: I have a card here that says: I would like to ask a question. Ush- -- Ushman?

MR. MIKE USHMAN: Yes. I would have to write a book out here on a little card in order to get an answer to it.

MS. DEBBIE WELLES: Okay, Mr. Ushman, do you have a question or is it a comment?

MR. USHMAN: I have a question.

MS. DEBBIE WELLES: A question. Okay, let me just ask the panel: Are there any other cards that haven't been addressed?

MS. LISA GREEN: I don't believe so.

MS. DEBBIE WELLES: You've taken each one.

MR. DEAN NYGARD: We hope we've addressed them all.

MS. DEBBIE WELLES: Okay, you've tried to address them.

MR. NOLAN JENSEN: I guess our only concern is how soon do we want to get to the comments?

MS. DEBBIE WELLES: Well, I'll tell you what --

MR. MIKE USHMAN: Well, I can wait to the comments.

MS. DEBBIE WELLES: Well, let's have you be the first one up. And, sure, I think it's just fine for you to ask your question, but let's have you use the mike.

MR. MIKE USHMAN: My name is Mike Ushman from Emmett, for the record.

I have a lot of problems with your Perched Water Plan. First, you say we should pump it, aerate it, but yet the heavy metals are not in solution. So, pumping the water will not alleviate the problem with the heavy metals, it would have to be a dredging operation that removes the heavy metals. So, that's an impossibility to dredge that particu area.

And the other contaminant is becoming airborne bothers me because radon gas, it happens to be a gas which becomes a particulate matter and becomes airborne, and when it reaches the four picocurie period it becomes a cancer-causing agent when inhaled in the lungs. And what happens here is if you bring this water up and evaporate it through aeration or through natural processes, it will become airborne, as you say, in a moisture form -- water -- but it will collect on dust particles during dust storms and then can be inhaled and ingested maybe 100 miles from the area with a 12-year life, which radon has only, what, a basically a four-hour life span -- half-life span. So, you're dealing with I think a problem that's going to be basically impossible to solve. I don't see how you can dredge the Aquifer.

And the schematics you put up there on that Aquifer, it greatly bothered me because it shows the perched water in a dome. It shows conglomerate material exceeding further out. It's not an accurate assessment of what's going on. Because perched water does not dome, perched water moves horizontally.

MS. DEBBIE WELLES: Sir, this is beginning to sound like a comment. Are you making a

comment or a question?

MR. MIKE USHMAN: Yes, I'm -- it -- it -- it's a question. I'd like it answered on just exactly why the map shows one thing when, in fact, it's another.

MS. DEBBIE WELLES: Okay, and so your question is --

MR. MIKE USHMAN: My question is why did you produce a map that inaccurately shows perched water in a dome shape?

MS. DEBBIE WELLES: Okay, that's a question that I think can be addressed.

MR. DON VERNON: Okay, we've done -- we've got 44 different groundwater monitoring wells into this perched water body, and during a piezometric surface profile of those sites it does a perched mounting body. It does not -- it spreads out in a pancake, but it actually has a pretty significant bulge in the middle of it to match the actual water surface profile.

MR. MIKE USHMAN: And are they positive of this without a reasonable shadow of a doubt that this is absolutely correct, that there can be no movement westward or southward or eastward of this perched water? Has it been totally confined within

that given area? Has there been any chemical analysis of the water taken, say, 100 miles from there to determine if these contaminants have actually migrated?

MS. DEBBIE WELLES: So, sir, the question specifically is -- there's several there. Take them one at a time.

MR. DON VERNON: At the 150-foot elevation, that perimeter that was shown on the diagram is pretty close to true that is the extent of the actual water that's out there. There's wells out there that are beyond that that are dry. There's no free water in those wells.

MR. MIKE USHMAN: None at all.

MR. DON VERNON: Right.

MR. MIKE USHMAN: In which direction and --

MR. DON VERNON: If you looked around the perimeter that was up on the sketch up here, outside of that perimeter the wells are dry.

MR. MIKE USHMAN: About how many feet apart or miles apart in the circle are these wells drilled to determine this?

MR. DON VERNON: They were cited to be picked beyond close to that perimeter and they are --

that's pretty close to an actual point. They are not miles apart, they're within feet apart.

MS. DEBBIE WELLES: Did you have anything to add to that, Nolan?

MR. NOLAN JENSEN: What's going on here is the water spreads out. And you're right: The diagram is an artist's rendition, if you will; it's not meant to be very accurate because I don't think if you put it up in an accurate scale if you could even see that there is a doming or you really couldn't see what it is. We're just trying to explain very generally how it works. So you're right: As far as being an exact replica, it's not.

But what happens is the water goes out to a certain point but it's also moving down and at a certain point it moves down faster than it moves out, so at that point, at those edges, it's gone down. Does that make sense?

MR. MIKE USHMAN: Yeah. Are there any major -- is there any faulting in that particular area under INEL? Are there any known faults in that area?

MR. DON VERNON: At TRA there are not. At the Test Reactor Area, there are not.

MR. MIKE USHMAN: But yet it is buil[illegible] a volcanic area.

MR. DON VERNON: Oh, yeah, that's how the basalts came from.

MR. MIKE USHMAN: Then there's no faults.

MR. DON VERNON: Not that are -- we mapped it. As far as we can tell, we haven't found any. There may be some microfaults or something like that or subsurface that you can't really go out and find.

MR. MIKE USHMAN: And the water would basically find these faults and traverse through those; could possibly actually dump directly into the Snake River Aquifer.

MR. DON VERNON: What we've been seeing on the lower perching layer, it appears to be controlling the system hydraulically, it's not being controlled by faults. It's a series of flow rates, seem to match what the permeability of that formation is.

MS. DEBBIE WELLES: Okay, thank you very much.

I'm not sure if there's an additional question. Go ahead, Lisa.

MS. LISA GREEN: Got one more question here.

How much tritium containing water is produced at the INEL daily?

I don't have the numbers for the INEL I don't think, unless John Walsh knows them.

Don, can you give any figures for TRA, the volume of tritiated water that's produced at TRA?

MS. DEBBIE WELLES: On a daily basis? Is that the question?

MS. LISA GREEN: Or month.

MR. DON VERNON: The number that comes to mind is like five to ten gallons a minute at the Warm Waste Pond.

MS. DEBBIE WELLES: Okay. Now we ar t the point in the meeting where we can go to the comment period, and so just to remind you, you're welcome to come up to the microphone and speak for up to five minutes either on behalf of yourself or in representing an organization, and I will help you by letting you know when you have one minute left.

And, again, the agencies are going to be listening carefully to you, but this is the time for you to speak and not for them to respond. The responses will come later in the response of a summary.

Is there anybody that would like to make

a comment?

MS. LISA GREEN: I'd like to remind people that this is a scoping period. We do not have a plan. We have not evaluated any one of those alternatives yet. So, this input is to help us in our study of what you would like to see considered in the study.

MS. DEBBIE WELLES: Well, and part of it is because people have been asked to be let into the process earlier, and so rather than getting closer to your conclusion, one of the things that you've done is to say this is sort of a plan, this is what we think, and it's an opportunity for anybody to try to shape the process and get DOE the benefit of your thoughts.

MR. NOLAN JENSEN: I was just going to mention again we hope to be -- Andy is at the Proposed Plan stage on the Warm Waste Pond. We hope to be at that same stage in this process in about a year.

MS. DEBBIE WELLES: And we have covered a lot of ground and so if people want to mull it over and write their comments in by September 10th, that will be sort of the most useful time to get them, at least early on.

MS. CARRIE COOK: I'm Carrie Cook again -- still.

MS. DEBBIE WELLES: Great.

MS. CARRIE COOK: I want to say that seems to me the most important thing that you're figuring out right now is whether to do an Environmental Assessment or an Environmental Impact Statement on this, and the Snake River Alliance strongly recommends that you do an Environmental Impact Statement. In particular, that is the only way the public can be involved in this, and we feel that the process will definitely benefit and will be flawed if you don't have public involvement. We think that there, indeed, is a significant risk and that it would be unthinkable that you might issue a finding of no significant impact in this case. So, again, we strongly recommend that you do an Environmental Impact Statement with full public participation and not an Environmental Assessment.

Along with that, we'd like to say that we have some concerns and at this point would say that we are opposed to doing what I guess is called rolling site characterization; and we also have equal concerns with the streamline risk assessment, which from our point of view is a way to predetermine certain things and have certain decisions made before they reach the public eye. You might think that you're speeding the

process up so that people aren't going to be held up with silly details. We'd like the silly details.

I assume you will do this at some point here and that you might have it, as you say, back in the informative documents, but I found that the publication you put out, well, it seemed to be referring to what you were doing -- what might be entering the perched water now much more than what had ever entered it before. Some questions here tonight answered some of my questions, but again, I just found that you were talking about current releases, and I think a lot of the problems we are facing out at INEL have to do with operations that have been going on for at least 30 years and that anything you say about it should include everything that's happened and everything that's been there, not just what you're putting in now.

You know, I am not sure and people I've talked to are not sure what your cleanup methods -- your choices might be and it seemed to me that, again, in the document we saw here, they were gone over pretty lightly. We'd like to know what other alternatives you could even think about.

And we would like to talk once again about lined evaporation pond as a cleanup. We think

it's not; the evaporation pond is not a cleanup method. It is scary, very scary to me personally [illegible] certainly to the Snake River Alliance that you would even really basically twice tonight talking about the lined evaporation pond as a cleanup method? And if this is the trend, if at INEL what we are going to see is where there's a problem we'll just have material going to a lined evaporation pond, at some point here we better start caring about air quality, we better start caring about what's going into the air, and we also better realize that lined evaporation pond does not mean it's not going to go into the ground. It means that you're trying to take your best shot at going into the ground, but we all know they're not impermeable.

I'm a little concerned about the faith, or I should say that you are putting into the fact that this material might not go into the Aquifer. I know I'd like to ask that as you study the ground below the perched water, that among other things which I'm sure you'll be taking into consideration you'll take this document which was put out with cooperation of the Department of Energy -- I'm sure it's right at your fingertips -- by the USGS this year on the -- particularly, the saturates on the uppermost part of

the Snake River Plain Aquifer.

And I'm obviously not going to stand here and read the document to you, but I am going to say that on page 32, it definitely says in the part about structural implications: If this interpretation is correct, there is a potential for future structural deformation and vulcanism at the chemical processing plant and the Test Reactor Area and elsewhere at the INEL; and it's calling for further studies.

So, I think, you know, this is something you've just been -- you just put out with your blessing here very recently. Frankly, what I think is that as we learn more and more about this area we have less and less confidence in past nice-sounding statements that materials weren't going to get to the Aquifer.

I would also like to ask that -- I brought it up earlier that the Tiger Team's executive summary be taken into account. As you look -- as you make your recommendations and you look at what -- what are the possibilities for what you're going to be doing, I think the public deserves some real evidence that you actually can do what you say you are going to do and what alternatives you are going to be looking at.

Finally, I guess I'm just saying that we again strongly ask that you do an Environmental Impact Statement, that you make no decisions that aren't made in full public eye, and that the public be allowed to go through the entire process with you.

Thank you.

MS. DEBBIE WELLES: Thank you. Is there anybody else that would like to comment? Yes.

MS. LIZ PAUL: I'm Liz Paul.

You need to -- when doing these studies, you need to evaluate what is going to be the impact of continuing to dispose of contaminants in the lined pond, what kind of volume is going to be entering recreating or renewing that perched water zone; and in keeping with that, then also look at the alternative of not using a lined seepage pond, not putting any contaminants into the environment, and how would that impact the cleanup and alternatives that can be used.

I would think that if the -- there is a lined pond that is in use for some time, that you will also then have to keep this so-called cleanup technology in employment for however long that you have a seepage basin because you're going to continue to have contaminants entering the -- you know, you're going to continue to have a perched water zone, or if

you're not, the studies should certainly go into some detail about that. Is that clear?

The contaminants are not only in the water now in the perched water zone, but they're also in the soil in the sediments above and below the perched water zone and in between the perched water zone and the aquifer. And the studies should talk about, well, how will the removal of the water from the perched water zone impact the mobility and the migration of those sediments that are in the soil now? Will it stop it? Will it slow it down? What kind of natural migration would there be without this artificially made perched water zone? How much does the perched water zone add to the mobility of these contaminants?

And certainly, I think that this area potentially is going to require in order to protect the Snake River Plain Aquifer, to prevent any further contamination of that water source, I -- I -- I would assume that in the future there also might have to be some kind of removal of sediments or some sort of further work done to take the other contaminants, because as I said, the tritium doesn't just go away, it moves down to the sediments and the chromium and so forth also, is moving or is just sitting there locked

up in the sediments, which that should be evaluated. Is that a -- is that a cleanup solution to have it just locked in these sediments 200 or 100 feet below the surface.

I believe that it's going to be much easier to remove the contaminants while they are concentrated in that perched water zone or while they are mobile in the water and how much in solution they are in the water, and I hope that the water -- the perched water can be removed from the ground as soon as possible. We -- you already said that we are -- that we are -- that INEL is going to discontinue use of unlined seepage pond, and if you wait too long you're not going to have any perched water. How long is that going to take? And sooner or later you're going to have very little perched water, only from the lined pond going in, and at that point, all the contaminants that were there will be in the sediments or traveling downward. So, get it while you can is my advice.

I think the objective should be to minimize, if not totally halt, further contamination of the aquifer, as well as to minimize further contamination of the sediments and soils and contaminant buildup. I would think that one

alternative that you could look at is to remove the water, pump it out, and just put it in a large loading tank with a ceiling on it so you're not getting evaporation, you're not getting leaching out, it's contained, and you wait 150 years and you won't have any tritium left. And that --

MS. DEBBIE WELLES: You need to begin wrapping up your comments.

MS. LIZ PAUL: And I see, you know, as was pointed out, you can't clean it up, but you can isolate it, and I think that that's certainly one alternative that should be looked at.

You should also look at the long-term impacts of -- of -- of all the different alternatives that you're looking at. That's great.

Thanks.

MS. DEBBIE WELLES: Any other comments for the record? Sure, come on up.

MR. MARK BRIGGS: I did some figuring here.

MS. DEBBIE WELLES: But your name first.

MR. MARK BRIGGS: Mark Briggs. From Boise.

You said that you get, like, five to ten gallons of tritiated water per minute. And at five

gallons per minute, you're getting what I figured was 21,600 gallons per month, so that's quite a bit of water. And I don't think -- you know, I don't think it's breaking down that fast so it's probably going somewhere, so I just don't know how wise it is to be, you know, creating more and more when you don't know what to do with what you've got now.

Thank you.

MS. DEBBIE WELLES: Thanks for your comment.

Any others?

Well, Lisa, it looks to me like we ought to try to conclude the meeting, and if you have so. comments you'd like to make, this would be a good time.

MS. LISA GREEN: Before we close, I'd like to ask that anybody who is interested in getting a copy of the IAG -- the Interagency Agreement and Action Plan -- if you could put your name and address -- mailing address -- on one of those little three-by-five cards and give them to Reuel Smith at the back of the room, we'll be glad to get one in the mail right off to you.

Finally, I'd like to thank you all f coming tonight and I hope to see you at our comment

input meetings next month; I believe it will be the week of the 16th, September 16th, Wednesday during that week, here in Boise. We'll look -- thank you for your input tonight, and we'll look forward to receiving more on the IAG and Action Plan. Thank you.

MS. DEBBIE WELLES: Okay. And, Dean.

MR. DEAN NYGARD: Thank you very much. I appreciate your participation in this evening's meeting. It's been very helpful. Thank you.

(The meeting concluded at 8:52 p.m.)

AUTHENTICATION

This is to certify that the foregoing proceedings held in the matter of the public meeting involving cleanup projects at the INEL Test Reactor Area concerning the Warm Waste Pond Proposed Plan and Perched Water Project, commencing on Wednesday, August 14, 1991, at the Boise Public Library, 715 South Capitol Boulevard, Boise, Idaho, is a true and correct transcript of said proceedings and the original thereof for the file of the Department.

WENDY I. KNAIN
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STATE OF IDAHO

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ORIGINAL

UNITED STATES DEPARTMENT OF ENERGY

PUBLIC COMMENT MEETING CONCERNING PROPOSED CLEANUP PROJECTS

AT THE TEST REACTOR AREA

AT THE IDAHO NATIONAL ENGINEERING LABORATORIES

WARM WASTE POND PROPOSED PLAN
and
PERCHED WATER PROJECT SCOPING

August 15, 1991
6:30 P.M.
University Inn
1516 West Pullman Road
Moscow, Idaho

Panel Members: Lisa Green
DOE-Idaho

Dave Hovland
State of Idaho

Presentations: Andrew Baumer - Warm Waste Pond Proposed Plan

Nolan Jensen - Perched Water Project Scoping

Moderator: Deborah Welles
Advanced Sciences, Inc.

Reported by:
Gloria J. McDougall, CSR

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I N D E X

Reported by Gloria J. McDougall, CP, RPR, CSR, Freelance Court Reporter and Notary Public, States of Idaho and Washington, residing in Lewiston, Idaho.

THURSDAY, AUGUST 15, 1991 - 6:37 P.M.

MS. WELLES: Well, I think we probably need to get started. So, if you would like to come have a seat. It also looks to me like we are going to have plenty of seats. So, if you would like to sit towards the front, you should certainly feel very willing to do that -- or happy to do that. That way we won't have to look so far to see you.

Well, I want to welcome all of you to the DOE meeting tonight on the cleanup projects at the INEL test reactor area. As you probably know from reading your agendas and also the notices that have been in the papers, the purpose of this evening's meeting is to give you some information on the warm waste pond proposed plan as well as the perched water project.

Before getting into that in great detail, I would like to introduce myself. I am Debbie Welles. I am with Advanced Sciences, Inc., and I will be the moderator to this evening's meeting.

We have several panelists with us tonight. Lisa Green, representing the DOE Field Office in Idaho; and Dave Hovland, representing the Idaho Department of Health and Welfare. They are both here representing their respective agency's roles in the cleanup of these two projects that I have just mentioned, and they are

also here to listen very carefully to what you have to say this evening. We also have two presenters with us tonight.

Andy Baumer, who will give the presentation on the warm waste pond, and Nolan Jensen in the front row here (indicating), who will be giving the presentation on the perched water project. They both prepared slide shows to bring you up to date on the project. They are also here to answer your questions; and, really, they are here to help you understand what is going on with these two projects.

We also have a couple of contractors here this evening who are supporting the two projects. We have Don Vernon over here (indicating), who has been very involved in the perched water project, as well as Doug Greenwell, who is in the front row. I mention them because, when we get to the point where we will be answering some questions, these two individuals are very likely to be asked to assist us with those answers as well. There is one other INEL staff person in the audience, John Walsh, who is in the back row; and John is here from the Public Affairs Office at INEL. And, if you have questions tonight that are on topics other than the two we are addressing specifically, he is a tremendous resource; and, if he can't answer a question

that you have tonight, I know he will do what he can to get you a good answer just as soon as possible.

Most important, are all of you who have shown up this evening. DOE has indicated in the past members of the public have asked for more information earlier in the process, and this evening is certainly an attempt to do that with the perched water project, as well as to inform you as to where they are with the warm waste pond project. Along those lines, we hope you will feel welcome to ask questions and provided your thoughts on these two projects.

We've found that questions and issues raised in forums like this one have provided the agencies with really thoughtful insights that they wouldn't necessarily get otherwise. And so, we really encourage your participation.

Some additional desired outcomes of this meeting, the agencies want you to know the status of both of the projects so that you are aware of the situation on each and have the information regarding what's planned. They also want you to know what the cleanup alternatives that have generated to date for each project is and are. And, in the case of the warm waste pond, they want you to know which alternative is currently preferred by DOE, EPA and the State. And,

again, I stress the importance that the agencies feel of your input as well.

Often people have ask the question, Well, what will happen to the information that's collected in a meeting like this one. There are sort of two things going on here this evening. You will be given information, and you will have an opportunity to comment. Your comments -- as you can see, we have a court reporter here tonight (indicating) -- are being recorded verbatim. And they are going to be made part of the record.

Now, what -- there are some administrative and formal parts of this. We are dealing with two different projects, and those are the warm waste pond proposed plan and the perched water scoping. In this administrative portion of the cleanup, there are cleanup comment periods, and I wanted to tell you that the warm waste pond comment period ends August 28th, and the comment for the perched water ends September 10th. So, you might want to note those dates. They are also indicated in the fact sheets at the front door.

Similar meetings to the meeting that we are having tonight have been held in Idaho Falls, Pocatello and Twin Falls and last night in Boise. After the

comment period on the warm waste pond proposed plan has ended on August 28th, DOE, EPA and the State will use the comments that have been made in writing, as well as at meetings like this one this evening, as one factor in making their selection of the final cleanup method for the warm waste pond. Also, where the warm waste pond is in its administrative process, we will also be coming out with a responsiveness summary. So, if you ask questions tonight or make statements that need to be responded to, that information -- we will try to address what we can here tonight; but, also, there is an administrative document called a "responsiveness summary" that will be prepared on the warm waste pond proposed plan. Because the comment period for the perched water project is really so different from the warm waste pond -- they are at a much earlier phase in the development -- Nolan Jensen will address where and when those comments will be used by the agency when he gives his presentation.

I would like to turn now to the agenda that you picked up when you came in this evening, and just show you where we -- where we are and where we will be going with the meeting tonight. When I conclude my opening remarks, I will pass the meeting over to the Department of Energy and then the State of Idaho who

will give you some contacts for this evening's meeting and give you some of the next things that will be happening as well; and then we'll go right into Andy Baumer's presentation on the warm waste pond proposed plan.

Right after that presentation is over, we will give you an opportunity to ask some questions. And the way we are doing this is with note cards, and there are really two reasons to use note cards in a meeting like this. It gives those people who are not so comfortable coming up to a microphone an opportunity to write their thoughts down and pass it to the front. And, as you will see, it will also give the speakers a chance to take your questions and give it some thoughtful consideration before they respond to it.

After that, we will take comments that you may have. Often people bring prepared testimony, or they just feel like letting the agencies know how they feel about the process. And I just wanted to let you know right now that you are welcome to take up to five minutes to do that.

There are a couple of ground rules for the meeting. First of all, I've mentioned the note cards that you will be using. Questions on topics other than the warm waste pond or the perched water project, you

probably just want to address those directly to John Walsh, who I pointed out to you a moment ago.

I've mentioned that the court reporter is here. She has asked me that, in order for her to hear what you have to say, as well as for the people behind you to hear what you have to say, we really need to use the microphones tonight. So, if you can bear with us on that and go ahead and use them, she will be appreciative, and the record will be accurate.

At this point, we are ready to introduce Lisa Green from the Department of Energy.

MS. GREEN: I would like to welcome you all here tonight. DOE is here tonight as the lead agency that is responsible for remediating or cleaning up the INEL. We are here specifically to receive comments on two remediation projects at the test reactor area; and I would like to remind you, also, that the comments received orally or in written form receive equal weight. So, if you think of something else that you don't get a chance to put into your oral comments, please, we have forms available at the back of the room that even before you leave here you can write down or take it home and provide additional comment to the agencies.

Finally, I'd also like to remind you that at

this time, our Inter-Agency Agreement between DOE, EPA and the State of Idaho for overall remediation of the INEL is out for your public review and comment. If you would like to take -- if you don't already have your own copy for review and would like to get one, if you would put your name and address on one of the little three-by-five cards and give it to Reuel Smith at the back of room, he'll be glad to make sure that you get a copy as soon as possible.

We will be having meetings throughout the State in the month of September specifically to receive comments on -- ask questions and receive comments on the IAG for the CERCLA cleanup at the INEL.

With that, I would like to turn the platform over to the State.

MR. HOVLAND: Thank you, Lisa.

I'm the State's project manager for the TRA area, and I would like to mention that the State of Idaho is very supportive of the TRA warm waste pond interim action. We see this as having many benefits. One benefit is taking the constituents or contaminants out of an uncontrolled environment and putting them into a controlled environment.

Lisa also mentioned this was a three-party agreement. The EPA could not be here tonight due to

resource constraints, but I would like to mention there is a project manager, Mr. Wayne Pierre, who is listed in this proposed plan, that can be contacted or written comments can go to him for any aspects of any questions or any comments that you want to make directly to the EPA.

Again, this is the first of many proposed plans that we are going to be looking at under the Inter-Agency Agreement. And both the State and EPA do highly encourage public input into this process. The State's role under the Inter-Agency Agreement is to be a very active participant in the entire process and have very active and pro-active input into the entire environmental restoration process.

The State of Idaho has organized into two graphic areas to cover the INEL. I work out of the Boise office, and there's a -- one of my colleagues, Mr. Dean Nygard, who is out of the Boise and also listed in this proposed plan, is the entire INEL project manager. So, he's the main person that we have overseeing the consistency of any input that we will have, both technically and administratively, for the entire site. We also have an Idaho Falls field office, and that's headed up by Mr. Shawn Rosenberger. His phone number is 208-525-7200. Shawn is now staffing up

that office, and we have several employees out there now to provide a quicker response into our over sight of these activities.

That's about all I have.

MS. WELLES: Okay. Before moving into the slide show, I would just like to tell you that Andy will be giving his presentation on the proposed plan for the cleanup of the warm waste pond, and his presentation is essentially a synopsis of this 12-page document (indicating). So, if you didn't pick one up at the door, you might want to. Feel free to take one now. I guess Reuel's got them, and he'll hand them out. Many of you also received this document if you are on the INEL mailing list. It was sent out several weeks ago.

So, with that, Andy, why don't you come on up and give your presentation. And I might just remind you as well as that the note cards that you will have -- if you don't have note cards, there will be a couple of people handing them out; and you should feel more than welcome to write any questions about Andy's presentation down; and we will take them just as soon as the presentation is concluded.

WARM WASTE POND PROPOSED PLAN

Technical Presentation to Explain Proposed
Plan for Warm Waste Pond Interim Action

MR. BAUMER: This is just like all my extension cords at home.

Okay. Okay? There we go.

Okay. We are going to talk about two projects tonight. Both of them are at the test reactor area. The first one is the warm waste pond interim action, and the second one is the perched remedial investigation/feasibility study.

I'm going to talk about the warm waste pond and -- and tell you about it. And what -- it's a -- it's an interim action for which a proposed plan has been prepared, and we are now out for public comment.

So, what is an interim action. Well, under the Superfund law, if you need to determine what contaminants are present and what the risk associated with those contaminants is or are and how to clean up a site, you go through a study called a remedial investigation/feasibility study. If you have the information you need without doing the RI/FS or during that process you determine that you have enough information to select a remedial alternative cleanup

method, then, you can do an interim action.

Now, an interim action can be anything from a quick fix to reduce a risk quickly all the way to the final remedial action. In any case, whether you do an interim action or one following the study, you still go through the same process. And that is, there are nine criteria under the Superfund law which are used to re-evaluate cleanup techniques.

The State, EPA and DOE evaluate the alternatives based on the first eight of those nine criteria and recommend a preferred remedial or preferred cleanup technique in a document called a proposed plan. The proposed plan goes out and is intended to generate public comment because the ninth criteria is community acceptance. And so, by generating public comment, the agencies can evaluate the ninth criteria prior to selecting a remedy which is documented in a Record of Decision.

So, that's where we are here tonight. The proposed plan is out. We are in the public comment period, and we are here to get your input on this project.

So, if you came last time, you remember that I said there were four things that you needed to know before you could clean up a site. What is there. How

bad is it. How can it be cleaned up. Or -- and what is the best way to clean it up.

So, what's there. This is the test reactor area (indicating), and this is the warm waste pond (indicating) that's been used for nearly 40 years for the disposal of radioactive wastewater and was used for other -- all nonsewage wastewater disposal at the test reactor area for about ten years.

So, what's in it. Well, all the contaminants fall into two main categories, metals and radionuclides. And what we found in the risk assessment was that, even though the metals are there in higher concentrations and significantly higher total volume or weight, they do not pose a threat to human health. The radionuclides did. And cesium and cobalt were the two which are the biggest problem, primarily due to the fact that they are there in the largest quantity. And just for a reference point here, the cesium was found -- Cesium-137 in an average concentration of eleven-and-a-half nanocuries per gram; and cobalt, four point six. And just as a reference point, the Department of Transportation considers anything below two nanocuries per gram to be nonradioactive for shipping purposes. So, that's just a reference.

And what we find -- something that becomes important when we get to our risk assessment is -- because, as I said, a risk -- you can either do the interim action; you can go in and reduce the risk quickly and/or you can do the final remedy.

Well, what happens when you do the -- if you are looking to final remedy, you have to evaluate future use of the site. And so, in this case, we did a hypothetical situation where we assumed in a hundred years that the INEL would revert to private ownership.

Okay. Well, the reason that's significant is, is because, in this case, cesium, with a half life of 30 years, would have decayed to only about a tenth of its current strength in a hundred years; whereas, cobalt would have decayed to a half millionth of its current strength in a hundred years. So, what we have is that, at the present time, we really need to deal with both of these. For the 100-year scenario, we have to deal with the cesium more specifically. Okay. So, that's what's in there.

How bad is it. Well, how bad is it is done using a risk assessment. And there's two components of a risk assessment: toxicity assessment, which is basically how toxic are the contaminants that are in the pond; and an exposure assessment, which is how

might someone be exposed to those contaminants.

The toxicity assessment is composed of -- well, breaks down into two types of categories: carcinogens, which are cancer causing and/or other health effects. And what we found in the risk assessment is that of all the combinations of metals and radionuclides, cancer causing, other health effects, the only one of those four categories which was -- posed a potential threat to human health was the category of cancer causing effects of radionuclides.

The exposure assessment is composed of two parts, pathways and receptors. And, for example, we evaluated inhalation of dust. In which case, the pathway is ingestion, which is how it gets into or to the body. And the receptor is a worker who we assume is at a given location for a given number of hours per week for a given number of years. And we did three scenarios based on the pathway exposure -- pathway-receptor combination.

And I -- before I get into this, I should say, that the -- under the Superfund law, there is a target risk range or level which has been established which, above which, you have to clean up down within the range or below it.

So, what we found here is, when we evaluated

it, we looked at, Okay, what is the present risk right now that we have to deal with. And we found that the external exposure to radiation, just the radioactive field, the risk there was above that target risk range and must be dealt with. Okay.

And, in addition, we evaluated inhalation of contaminated dust at the present time and ingestion of soil. We assumed that a family would move to the site in a hundred years, and that kids would eat dirt to evaluate that 100-year future use scenario. Both of these were below -- well within or below the target risk range by themselves; but, together, were above it. So what that means is, is that if we want to do a quick fix, we have to deal with the external exposure. If we want to do a permanent remedy, we have to deal with all three because these -- the combination of these two (indicating) is above the risk range.

So, what's in there; how bad it; how can we clean it up. If we go to the EPA guidance documents, which there is a couple on clean up of radiologically contaminated soils, they not only give a description of the technology; but they also give kind of a status report of them. How proven are they, if you will.

And the first category is "proven," which has actually been used to reduce the risks associated with

a radiologically contaminated site. And those two are: capping, which is backfilling the pond with dirt or something and then covering it up with an impermeable barrier and land encapsulation, which is digging it up, putting it in a container and taking it somewhere else and covering it up.

The next category down from proveness, which is technologies which have been used to -- have been demonstrated in the field on radiologically contaminated materials, but have never been used to actually clean up a site -- radiologically contaminated site. And those are: stabilization, which is mixing it up with a concrete, forming a solid block, which binds up the contaminants; vitrification, which is melting it and then, when it cools, it forms a glass which binds up the contaminants; chemical extraction, which leaches the contaminants out of the sediment using acid or something like that; and then physical separation, which there is some property of the contaminants which allows you to physical separate them from the sediment -- the majority of the sediment.

So, when we are looking at this and trying to decide, well, which ones of these should be evaluated for the warm waste pond sediment, capping is common technology and would reduce the external exposure, so

it could be a short-term fix.

Land encapsulation, just the sheer volume of material here makes this unacceptable.

Stabilization is commonly used to -- in the treatment of radioactive wastes, so it was evaluated.

Vitrification has never been proven on anything on this scale and is pretty expensive, too. So, we didn't pursue that.

Chemical extraction is commonly used to extract radionuclides from ores in the mining industry. So, that seemed appropriate.

So, what we found was that, if we were going to pursue chemical extraction, we would have to use physical separation first, because the sediments contain a lot of gravels, clay -- not gravel -- gravels, sands, cobbles, things like that; whereas, the contaminants are tied up in the silt clay size particles. So, what we found is, that is if we could physically separate the sand and bigger stuff from the clay and silt size stuff, we could reduce the volume of contaminated material by 60 to 80 percent which would, then, make our chemical extraction process more efficient. So, capping, stabilization and a combination of the separation and extraction.

Now, we have added in here "no action" for

the comparison; and these are the nine criteria under the Superfund law which are used to evaluate cleanup technologies. And the way it works is, is that the State, DOE and EPA evaluate the alternatives, each of these alternatives, against the first eight criteria. And they put out a recommendation of a preferred remedy in the proposed plan which then goes out to generate public comment so that the ninth criteria, community acceptance, can be evaluated prior to the selection of the remedy.

So, let's go through these line by line. Now, in this scheme of things here, this slash (indicating) means it doesn't meet the criterion; the blue means it partially meets it; and black means it fully meets it. And I should say here that the first two of these are called -- are threshold criteria, and that means that any remedy -- any final remedy has to meet those two criterion.

Okay. So, the first one is, does it reduce the risks that we have identified. Well, capping, as we said, reduces the external exposure. So, capping could be used as a quick fix, interim action.

Stabilization and separation/extraction reduce all three risks.

Does the remedy comply with all state and

federal environmental laws. Well, the agencies intend to evaluate all the environmental requirements as required by the Superfund law; and, so, all those three meet these -- meet this criterion.

Long-term effectiveness, capping -- caps have a design life of four -- of a hundred years -- excuse me -- but, in this case, the cesium wouldn't have decayed to an acceptable level for 400 years. So, even if you could get a cap up to a hundred years, it wouldn't last long enough.

Stabilization, in theory, is a permanent remedy; but obviously, hasn't been proven for the 400 years.

Separation/extraction, by removing the contaminants from the sediments, the majority of the contaminants that are concerned from the sediments, you permanently reduce the risk associated with them in the pond sediment.

Reduction of toxicity, mobility or volume, under the Superfund law, there is a preference for treatment options over nontreatment options. So, does the alternative involve treatment; and, if so, does it reduce the toxicity, mobility and/or volume. Excuse me.

No action and capping, neither involves

treatment, so they don't meet this.

Stabilization reduces the toxicity and mobility of the contaminants but actually increases the volume of the contaminated material.

And separation/extraction reduces all three.

Short-term effectiveness, all three would be implemented in a year-and-a-half. Once implementation -- well, within one -- that's not right -- in a year or two. Capping, once implemented, could be done quicker than the other two. But, since they would all begin in about the same time frame and be finished roughly in the same time frame, they were equally weighed in that standpoint.

In addition, this criteria addresses -- shows impacts to workers, the community and the environment. And we have fairly strict health and safety standards for radiological controls and radiation workers, and we would meet the health and safety standards regardless of which of these alternatives was implemented. So they all get an equal rating on that foot.

Implementability, as I showed you earlier, capping is the only one which is proven. So, the other two would require a pilot scale study prior to the implementation.

Cost, no action has no short-term costs

associated with it.

Capping, two point eight million for design and construction; and we did not include maintenance and operating expenses in that because it could not be a permanent remedy. So, therefore, we are assuming that it would last until we got to a final remedy and had to do the real -- the final remedial action.

Stabilization, five point three million; and separation/extraction, six point nine million. In both cases, that's design and constructions and includes the pilot scale study that I said was required. And, in addition, the separation/extraction includes the treatment of the concentrated residual at the end.

Okay. So, based on those seven criteria -- this is our wrap-up sheet (indicating), if you will.

The no action alternative, basically, doesn't meet any of the criterion.

Capping would work as a quick fix because it reduces the external exposure, but it doesn't reduce all three. The long-term effectiveness is a problem, and it does not involve treatment and reduce toxicity or mobility or volume.

Stabilization -- but it is a, quote, unquote, "proven technology" and is the lowest cost in the short term of the three. Stabilization meets all -- reduces

all three risks. Long-term effectiveness is not proven. It increases the volume of contaminated material but reduces the toxicity and mobility and would require a pilot scale study.

Separation/extraction reduces all three risks. It's a permanent fix of the sediments, reduces toxicity, mobility and volume. Would require a pilot scale study, and it is the most expensive of the three action alternatives.

Based upon those analyses, the DOE, EPA and the State have recommended separation/extraction as the preferred cleanup method for the warm waste pond sediments. The State has added the condition that the concentrated residuals, which are created as a result of that process, be stored such that they can be visually monitored until their disposition is dealt with in the final Record of Decision for this waste area group.

Okay. So that is -- that's where we are at. That's the proposed plan -- summary of the proposed plan. We are now in the public comment period. Written comments receive the same weight as verbal comments. And all comments will be addressed in the responsiveness summary which is part of the Record of Decision, which is a document that the three agencies

puts out which explains which remedy was selected and why. And the public comment period close August 28th.

MS. WELLES: Thanks, Andy.

While you are finishing up with your questions, if anybody already has a question, Mike will pick it up. And the note cards will be given to Lisa Green, and she will take a look at them and then pass the question to the person that she feels can most aptly answer the question. And if you fill out another card and have it -- and would like to have it picked up, just raise it up and either Mike or Reuel can pick it up for you. We will take about 15 minutes for these questions. And go on to the comment period.

MR. BAUMER: Okay. First one, is the quoted nanocuries per gram up there the average activity of the whole total mass or the activity of the lower most contaminated area of the pond sediments?

That is the average activity for the three cells of the upper two feet, which is where the vast majority of the contaminants were found.

Second question, Would capping reduce mobility due to the stopping of water movement through the pond that is currently leaching the materials out of the pond sediments?

Yes, it would. But, what we found is, is

that, actually, the -- the contaminants that are in the pond sediments are really not that mobile; and that's why they get hung up in the top two feet. The ones which are actually in solution -- like tritium and when hexavalent and chromium went in there -- those keep going; but the vast majority of them actually get stuck in the top two feet and don't even make it any deeper than that. But that does not reduce the other risk which we -- we -- it doesn't prevent future ingestion, for example.

Does chemical separation work like gold mine leaching? Is cyanide used or something equally undesirable?

We don't know exactly what we are going to use, but what we have evaluated to date are acids. Just straight acids and various strengths of acids, and that study is basically finished, but we are waiting on the analysis right now. The lab analysis which is supposed to be completed by the end of this month. So -- but we haven't even considered things like cyanide.

What is done with the contaminants after they are extracted?

Well, they would be treated such that they would meet any storage and disposal criteria, which primarily is they have to be dry, number one; and they

also have to not leach. Okay. There are tests for -- to determine if things are RCRA hazardous, for example, which, basically, you leach -- you attempt to leach the contaminants out of it; and, if they leach out at a given level, then they are RCRA hazardous. So, we would treat it such that the stuff wouldn't leach out if it would otherwise. Then, at this point, they would be stored until the broader issue of what -- what we are going to do with waste that are generated with environmental restoration activities at the INEL.

Okay. Target risk range, okay. This is -- what is it? That's a pretty arbitrary figure. Are you guessing?

The -- this -- the target risk range is established by the EPA in the Superfund guidance documents and has been hashed out by toxicologists and medical authorities, et cetera. And what it boils down to is, that it is -- if you exposed ten thousand people to a million people to this scenario, how many would get -- would get cancer who otherwise wouldn't?

Okay. It's excess cancers. And the target risk range above which you have to clean up is one additional excess cancer out of ten thousand people exposed. Okay. And like I said, this is all -- this has been established in the Superfund law and is the

same risk assessment that are done for all Superfund sites across the country.

Under the risk assessment, why did you dismiss the other health risks out of hand.

Well, we didn't. The -- what we had to do, first of all, is show there was a risk that had to be dealt with. Okay. That's the first thing. If there's no obvious immediate risk, then, why would you do an interim action. Secondly, what we have to look at is, if we wanted to address ourself to a final remedy, we have to anticipate all of the likely risks that -- that there may be that we need to deal with it, so that we can fix all of them.

For example, one of the risks we didn't deal with in this case was the leaching into the ground of the contaminants. That is being dealt with in the perched water RI/FS which is the second half of this talk; and, in fact, we do have to do the full blown risk assessment in our WAG-wide -- or our big RI/FS which covers all of the test reactor area. So, they will all be addressed. What we have attempted to do is evaluate all of them that we need so that we know that it will be a final remedy.

MS. GREEN: I have a comment on a card here: Please comment on the following Marilyn Robinson's

"Mother Country" -- that's underlined -- describes what I consider a nightmare scenario for Idaho through her -- though her book describes a situation in England.

Unless -- I'm not familiar with that book, and if you can restate your comment to specifically apply it to what you think applies to the project, we will be glad to give it a shot. But none of us -- excuse me -- up here are aware of that book specifically.

MS. WELLES: So, perhaps, somebody has a follow-up question on that. It just seems like it wasn't clear, what they wanted.

MS. GREEN: (Ms. Green nods head.)

MS. WELLES: So, feel free to send in another card; or, if you wanted to just comment on it now, you are welcome to.

(No discernible or visual response made.)

MS. WELLES: Well, feel free to bring it up if you wish; but there is another question.

MS. GREEN: Is there a chance that the INEL research could be successful to the point where foreign wastewater would be processed here?

At this point, we are anticipating it to be successful for environmental restoration purposes at the INEL; and I know of no identification that it would

be applied to any other waste other than the wastes that we have on site.

MR. BAUMER: Please explain the recycling naturability of concentrated residuals of having the toxicity removed from the waste -- from the sediment?

If I understand this correctly, it's asking, Can we recycle the material we get out through this process? And, unfortunately, the answer is no because, as far as we know, nobody wants cesium and cobalt, which are the two things we are going to get out of this in large quantities.

MS. GREEN: If we haven't interpreted the question correctly, please, feel free to --

MS. WELLES: Speak on up.

MS. GREEN: -- restate it.

MS. WELLES: Yes.

(No discernible or visual response made.)

MR. BAUMER: If Proposal 4 is implemented, will a liner be required to prevent movement of water through the soils below the excavated pond sediments.

As part -- well, not as part of this. But, the warm waste pond is -- will be taken off-line at the same time or prior to the implementation of the remedy; and, therefore, there won't be any water going into the pond; and it will be dry so that the only thing we

would have to worry about is -- as far as water, is snow melt or rain. And we wouldn't put in a liner for that.

How much water in ponds. How to eliminate the water.

The -- as I say, we are going to quit using the pond; and so, it will dry up. It will evaporate and/or leach into the ground.

And how many gallons are in there. I don't know. One pond, which is about an acre in size, has about two feet in it. And another one has probably 100 square feet covered by one foot, just for a broad guesstimate there.

What else being removed chemically besides cesium and Cobalt-60.

If I understand this right, the question is: What else is going to come out if you chemically extract it. What we are finding is -- and, like I said, the results aren't back yet. But, it looks like most of the metals, which radionuclides act similarly to metals, will all come out in some concentration; and we are focusing on the cobalt and cesium. But we are also going to get the other metals and other radionuclides in some -- in some percentage.

MS. WELLES: So, is that it for cards?

(No discernible or visual response made.)

MS. GREEN: We have gone through all the cards that we have.

MS. WELLES: Okay. Well, are there any other questions regarding these two projects?

MS. GREEN: One project.

MS. WELLES: Yeah, I'm sorry. On the project.

(Mr. Broscious indicating.)

MS. WELLES: Sir?

MR. BROSCIOUS: The listing in your summary of site risks seems to fail to mention Iodine-129 --

THE REPORTER: Pardon me, I didn't understand.

MS. WELLES: Can you repeat the citation?

UNIDENTIFIED PERSON: Can he use the microphone?

MS. GREEN: Use the microphone.

MS. WELLES: Yeah. It probably would be a good idea to bring the mike up.

Really, at this point, when you are asking the panelists questions, if you can help them by asking a very distinct question; and, then, I think they can help give you a good answer.

MR. BROSCIOUS: In the fact sheet that was

distributed which, unfortunately, is the only thing we have to go on, because the public library document room, as I was there this afternoon, did not have the full documentation on this in terms of the risk assessment documentation. So, all we had to go on was the mailing that came out. If it's in the bigger document, so be it.

But, at any rate, the plan's listing just failed to list Iodine-129 and Plutonium-238, 239 and 240. The reason I bring these up is that those specific isotopes were identified in other DOE documents relative to the TRA waste leach ponds.

In terms of the risk assessment, the health risk information did not appear to combine the nonradionuclide and the radionuclide hazards.

MS. WELLES: It seems like, perhaps, you're making a statement. And what -- this period is for questions, and statements can be made in a few minutes. I'm not sure I clarified that. If you have got a question, I'm not quite sure what it is. But I know if you have got one, they want to answer it.

MR. BROSCIOUS: Okay. Does the risk assessment cover both nonradioactive and radioactive in the combined form. Obviously, they covered them separately. The issue being that the radio --

radioactive risk neared the NCP limits. And, if they were combined, would that put it over the limit.

MR. BAUMER: By the way, just for everybody's information, Reuel seems to have found this Administrative Record. So, it is there now if everybody wants to go look at it in the library.

Now, we're talking about inhalation of chemicals and radionuclides, together, are they over the target risk range?

MR. BROSCIOUS: (Mr. Broscious nods head.)

MR. BAUMER: The answer to that is, it's real close. We have -- you know, we run a range of scenarios. We ran ten in this case, okay, which ranged all the way from basically a person 40 -- let's see, 40 hours a week, 50 weeks a year for 40 years who more or less has to be jogging around the pond, overweight -- you know, and I -- this sounds like I'm exaggerating; but, really, the numbers are -- it's a worst-case scenario put out by the EPA which we have to evaluate. If we went all the way down from that down to five hours a week, 50 weeks, one year, okay, which we consider to be kind of a more likely case -- and I was just looking at this chart, and I haven't had a chance to dig through here -- but the very worse one I mentioned looked like it might approach that -- that

limit. All the rest of them definitely don't.

MR. BROSCIOUS: The point in the question I'm asking, were the risks from the nonradioactive toxic exposure combined with the radioactive toxic --

MR. BAUMER: Yeah.

MR. BROSCIOUS: -- toxic exposure?

MR. BAUMER: Yes.

MR. BROSCIOUS: They were combined?

MR. BAUMER: Yes.

MR. BROSCIOUS: Okay. Another question: Was any kind of water fowl contamination and possible ingestion of water fowl that use both the leach ponds included in the risk assessment?

MR. BAUMER: Yes, it was. And -- well, I've got to step back.

The risk to the ducks was evaluated, but I can't honestly say that I -- that I think that they did the ingestion of the ducks, okay? We evaluated the risk to the ducks themselves, but I don't think we evaluated the risk of eating one of the ducks. And there was no risk to the ducks themselves, we found, just because they don't stay around very long. They are migratory.

MR. BROSCIOUS: Yes, that's the problem. They are migratory.

Your other internal documents don't support that --

MR. BAUMER: Well, I --

MR. BROSCIOUS: -- conclusion.

MR. BAUMER: -- I see in your position paper, and I just wasn't aware of this -- this document that you have here, and we will certainly look into that.

MS. WELLES: All right. Thank you.

Another question?

MS. MINEUR: Yes, ma'am.

MS. WELLES: Okay. Now, can you tell me who just for the -- the last person was Chuck --

MR. BROSCIOUS: Broscious, Environmental Defense Institute.

MS. WELLES: Okay. And your name is?

MS. MINEUR: My name is Lynn Mineur, M-I-N-E-U-R. I would like to know the citation in the Administrative Record where that combined risk is sited, please.

MR. BAUMER: Well, I hope I'm not lying. It's in the risk assessment for the interim action.

MS. MINEUR: Could I have the page, please? It has a lot of pages to try to find something.

MR. BAUMER: Okay. I'll try to dig that out for you, and we'll -- I'll get it for you.

MS. WELLES: Right. And maybe you'll want to take a moment to do that; and, Lynn, if he by the end of the meeting gave it to you, I think that would -- that would work.

MS. MINEUR: Thank you.

MS. WELLES: Okay. At this point -- oh, you have another question? Come on up.

MS. GUIDO: My name is Jane Guido, G-U-I-D-O.

You just mentioned that you did not do the risk assessment on somebody ingesting ducks that have ingested the water. Why not?

MR. BAUMER: Well, to be quite honest with you, any of the alternatives selected would eliminate that potential risk. And, in this case, we knew we had a risk that had to be dealt with; and we know that -- I can't honestly say that I -- I thought about this beforehand. But all of the -- all of the options would eliminate that risk.

MS. WELLES: That's one of reasons we have these kinds of meetings.

Would you like to make or ask a question?

MS. NIELSEN: Yes, I have a question. This question has been bothering me for a long time. Did the DOE, in fact, siphon off six million -- five hundred forty-seven million dollars, eight hundred

fifty-nine thousand dollars from the cleanup budget to put it into new production of nuclear weapons?

MS. WELLES: Okay. I need to ask you --

MS. NIELSEN: I have a specific citation here. This figure comes from an article called "The Dirt in the U.S. DOE's Nuclear Waste Cleanup Budget." I have seen these figures quoted in several different places now, and I've been wanting to ask the DOE to its face, Did it, in fact, siphon off millions of dollars from the cleanup budget to put it into the production area?

MS. WELLES: Okay. That is a good question, and I'm -- I'm certain that it deserves a good answer. That is off the topic that we are working on right now, which is the warm waste pond. But, in order to get your question responded to, John Walsh, who is just sitting at the end of the room, if you would like to address that question to him. I think it is a tough question, and I'm not sure he's got an answer tonight, but he will work with you to get an answer to that.

So, I will have to divert that question.

MS. GREEN: I think we can deal with that in the informal discussions, but we will be glad to talk to you about that.

MS. WELLES: And, if anybody else wants to

listen to those discussions, they are more than welcome to; but you need to stick to the topic now. And one of the reasons we need to stick to the topic is because we're working with this issue for the very special purpose of comments for the warm waste pond proposed plan.

Do you have another question?

MS. NIELSEN: I have one that's more pertinent to the wastewater pond clean up.

MS. WELLES: Go ahead.

MS. NIELSEN: How does the DOE expect to build extraction and processing facilities with only six million dollars? Isn't the reason -- getting back to my other question. Isn't the reason that this sum is so low is that money has been taken from the cleanup area and has been siphoned off into the production area? It seems to me that six million dollars is way too low of a sum of money to build the facilities that are going to be necessary to take care of these wastes.

MS. WELLES: The question --

MS. GREEN: We will deal with it.

The cost of the facility is on the order of a magnitude cost. The facility is probably not a facility in terms of your normal INEL facility, as you think of it. It is anticipated to be a very -- a much

smaller process-type facility. And, Andy, I will gladly let you discuss that.

MR. BAUMER: Well -- and I should mention that that cost estimate was independently generated. We had originally estimated it at five -- around five million dollars; and, when we got independent cost estimates, we -- they came in with six point nine. Now --

And let's keep in mind that we are not talking about building a big facility. This thing is something that might fit on a couple of flat beds and hopefully could be used at another facility somewhere else after we get finished with this one.

MS. WELLES: Okay. Another question? And then, shortly, we will need to move to the comment period; but this is a good exchange of information. Next to the last.

MS. GUIDO: Does the cost include treatment of the contaminants after they are extracted?

MS. BAUMER: Yes, ma'am. And as I said, though, what we have to do as it comes out of the end is, it has to be dry and it has to not leach. And a fairly standard technology to prevent it from leaching is to stabilize it with a cement-type mixture. So that, in and of itself, is not, you know, a major -- as

envisioned, that would be part of the process if, in fact, the test indicate that it would leach.

MS. WELLES: Okay. It looks like we are ready to move to the comment period. And I think you have been in a lot of the hearings, so you understand most of this; but I will just go over it.

Again, the purpose of the comment period is for the agencies to hear what you have to say. If you noted on the sign-up sheet when you walked in that you have a comment that you would like to make, now is the time to make any comments that are pertinent to the warm waste pond proposed plan. You should feel welcome to take up to five minutes to make your comments, and I will help you when you get close to five by, you know, putting up one finger at the four-minute mark; and, if you are here on behalf of an organization tonight, it is important that you state the name of the organization, as well as your name. And feel free to take up to five minutes. And, if you also want to make a comment on behalf of yourself, that's fine; and you don't necessarily have to make them back to back. But you just need to let me know on whose behalf you are speaking.

Panelists, after the commenter has completed his or her comment, if there is a question of

clarification that you need to ask -- the purpose of this session is that you really take away from the comments an understanding of what these people are thinking about these projects and, in particular, right now on the warm waste pond. So, if you need to ask a question of clarification, please -- please, feel free to do that. It's a little strange in a comment period when you have just made a statement and you don't have the agencies responding; but, again, the purpose of their presence here tonight in this section of the meeting is to hear what you have to say. So, comments will not be forthcoming during this period.

If anybody would like to make a comment on the warm waste pond, this is the time to do it.

MS. GREEN: Debbie, if you could, I think we need to add that if -- please, if you do not get to provide all the comments that you have in the five minutes, that there are written forms. We need to remind them that --

MS. WELLES: Right. There's lots of ways --

MS. GREEN: -- there's lots of ways to provide your comments.

MS. WELLES: Right.

There's two forms in the back of the room. One on the warm waste pond, and the other on the

perched water project. And you can feel free to fill them out tonight, one or more, and leave it with us; or, if you want to mail it in, the address of the person to send it to is also on the form. And there's an address on each one of the fact sheets that tells you where written comments at a future time can be sent.

So, in other words, the agencies want to make it possible for you to comment easily.

MR. McGEOGHEGAN: I'm Earl McGeoghegan. I'm from Lewiston.

And I was reviewing the construction and operating costs. It appears that in Alternative 4, the greatest difference in the cost for the alternatives is in the plant construction and operation and -- well, equipment. And I was wondering if there would be any cost sharing benefits if these construction facilities are going to be used elsewhere. If they can be used, say, in other states or other sites to clean up other warm waste water ponds, would there be some cost benefit returned to the citizens?

That's about all I have.

MS. WELLES: Okay. That sounds to me like a question.

MR. McGEOGHEGAN: Question or comment. Maybe

it is untimely; however, it would be nice if it could be addressed.

MS. WELLES: Okay.

MR. McGEOGHEGAN: Thank you.

MR. BAUMER: I'll respond to that.

Since we are the first one out here, we are going to have to pay to build the thing, no doubt about that. But one thing about the -- at least in my experience, within a mile or two of the test reactor area, all of the dirt is a fairly even consistency and contains a lot of cobble, gravel, et cetera, and so, would likely be appropriate to at least a physical separation of anything -- you know, if the soil is similar across the site, we certainly hope to reuse it; and that's our intention. That means the next project that comes through could show a much lower cost for the -- if they use the same technology.

MR. McGEOGHEGAN: Maybe I should clarify that. This will be a comment.

I guess what I was really getting at is that -- no, this isn't a comment. The facilities, the buildings and things of that nature, the equipment that's used, have a cost, I think, that are reflected in --

MR. BAUMER: It's two point two million.

MR. McGEOGHEGAN: Yes. And two point two may be including some of the equipment, a hundred twenty thousand, also, takes you up to close to two-and-a-half million. If those facilities can be made somewhat mobile, they can be used at other sites; and, therefore, we should be able to get some return benefits on the use of the facility.

MR. BAUMER: We fully intend to do that, if possible.

MR. McGEOGHEGAN: Okay. Thank you.

MS. WELLES: Thank you for your comment.

We have another commenter. Your name?

MR. STORMO: Keith Stormo.

I guess I have a couple of comments in specific about the radionuclides and the nonradionuclides risk assessment. I just got done with a class in that.

The EPA, to the best of my knowledge, does not allow you to sum those two risks because they're based on different risk bases. The radionuclides risks are primarily constructed from HWMA data that's not extrapolated very far; and, so, those are generally considered to be fairly -- fairly accurate risk estimates. And the noncarcinogen risk estimates are usually extrapolated from animal data, so they are not

at all -- they are not a narrow range risk assessment, you know, risk hazard index. And so, generally, they are not summed. So that you shouldn't find in your document where they have been combined, hopefully.

I guess the main comment that I have is that I -- I really feel strongly that with the -- with our -- with our country, in general, and the short-term benefits we look at normally, we need to truly remediate the site. You know, we could say, We can cap it and it will be impregnable for a hundred years, or whatever; but we can say that now and, in fifty years, probably it won't hold true. We have seen that all over the place. And so, I think we really need to look at truly remediating the site like -- I guess like you suggested and not just packaging it, encasing it in concrete and leaving it on the site, but finding some way to dispose of that permanently.

MS. WELLES: Thank you.

Would anybody else like to comment on the warm waste pond?

MR. VANASTEN: Okay. My name is Paul Vanasten. I'm from Pullman, and this is something I was discussing with Andy earlier.

My main complaint was that there doesn't seem to be any professional style format that this

literature was prepared to (indicating). And I was a little bit disappointed in the quality of it. In particularly, when they are discussing the four alternatives, where they have one paragraph describing each alternative, where they could have easily gone through a complete page so that a person could totally understand what they are planning on doing.

Another complaint I had was that in here he cites no references as to where the supporting documentation was. In talking, he told me it was listed in the Administrative Record, which is a term that I had no idea what it even was; and he tells me that it's the same as that white three-ring binder that's over there at the table. But, if they are going to use terms like that, I think they need to, first of all, reference in this documentation where the supporting data is. And, if they are going to use a term like that, they need to describe it. Because that's a term that the normal public doesn't know. It's a government term. It's meaningless to somebody who's never worked with it.

Thank you.

MS. WELLES: Thank you for your comment.

MS. MINEUR: My name is still Lynn Mineur.

I would like to follow-up on what Andy said;

and that is, that just citing the Administrative Record, you need to know you really need to cite where in the documents. I did go to the library. I did find it, and I was confronted with a thousand pages in a public reading room that is open for limited hours. So, it's very important that you tell us where to look.

In addition, the plan contains a statement that the new lined evaporation ponds must be operational before significant clean up can begin under cells currently in use for Alternatives 2, 3 and 4. And I want to say that I, as a taxpayer, am not willing to continue to pay for DOE doing business as usual. The assumptions that practices, which we've just talked about in the Administrative Record, that details that clearly health and safety risk can continue and then all -- and then all Americans will pay two to five million dollars to clean it up is not acceptable.

Since I'm going to pay for what DOE does one way or another, I request that all use of the warm waste ponds cease until the new ponds are available; and that that action be taken whether -- regardless of which of the two through five are chosen.

Thank you.

MS. WELLES: Thank you.

MS. NIELSEN: I would like to second Lynn's

comments.

MS. WELLES: First, can you tell me what your name is?

MS. NIELSEN: I'm Selma Nielsen, and I represent Citizens Against War.

I just want to say that these -- this waste pond ought to be shut down right now. It's been leaking radioactive contaminants into the Snake River Aquifer for over five years, and the contamination level is three times over what the EPA says is the standard for drinking water. I think that continued operation of this pond is a total -- shows a total disregard for the environment -- for the environment and a total disregard for us taxpayers, too.

MS. WELLES: Thank you.

MR. BENTLEY: Walter Bentley, Pullman.

The concerns I have, of course, is always accountability. And I would like to see that detailed costs be published and made available to the public on a monthly basis because of the fact that DOE and other government agencies have a history of overrunning, and nobody knows where the money is. I would like to see it in a form that's easy to read and understandable by the average person. Piles and piles of paper is not necessary; but, certainly, some various breakdown and

detail and a one-page summary is unacceptable as well. This simply says, when you put these estimates down, maybe we should look at how we are estimating next time, if this thing overruns.

I would also like to see, of course, being another practical person, a detailed design of how this chemical separation plant is going to be built or how it is going to work before you rush out and spend the two million dollars on it, and that should be made available to the public as well.

MS. WELLES: Thank you.

MR. BROSCIOUS: Chuck Broscious, Environmental Defense Institute.

Yeah, I would like to endorse the two comments from the previous commenters concerning the continued use of the test reactor pond. As your own documentation demonstrates that, as far back as 1981, you were aware that it was illegal and an unauthorized dumping site. The problem, as we see it, is that it's obvious, as the Department of Energy has demonstrated, it doesn't really care about environmental degradation. But when the State and EPA sit on their hands and do nothing, they are, in fact, in compliance -- in complicitous in this problem area.

The fact sheet suggests that under RCRA

definitions that that particular site would not be included in it and, thereby, restricting the State and EPA's enforcement potential on that. And we challenge that particular definition that -- because of the constituents that are in that waste pond in the sediments that it should be characterized as a hazardous mixed waste RCRA site, thereby, allowing the State and EPA full authority and jurisdiction over that site and giving them the authority and jurisdiction to close it down immediately.

We have rather extensive written comments, and it's very difficult to go through these point by point. But I will go back to what we were talking about, the water fowl in and out of the -- of the -- of the ponds. And your own internal documentation which cited significant plutonium contamination in the plankton, which is a food source for any migratory water fowl coming or going. The concentrations were rather -- rather high, and the implications of hunters eating any of that water fowl that -- that used that pond has got to be considered into the risk assessment. Not just water fowl, but there's all kinds of different wild critters that can come and go from that pond. The existing fence is something that I could easily jump over and certainly wouldn't restrict any kind of deer

or antelope, or other four-legged animals that can get into that area. And to give you an example of other migratory critter problems in situations like that, Oak Ridge has a leach pond similar to the one in topic; and they had a migration of frogs out of there; and they went into town; and it was a declared emergency. And they didn't pick it up until the trucks that were leaving the site were contaminated, the wheels, because they were running over these frogs. So, these are -- you know, this is -- this is real, you know. And this -- you know, say, frogs are leaving -- leaving the site and other predators are taking up -- are, you know, eating them; and it goes on down the food chain. That's a very real situation in the extensive migratory characteristics of the animal populations in that area.

MS. WELLES: Chuck, you want to be wrapping it up here?

MR. BROSCIOUS: Right.

That will be it for now.

MS. WELLES: Thank you.

Okay. Any other comments on the warm waste pond?

(No discernible or visual response was made.)

MS. WELLES: What we are going to do, if there are no more -- and, if you want to feel like

coming up to the microphone before I finish talking, that's great -- we will take a break here in just a minute and go into -- well, we will switch when we return to the perched water project. And the format will essentially be the same. We will have a slide show that Nolan will give us and note cards and then go into the comment period as well.

Any other comments on the warm waste pond?

(No discernible or visual response was made.)

MS. WELLES: Okay. Let's take a ten-minute break; and, when we come back, we will go into the next project.

(Whereupon, the public hearing was in recess at 7:50 p.m. and subsequently reconvened at 8:05 p.m., and the following proceedings were had and entered of record:)

MS. WELLES: Okay. We are missing Dave.

Okay. I would like to remind you that this project is at an earlier stage in its development, and DOE will take oral and written comments made during the comment period tonight into consideration as they progress to the point that a proposed plan can be written for this perched water project. I would like to remind you that the perched water -- the comment period on the perched water project ends on September

10th.

Nolan's presentation tonight is a synopsis of the fact sheet that is also on the table on the back. In his presentation, he will give you an overview of the project and provide a description of the alternatives as they have been developed to date.

DOE has asked me to read the following to you so that you will know exactly where they are in the process. Once a remedy has been identified for this operable unit and if it is determined that an EIS will need to be prepared, there are three things you need to know. EIS scoping would be formally noticed and reopened at that time. All comments made tonight on perched water will be considered as part of an EIS scoping process should an EIS be deemed necessary at a future point. And the comments that you make tonight will be used as DOE moves forward in considering the most appropriate remedy for the perched water site in the coming months.

So, with that, I would like to introduce you to Nolan; and Nolan is the Waste Area Group 2 manager for the DOE, Idaho.

PERCHED WATER PROJECT

Technical Presentation to Provide

Background on Scoping

MR. JENSEN: Okay. I'm going to talk about another investigation or another study that's going on at the test reactor area at the INEL; but, as has been said tonight several times, this project is at a far different stage than the warm waste pond which Andy talked about earlier. Tonight I'm going to talk about where we plan to go with this study; but, most of all, we are interested in your comments on where you think the things -- or what you think should be considered as we go through the study on the perched water system at the test reactor area. So, what I'm going to give you is an idea of where we think we are going. But, in the case of Andy's presentation, we are actually proposing where -- what we want to do. In this case, we are just giving you an idea of what that might be. So, we are not telling you that we are going to do this. We want your input on what should be done. I hope that made sense, and I will get into that a little more as we get on.

Okay. Where does the perched water fit into this -- into the big picture here. Lisa, mentioned earlier that the Department of Energy is just now

getting to the point of finalizing an agreement with the EPA and the State of Idaho called an "Inter-Agency Agreement." And that agreement will manage all of the study and cleanup effort at the INEL.

Now, it's a big chunk of work. There's a lot of facilities at the INEL, and a number of sites that need to be looked at and considered. So, we divided the INEL up into ten waste area groups; and what that waste area group is, is, basically, it's just each facility at the INEL is a waste area group. The test reactor area is WAG 2, Waste Area Group No. 2. So, there are nine others besides the test reactor area.

Now, that's still a pretty good size piece of work; and there are a lot of different issues at a number of the sites at the test reactor area. So, it's been further divided down into what are called "operable units." And those terms aren't magic. It's just a way of dividing the work so that you can focus the studies and do them efficiently and focus in on particular problems.

The perched water study that I am talking about is one of those thirteen operable units at the test reactor area. The warm waste pond interim action that Andy talked about is another of the thirteen. So, there are still -- after these two, there are still

nine -- twelve -- or eleven to go.

Okay. What is perched water, anyway. As Andy showed you on this aerial photograph of the test reactor area, there are a number of disposal ponds, wastewater disposal ponds. This is the warm waste pond (indicating), and there are others as well. And all of those ponds leak water into the ground, basically.

UNIDENTIFIED PERSON: Can you give us the scale on that picture?

MR. JENSEN: I'm guessing; but it's about, I would say, between a half a mile and a mile across here. Is that pretty close?

MR. GREENWELL: Yeah.

MR. JENSEN: Okay.

So, as these ponds leak water into the ground, the water seeps down until it encounters semi-impermeable layers or relatively impermeable layers in the subsurface; and that impedes the downward flow of the water. And, as that happens, it creates what we call a perched water system or a perched aquifer or a perched water body.

This (indicating), gives you an idea. If we took a slice -- a vertical slice through one of those ponds -- here's the pond (indicating). This is a layer that would slow down the downward movement of the water

and create a perched water body. And, of course, this is just a diagram to explain. It is not to scale.

But under the test reactor area, there are at least two of these bodies in the subsurface. This one (indicating) is about 50 feet, this layer (indicating). The bottom one here (indicating) is about 150 feet. The top of the Snake River Plain Aquifer is about 450 feet. So, there's about 300 feet between the bottom of this perched body (indicating) and the top of the aquifer.

Okay. Now, we know already that the perched water, as well as the top of the aquifer, has got contaminants in it. The two that we know or that we are right now most concerned about are chromium and tritium. Those are the two contaminants that we know we will have to consider when we're doing the risk assessment. And we also know that the contaminants, even though they are only slightly above drinking standards, they are above drinking water standards directly below these ponds.

So, the focus of this study, obviously, is to determine what is going to happen to this perched water in the future; and what is the risk that it poses. And, again, the big question is: What kind of effect is that water going to have on the aquifer as it

continues its downward path.

And this (indicating) just gives you an idea of the extent of the perched water body. It's about a half a mile across and a little less than a mile in this area (indicating). This is the test reactor area again. This is the warm waste pond right there (indicating). So, that gives you an idea of what kind of a -- of a system we are talking about. And this study focuses in on this body of water (indicating).

That's -- sure.

MR. BROSCIOUS: Where is the injection point of that pond?

MR. JENSEN: About right there (indicating).

Is that right? Is that about right, Andy?

MR. BAUMER: Yes.

MR. JENSEN: Okay. Now, I'm going to back up just a little bit again and tell you how we will approach this study or Superfund studies in general. Like Andy said, under the Superfund law, when you study a site for clean up, the study is called a remedial investigation/feasibility study. And the remedial investigation part of the study answers about three questions. What contamination is there. Where is it, and how much of it is there. And what risk does it pose. The other part of the study, the feasibility

study, is to determine what the best cleanup alternative is.

Now, there are a couple of triangles on this diagram (indicating). They represent public meetings. And, again, in the case of the warm waste pond, we are at the proposed plan stage. We are actually proposing a cleanup alternative. In the case of this study tonight, the perched water study, we are just now starting to develop what alternatives we think need to be considered.

So, at the beginning of the study process, we go through what's called scoping; and that is just trying to define the objectives of the study. What kinds of alternatives should we consider. What kind of environmental impact should we consider. And so, that's what we are asking your input on tonight. And this scoping is shown at the beginning; but, of course, those are questions that we will ask, you know, as we go through the study. So, it's not like scoping only happens right at the beginning. It continues on.

Okay. Now, as we begin to evaluate different alternatives, Andy mentioned, as he went through his presentation, the criteria that are used to evaluate those alternatives and decide which one is the best. In this case, we will use the same criteria.

We will be using the Superfund nine criteria to determine which is the best alternative. And, as you submit comments or you have ideas or alternatives that you think should be considered, just recognize that these are the things that they will be evaluated against.

Okay. Now, I need to be very clear here because in some of the other meetings I was misunderstood. Again, we are not proposing any of these alternatives yet. This is just to give you an idea of what kinds of alternatives can be considered in a Superfund study like we are doing here.

For -- so, for example, broad types of alternatives might include removal of the perched water in the ground by installing some wells and pumping water out of the ground and then following that by treatment to take the contaminants out of the water. Another possibility might be, take the contaminants, pump the water out of the ground and put the water in an evaporation pond and let it evaporate and then collect the residue.

Another alternative might be better waste management practices, cleaning up the water better before it gets released or whatever. For example, Andy has said there are already plans in place to replace

the warm waste pond. Also, there -- in 1972, they stopped using chromium in the -- in the facility. So, since 1972, they haven't put chromium in the ground anymore. So, in the case of chromium, we know it's in the aquifer. We are cleaning up a past practice. Perhaps there are other things that can be done.

Institutional controls is just a broad -- it's a term for things like putting up fences, restricting access, making sure that no one can get to any of the contamination. That type of thing.

The no action alternative, again, we haven't done the risk assessment yet. It may show that this is not a problem. It could be a viable alternative. We don't know that yet. But, if it is determined that there is a risk, then the no action alternative would be used to compare the others to, to see how much they would clean it up or reduce the risk compared to if we did nothing.

So, that's a very brief overview of where we are with this study. And what we hope you will be able to provide for us, is the concerns you have in this study. What alternatives do you think should be considered. Do you like the ones I have presented. Do you dislike those. What environmental impacts do you think should be considered as we go through and

evaluate the alternatives. Those are the kinds of things we hope we would get from you tonight so that, as we go into this study, we are aware of your concerns.

Thank you.

MS. WELLES: Thanks, Nolan.

Again, if you would like to fill out your note card and pass it up, Mike will be happy to pick it up.

MS. GREEN: One of the first question is, How do you separate tritium from normal hydrogen and water.

And tritium, basically, is part of the water, so you -- there's really not a separation-type technology that exists for that. There is -- there are methods to inconcentrate tritium in greater levels, but there is nothing that separates tritium from water. It is three hydrogen atoms and is part of the water.

MS. WELLES: If you do need to take a couple of minutes to write your questions down, please do.

MR. JENSEN: Okay. I'm -- are we on here?

UNIDENTIFIED PERSON: Yes.

MR. JENSEN: I'm going to defer this question to -- this is Don Vernon (indicating) sitting over here by Debbie Welles. Don Vernon is the project manager on this project for EG&G.

The question is: What other contaminants are in the perched water and at what concentrations.

MR. VERNON: Okay. We are just finishing an effort to determine those contaminants, and that's -- we are analyzing the data, et cetera, that was collected during January, February, March of 1991. So, you know, we expect some. I don't know what they are.

MR. JENSEN: Okay. Another question is: What specific scoping tasks have you begun to date, and where is this information available.

This is really the first scoping task that we have done, these meetings as far as with the public. Now, under Superfund law, the scoping is essentially -- or part of scoping is getting together with the agencies involved -- in this case, it's the State of Idaho, like Dave here, and EPA, Region 10 -- getting together in meetings with them and talking about the project, planning it, what are the objectives. Those types of things. So, both of those are being done.

Also, in the case of the perched water study, there is a document right at the beginning of the process called a "scope of work." It's a document that just establishes between the three agencies what the scope of this study is, and that has been developed. It's just been completed. And that should be going

into the Administrative Record fairly soon.

Go ahead, ma'am.

MS. MINEUR: I don't know. It's very difficult to comment on something that's not in the record when you hold a public meeting.

MS. WELLES: So, part of the response is that it's not yet -- not yet in the repositories? Is that --

MR. JENSEN: That document is not yet. It will be soon.

But, again, I guess it's hard in this case because we don't really -- we haven't really come up with an alternative. We are just now starting to develop those. And so....see where I'm coming from?

MS. WELLES: Part of what's going on is that the public asked -- and I'm sure some of you in this room were involved in saying -- we want information. We would like to be let into the procession sooner. So, it appears to me what DOE is doing is saying, Okay, we don't have as many answers as we would like to; but that's -- this is where we are right now. And there's a risk in doing that because the agency can't be as definitive as they would like to be, but the opportunity is that you get a small bite of information, and it will be followed by more.

MR. JENSEN: Right.

MS. WELLES: The next question.

MR. HOVLAND: Are you through?

MR. JENSEN: Yeah. I don't know what else to say on that. There's just not a lot of as far as developing alternatives that we have done yet. Tonight we have just given you an idea of the kinds of things we want to consider.

The perched water body itself has been studied for some time. Enough to know that there are contaminants there. We know that they are not really high, but we know they are above drinking water standards in some cases. So, we do know that it is something that needs to be looked at.

Go ahead.

MS. MINEUR: Where does that information -- where does that information come from?

MR. JENSEN: Do you want to --

MR. VERNON: The information, we are in the process of writing that report right now, to be honest with you. I expect to deliver it to DOE by the end of this month.

MS. MINEUR: Okay.

MR. JENSEN: There's -- there are probably several documents. I don't know exactly how many there

are; but there are, like, studies that USGS has done in the past where there is information. And that data is what is being accumulated together right now.

MR. HOVLAND: I have a question. It says: How does the State stand on the potential contamination of the Snake River Aquifer.

I guess I can put that in perspective of the entire Inter-Agency Agreement, which will be a topic of the next meeting next month, just how does the action plan and all the schedules deal with prioritizing areas of concern and how to deal with them. Should it be an interim action. Is there enough information to do something, or is it going to take more study and go through the entire RI/FS process.

With respect to the perched water system, this is a project that's put together; and the State and EPA have direct comment into just what is the risk posed by the perched water system in the Snake River Aquifer. Right now, the State and the EPA are actively reviewing documents that the consultants have put together on this project to say, Now, how are we going to model this. How are we going to determine if there's a certain pathway, and what the risk will be if contaminants are getting to the drinking water or turning the Snake River Plain Aquifer into a potential

receptor.

So, right now, we are looking at the model selection; and, as the model is calibrated and verified for the actual subsurface condition that we have here at the perched water, we will be reviewing exactly how the model is put together. Is it a good model. Is it something that will actually verify what's going on in the system and can actually give us some different risk scenario numbers.

Did that seem to cover it?

(No discernible or visible response made.)

MS. GREEN: What happens to tritium as water evaporates? .

I guess to elaborate on a previous question, it behaves as water; and it evaporates and goes into the atmosphere as water.

MR. JENSEN: Okay. I have one here.

On page 1 of the document that you handed out tonight -- I assume that's the fact sheet on the perched water study. On page 1 of the handout, why didn't you define relatively impermeable layer of clay and how many contaminants are leaking into the Snake River Aquifer.

Let me take the second one first. Don talked a little bit about the contaminants we have found. The

two big ones, again, are chromium and tritium. Those are the two right now that we know are the biggest concern.

And, as far as, why didn't you define relatively impermeable layer of clay. Good question. I guess that's an oversight.

Basically, what that term means is that it's a layer in the subsurface that slows down the water as it goes downward into the ground. It slows it down enough to create what we call the perched water body.

Does that answer it well enough?

(No discernible or visual response made.)

MR. JENSEN: And, as Dave said, we are doing some work, including a groundwater model, that will try and define how impermeable that is; or how much it slows the water down.

MS. GREEN: I have two questions here that are fairly -- appear to be similar.

Are contaminants in perched water table only or did you say Snake River Aquifer is contaminated. How much.

Second question, Has chromium and tritium contamination reached the aquifer itself or just the perched water table.

Both -- there are -- we have detected

chromium and tritium in the aquifer in the area of the test reactor area, also in the perched water table. Concentrations in the aquifer, I believe, were mentioned before at somewhere above detection to between slightly above drinking water standards.

MR. JENSEN: Let me go ahead and read this one.

On page 2 of tonight's fact sheet under, Who and what is at risk, why didn't you comment on the risks to wildlife at the pond and also the risk to people who irrigate with the water or drink the water from the Snake River Aquifer.

Again, those are the things -- if the fact sheet didn't mention those, that doesn't mean that those things won't be considered. Those are the kinds of risks that will be evaluated in the risk assessment for this study when it's completed.

At this point, no one is drinking water at above drinking water standards; and, as you saw, the perched water body is -- you saw the extent of that.

Does that answer the question well enough?

(No discernible or visible response made.)

MR. JENSEN: Also, as far as wildlife, that is another thing similar to the risk assessment that was done on the warm waste pond, that will be

considered in a risk assessment as well.

Do you want to follow that up with anything more?

MS. GREEN: Why were these two projects not started and run in parallel. There are conceivable treatment processes that could be best implemented in parallel.

The projects were started at the same time. It's just that one will take a shorter time to come to a remedy and implement. The other, the perched water system, requires a little bit more study and investigation before we can determine a remedy. And due to the identified risk in the warm waste pond sediments, we felt it was best to go ahead and get started and allow that remedy to be implemented earlier. However, if you do have knowledge of a better way to do it in terms of tying the treatment processes for the two projects together, please -- that is -- that is very valuable information, and we would like to receive that information. So, if you could both pull somebody aside and write it down in your formal written comments, we would be very happy to receive that information.

Will the public be given an opportunity to review and comment on the draft scoping plan before the

alternative phase begins.

We don't really have a draft -- we don't have a document called a "scoping plan." The first formal document that will receive public review, I believe it will be the remedial investigation/feasibility study report actually provided for review and comment. There will likely be other documents developed over the next year prior to the completion of that report that will be placed in the Administrative Record that would -- would be available for public review. And we will also -- we intend to, through our various community relations efforts, provide you kind of a continual update on new information that's being gained in this project and allow us to bring you up to date on that and receive your input on it at various stages so....

MS. WELLES: Are you finished with the questions that you have been handed?

MS. GREEN: I believe --

MS. WELLES: Because we want to answer each one of them.

MS. GREEN: What about potential risks, parentheses, future risk to people who will irrigate with and/or drink water from the Snake River Aquifer.

That has already been addressed.

MS. NIELSEN: I didn't like the way she

answered. I thought it was a total, you know, misunderstanding of the question.

MS. WELLES: Can you restate the question?

MS. GREEN: I will be glad to deal with the question.

MS. NIELSEN: Okay.

MS. GREEN: What about potention risks; i.e., future risk to the people who will irrigate with and/or drink water from the Snake River Aquifer.

As we did in the perched water -- or in the warm waste ponds sediments project, we evaluated future risk to a potential agricultural-residential type family who potentially in a hundred years from now could move into that area and setup housekeeping, basically. We would also for the perched water study be calculating risks for that type of scenario also and base a remedy, if necessary, on that. If the risks -- if there would be a risk above the risk range to that type of individual a hundred years from now, then, we would be developing a remedy for the site based on that.

MS. WELLES: Did that help?

MS. NIELSEN: At some point, I would like to see some projected figures. In general, I think that's what's wrong with these fact sheets. That there are

not enough facts in them.

Also, you know, when he talks about which ones are at risk, the ideas that you come up with seems to be, I don't know, just grabbed from everywhere. You know, like, when you are talking about the risk from the warm water waste pond, you're saying, Oh, well a hundred years from now, you know, some kid may come along and ingest -- you know, may eat the soil, you know. So, there's a slight risk from that. I mean, what's that. I mean, that's -- you know, that's not much of a risk too me.

What we are worried about is the irrigation water and people drinking this water right now, you know. You know, right now. One year from now. Five years from now. You know, we want to see the projections.

MS. GREEN: Can I respond to that?

MS. NIELSEN: Oh, sure.

MS. GREEN: There is very specific guidance in EPA guidance documents on doing risk assessments that we follow in doing our risk assessments, and that includes use of the groundwater -- drinking and use of the groundwater. And it's not -- I think Andy just pulled out the example for explanation purposes. That's just one of many of the detailed facets that you

have to calculate in a risk assessment. So, that was one that happened to be driving that situation. A child eating dirt happened to be one of the things that would drive a -- a risky situation, so....

MR. JENSEN: And, again, the whole point of this study is to answer the questions that you are asking. But, again, we are just starting that. And tonight we are just giving you a preview of where we are headed with that.

MR. HOVLAND: It sounds to me that somewhere down the line at the next time that there's going to be a public meeting that you would want a very specific response to what is the future risk scenario, where's the well, you know, where's the family of four or whatever and how are the risks developed from that, which would be later on.

MS. GREEN: (Ms. Green nods head.)

MR. HOVLAND: And that sounds like something that's a very good question and can be responded to at that time.

Can you think of any other risk scenarios that might be worthy of looking into? Future scenarios?

MS. GUIDO: Well, I assume you are going to do a present risk.

MR. HOVLAND: Of course.

MR. JENSEN: Right.

MR. HOVLAND: That's right. The industrial.

MR. JENSEN: What ends up happening, though, in a lot of risk assessments is, if we assume what's going on right now, it may show that there is no significant risk that needs to be dealt with. But, if we look at a theoretical possibility of someone moving out there in a hundred years, or whatever, then it could pose a risk.

Does that make sense?

(No discernible or visual response was made.)

MR. HOVLAND: Again, the concern there could be the basic infiltration rate. Right now, in a desert environment, maybe you wouldn't get loading and the contaminants migrating down; but, if you're irrigating, in a hundred years that would also be a concern. So, those are things that are going to be looked into --

MR. JENSEN: Yeah.

MR. HOVLAND: -- for difference scenarios.

MR. JENSEN: Blaine also just brought up that there's a few of these (indicating) at the back. This is a document that is written to help people understand what the risk assessment process is under the Superfund law. So, you can pick one of these up at the back just

to see how it's approached, and how we go about it.

MS. WELLES: Okay. You have got a question?

MS. MINEUR: In that risk assessment that you were discussing, it would -- would be very helpful to know what assumptions you are making on water use, not only in a hundred years, but in the short term. By that I mean over the next ten years in that risk assessment --

MS. WELLES: Lynn, if you can --

MR. HOVLAND: I missed the last part of that.

THE REPORTER: Excuse me, I can't hear you.

MS. WELLES: Lynn, if you could come up, that would be great.

MS. MINEUR: In that risk assessment, instead of just taking a frozen scenario as has been done in the past, particularly with irrigation, I would like to see projections in terms of what we are expecting to happen in the agricultural community in Southern Idaho and what we think the water demands are going to be. And what usually happens in those kinds of economic development statements is that you make a step from zero to 100, and I'm asking specifically that you take smaller increments as you analyze that kind of a change in a whole major business that the state depends on. So, you are looking at water use in 20 years, 40 years

running it out to reach that hundred-year point.

In addition, I would also like to see you deal with the horizontal migration. I'm not sure of the technical term for that, but not just the infiltration, vertical level; but how is it migrating horizontally.

MR. HOVLAND: In the aquifer or in the perched?

MS. MINEUR: In the perched.

MR. HOVLAND: In the perched. Okay.

MS. MINEUR: As well as in the aquifer. But, specifically, in the horizontal level, what is happening in the perched; and how's that built into the model in terms of what the long-term effects of that would be

MR. HOVLAND: Again, I think as far as lateral migration of the perched zone or whether or not it will dry up in so many years will be addressed in the model; and those modeling efforts are going on right now.

MS. WELLES: Any other questions before we move to the comment period?

Come on up, if you would.

(No discernible or visual response was made.)

MS. WELLES: I need to clarify, do you have a

question; or are you ready to make a comment?

MR. BROSCIOUS: Sure. I have a question.

The first question is -- there's an existing body of information that has been accumulated at INEL over many years of -- from analysis of the site. Question is: Why wasn't that information at least included in with the scoping information and the fact sheet. Specifically, the Environmental Impact Statement, 1977; environmental survey, 1988; and the USGS monitoring documentation.

MS. GREEN: Reuel, I guess you can correct me if I'm wrong; but I believe the 1977 EIS is in the information at the repository, isn't it?

MS. WELLES: Is that different than the question that was asked?

MS. GREEN: Why wasn't the body -- why wasn't this information provided with the --

MS. WELLES: Chuck?

MS. GREEN: -- for people to look at.

MR. BROSCIOUS: There is information that is available to you and has been available to you for a long time as to contaminant concentrations, not only in the perched water, but also in the aquifer. I think it is incumbent upon you to include at least that information into your fact sheets so that the public

has at least some information available to them so that they can appropriately comment. That's been available to you, and it should be broadly made available to the public so they can comment

MS. GREEN: We will take that comment. Thank you.

MR. BROSCIOUS: The second question is: If the perched water is pumped, treated, where is it going to go from there. And the point of my question basically is that is it going to be taken further away from the site and injected, put into other leach ponds, or what.

MR. JENSEN: Again, we haven't got that far. We don't know. We are just -- the point of that slide was just to give you a general idea of the kinds of broad alternatives that could be considered with this for the perched water cleanup.

MS. WELLES: If you --

MS. GREEN: I guess --

MR. BROSCIOUS: The reason I question that is because if it's redeposited right there in that immediate area, you're just going to exasperate your water problem at that -- at that -- in that exact immediate area as opposed to pumping it off into another area into other ponds.

MR. JENSEN: Good point.

MR. HOVLAND: One of the things I'm wondering about, so you're thinking, if there's a way of using an ion exchange resins and pulling the metals out of the solution, if it's pumped to the surface, what would happen to those resins and the metals on it or any radionuclides that were captured or any other type of treatment.

MR. BROSCIOUS: (Mr. Broscious nods head.)

MR. HOVLAND: Again, the final repository or storage of that has not been determined, but it will be part of the process.

MR. VERNON: And, also, each specific alternative would address how you deal with clean water as well as any residual waste, et cetera. So, it's not just going to be, Here it is, you know, left off as some dangling problem that continues elsewhere. We are trying to look at complete alternatives to deal with the waste that we would generate from treatment. That is the particular way we are proceeding.

MR. BROSCIOUS: As far as the scoping process, I would like to see in the evaluation of the alternatives that if a pumping program and nontreatment were just put into lined leach ponds as one of your possible alternatives, I would like to see how you're

going to control water fowl in and out of that -- in and out of that lagoon and any other animal invasion in there and out of there.

MR. JENSEN: Very good. That's exactly what we want to hear, by the way, are what your concerns are as we go into this.

MR. BROSCIOUS: One thing that's frustrating, I think, in your -- your documentation is that the -- there's sort of an assumption that the waste there in the perched water zone now is the total volume of the contaminants that were either injected or migrated down through the leach pond. And I would question that, but I don't have anything to back it up. But I -- you know, I think, obviously, the aquifer itself is contaminated which, by virtue of that fact, means that not all of the waters -- all contaminated water is in the perched zone. A significant amount of it has migrated on down into the aquifer.

MS. WELLES: So, is there a question associated with that, that you want to pose to the panel?

MR. BROSCIOUS: Right. What are you going to do about the aquifer. You talk about the perched zone. What are you going to do about the aquifer.

MR. JENSEN: Well, the whole point of the

study -- well, not the whole point. But one of the biggest concerns is, Well, what is the effect the perched water is having on the aquifer. That's one of the main things we will want to consider. And, obviously, it's -- it is going down. It likely is going down. That's why the top of the aquifer is contaminated. So --

MR. GREENWELL: I think the question was, We've stated that there is contamination in the Snake River Plain Aquifer and will this study address that contamination in the aquifer, or is there another study or something that would deal specifically with the Snake River Plain Aquifer.

MS. WELLES: Chuck, does that help?

MR. BROSCIOUS: Right. Thank you.

MR. JENSEN: Yeah. We have a couple of options there.

Again, the way we are trying to handle the work is, if we know there are problems, we will deal with them as quick as we can. There are two other investigations that will be coming up, as I mentioned. This is two out of several. There will be another one at the test reactor area that will consider the test reactor area as a whole. That could be the point at which we would consider the aquifer. Also, as far

as --

MS. GREEN: I guess, if we got to the point where we -- it was determined that not only was there a significant risk associated with the aquifer in that area, but we could also do something about it, then we could identify another interim-type action to deal with it immediately if there was a technology to deal with it. So, we have the ability to, if once we get that kind of information through this study, to identify another -- a priority for a new cleanup project. So, if -- if, you know, the facts support that.

MR. BROSCIOUS: Are your characterization studies including sediments at the bottom or in the perched zones?

MS. WELLES: I'm not sure I quite understood that question.

MS. GREEN: Are our characterization studies considering the sediments that are between the perched zones.

MR. BROSCIOUS: (Witness nods head.)

MS. GREEN: Or at the bottom of the perched zones.

Don, do you want to take that?

MR. VERNON: Yes, they are.

MS. GREEN: Okay.

MR. VERNON: And, the first perched layer is approximately 40 to 50 feet thick; and we have taken very detailed samples in that interval of material to do specific tests, both inset to and exit, you know, outside of the aquifer -- or outside of the perched layer as a whole. So, that information is going to be in -- again, going back to this report that's coming out.

MR. BROSCIOUS: What kind of measures are you taking to ensure that your test wells or your pumping wells are not going to, indeed, perforate those clay layers and allow the contamination to migrate further down into aquifer.

MR. VERNON: I don't the exact law that we are using for drilling standards; but, you know, they are all standard techniques that the State has approved and that we are following. And then we are grouting back and using grout, and we are using very selected well intervals to, you know, collect samples at specified points. So, we are using the best techniques that are available today.

MR. BROSCIOUS: Okay. The assumption that you are going to maintain institutional control over that site for another 100 years is, I think, stretching the limit of what you can conceivably actually do. If

you go back a hundred years, the year would have been 1891. Do you know what things were like in 1891 in Idaho.

MS. WELLES: So, Chuck, the question is?

MR. BROSCIOUS: How do you guarantee that you are going to be able to maintain institutional control of that site for another 100 years.

MR. JENSEN: Again, this line -- I -- we ought to throw it out. This is just to give you an idea of the types of things that are considered in this type of investigation. Institutional controls may very early be found out to be completely implausible just because of what you have said. But that doesn't mean that we won't at least consider them.

MR. BROSCIOUS: Well, it seems like you are using it as a rule of thumb, and the problem is that what has been brought up here, actually a number of times, is that what -- you know, what the -- what the immediate risk or what the 20-, 40-, 60-year risks are, and that's important for people to know, because, you know, the USA, as we know it, may not exist 60 years from today.

MR. JENSEN: Good point.

MS. WELLES: Are there any other questions before we move to the comment period?

MS. NIELSEN: Selma Nielsen again.

You keep saying that you want public input. You know, you appreciate us coming here; and you want to hear what we have to say. Well, how will we know if you have even considered our comments and our questions. I mean, how are you going to get back to us. How are you going to tell us that what we said here tonight makes any difference to you. You know, how do we know that you just don't go out by yourself and you plan on doing what you're doing anyway. I mean, how -- how do we know that we count in this whole scoping process.

MS. WELLES: That's a good question, and who would like to take that?

MS. GREEN: As far as public input at the proposed plan phase, we -- when the Record of Decision is prepared, part of that Record of Decision -- or along with that Record of Decision on the remedy is what's called a "responsiveness summary," and it must address how the various public comments that were received on that proposed plan were considered in selecting the final remedy. So, the Superfund law requires that comments on proposed remedies be addressed. So, you will find that's -- that's the official record. The responsiveness summary is the

official record of addressing comments on the proposed plan.

MR. HOVLAND: I think, from a long-term perspective, as you go through the process and track all the comments, you will be able to track not only how your comments were considered but, also, how EPA and State comments were considered and put into the whole process. You will be able to see the entire flow of the comments made and the resolution on the outstanding issues.

Does that clarify the -- does the means of doing that -- because you can certainly tap into the Administrative Record to see all the comments throughout the whole process, not only your own, but the ones that are made by the agencies.

MS. NIELSEN: I would like to get a copy of that, and I would also like to get a copy of that R-O-D thing that you're going to put out.

MR. HOVLAND: The ROD, the Record of Decision?

MS. NIELSEN: Yeah.

MR. HOVLAND: Again, that --

MS. GREEN: The Administrative Record is available at the information repository here at Moscow. We are trying to change the method that we provide that

so that it is more accessible to the public. As far as getting copies, I guess copies of the ROD, I think that's a fairly small document that can be available if you're on the mailing list; is that correct, Reuel? Can we make --

MR. SMITH: Well, right now, it just appears that it can be seen. I don't know whether or not the ROD, itself, can be sent through the mailing list or made available through the repositories; and then those that care to have a personal copy can make a request. Rather than sending out 5,000 Records of Decision of so many pages, some individuals have said, you know, Let us see it; and, if we want a personal copy, we will ask you for it.

MS. GREEN: So, you will be notified when the Record -- a Record of Decision is available, and then you can request from a number of the different people -- a variety of different people to get a copy of it.

MS. WELLES: Okay. Comments?

MR. BENTLEY: Walter Bentley, Pullman.

Actually, I would like to make a suggestion again. I would like to see the following technology considered at least. You might laugh, but that's all right. That is to pump the water out and distill it, using the solar techniques of the parabolic trough

mirrors or the central receivers. And, of course, the still would have to be designed so that it keeps -- just let's the water through and keeps all the rest -- the other one percent or less of the particulate matter down at the bottom which, then, you can treat using the waste pond method. And then this water can either be shipped elsewhere or reinjected to help force more, shall we say, sediments or particulate matters or undesirables back into the ground to help it reflow through.

The reason I'm suggesting the solar technique is it is fairly well developed now; and I think, if it can be improved in terms of heat recovery for more efficiency, it would be something that could sit there and operate three hundred or so days a year during the day time and wouldn't cost much and probably clean a lot of it out. So, that's just my suggestion as a possible solution to the thing.

And, if you need to know about parabolic mirrors, there's whole acres of them down in Barstow, California, I'm told. They are making electricity with them at eight cents a kilowatt hour which is cheaper than nuclear power, they tell me. But we won't go into that subject.

Anyway, that is just a suggestion as a

technique of dealing with it. I would like to see it automated so we don't have the labor costs to run the thing. And, if it ran two or three years recycling the water a couple of times, so what. You have no real cost, and you're hopefully developing new technology.

The same technology could apply to other commercial applications. Instead of perched water, you can run maybe some sewage through it. But you could borrow that somewhere or perhaps other areas. So, this may be useful in terms of new technology.

I would like to see it automated with a computer; but that's -- another thing, put in some sensors and not go around doing it manually.

The other comment, when I mentioned about previous wastewater and I forgot to say is, not only the cost accounting information, but also what was accomplished should be in that kind of a report, as well as the problem status report on a monthly basis. In other words, putting all the information together. I missed that.

Otherwise, I would like to see these meetings continue; and I think they do produce some positive things. And it helps communications and improves various people's credibility, particularly our friend the government, which is sometimes not so friendly at

times, we think. But it is something that needs to be done, and I think problems are solvable rather than one of just constant criticism. And there are some good ideas, far better than mine, out here.

Thank you.

MS. WELLES: Thanks for your comment.

Is there anybody else that would like to make a comment for the perched water project?

MS. MINEUR: My name is Lynn Mineur.

I would like to see the public involvement coordination tied into the production of these documents, so that -- it appears, if we would have had this meeting five weeks from now, there would be a lot more base data that we could look at and direct our comments to.

In addition, I would like to specifically request that the next fact sheet include a bibliography on relevant background data and where that's available. I really want to echo the comments made by the Environmental Defense Institute, that you have to tell us where this is. I didn't know that that '77 EIS exists.

Thank you.

MS. WELLES: Thank you.

Any other comments?

MR. HUNGERFORD: My name is Kent Hungerford. I'm from Moscow. I am a member of the State Water Resources Board, but I am speaking here as an individual.

But, in my experience of six years on the Board, I've learned quite a bit about that Snake River Aquifer. And, especially, in the Egin Bench up there near St. Anthony where they subirrigate to produce their potatoes and other grain crops of up -- other crops. They put a tremendous amount of water into the soil. Up there they use about twelve-acre feet per acre up to fifteen-acre feet per acre to produce a crop. And in most of Idaho, it's more like about five-acre feet per acre. And we have even considered using that area up there as a way of recharging the Snake River Aquifer; that is, taking some of the run off in the spring and putting it into that area up near St. Anthony, especially out near the sand hills. And the experience shows that it takes very little time for the water that goes into the aquifer there to reach over into Market Lake and Mud Lake, the area over around Terreton. I wonder how quickly the water under the INEL gets over that way too. And the thing I want to point out is, is when you make a risk assessment, I think you are going to have to look a lot farther than

you have indicated so far. When the water goes into the ground, it may come out as a spring. It may come out in the river or in another body of water. It may get into a reservoir. And when it is diverted into an irrigation canal, it gets into the aquifer again. And, when it is put on the land, it gets into the aquifer again. Then it comes out and goes back into the river again. There are countless places along the way where wildlife and humans can be exposed to all of this interchange of water in this complicated set of -- set of channels that we call an aquifer that is going into the land, into the aquifer, back into the river and back out again. And no matter how you slice it, this is a very important concept. And I get a lot more concerned about what is going to happen in that aquifer than I do in thinking about some children eating some soil a hundred years from now on the site of INEL.

I think the implications are so great when you talk about the aquifer. That this really has to be approached in a very thorough way. And I'm urging you to look at all different facets of this as you get into this planning. And I think that certainly, at a minimum, your plan should include at least pumping out all of those perched water tables, evaporating that or whatever technique you decide to use -- I thought the

solar idea was a very good one -- some way to get those contaminants out and then maybe put the water back into the aquifer or even let it evaporate. But, I think that is the least that you could do; and that you must do.

And then, from there, I don't know how you're going to start treating the aquifer itself that may be already contaminated. There may be a way of injecting pure water in there to dilute it. That might be one possibility of minimizing the effects of that contaminant that's already in there. I've been trying to think of a better way to go at it, but that may be very difficult.

But I do want to point out to you that there are many people looking for ways to safely recharge that Snake River Aquifer. That many places are at risk due to lack of water. And, when this is happening, it makes the contamination even more of a concern.

Thank you.

MS. WELLES: Thank you.

Any other comments?

MR. BROSCIOUS: Chuck Broscious, Environmental Defense Institute.

As I stated earlier, the Department of Energy/INEL has known since 1981 that they were in

violation in using that leach pond; and you have had ten years, a decade, to characterize the problem and to remediate it; and you haven't to this day and probably won't for another couple of years. That, by definition, along with what Ms. Nielsen mentioned about DOE's diversion of cleanup money into production, which, indeed, has happened, indicates to us that the Department of Energy is incapable of managing its waste management operations and its cleanup operations. We agree with the recommendations of the Office of -- Congressional Office of Technology and Assessment that, indeed, a new independent internal commission or organization needs to be established to take over these responsibilities.

The recent Tiger Team visit to the INEL site confirms, basically, many of the things that we have been identifying for many years. I'll just read some of them. The programs required to achieve full compliance with current environmental, safety and health requirements at -- and to ensure progress towards excellence have not been developed and implemented at the INEL. Of particular concern is the lack of oversight, construction, EG&G, Idaho, semiatonomous departments and a particular deficient radi -- radiation protection program and a pervasive

lack of attention to details at the Chem Plant. No environmental expertise was on staff with the Oregon area at INEL and several deficiencies that related to the validity of data produced when used by the Radiological and Environmental Sciences Lab for the calculations of those to members of the public from radiological releases. There is doubt as to the ability to accurately measure emissions and calculate those as a result of the unplanned releases. Staff and management, training and experience in the recognition of OSHA hazards are severely lacking at INEL. INEL has a lack of the comprehensive, cohesive management approach and virtually no independent environmental safety and health oversight program. INEL operations office lacks an arms-length relationship with its contractors resulting in an in effective management of process of awarding of fees which are -- which are several areas fundamental to successful operations at the INEL but for which the performance level is deficient. Both the large number and significance of the noncompliance found throughout INEL and its contractors are particularly troubling considering that the overall Tiger Team initiative has been underway for more than two years.

This is an internal assessment. This isn't

even an external one. The Office of Technology and Assessment was a good deal more critical than even this internal document. It remains a structural problem that obviously is beyond your purview, but it is something that we, the public, have got to address. The basic institutional incapacity on the part of the Department of Energy to manage its waste management operates and its cleanup.

MS. WELLES: Thank you for your comment.

Is there anybody else that would like to make a comment?

(No discernible or visual response was made.)

MS. WELLES: Okay. Then next thing that we will do is close the meeting. So, if somebody has a comment that you want to make for the record before we close the meeting, I just want to give you one more opportunity.

(No discernible or visual response was made.)

MS. WELLES: Okay. Well, it looks like you all have had a chance to comment; and, Lisa, can I ask you to close the meeting.

MS. GREEN: I appreciate you all coming here to speak with us, and we have gotten some really good input. We have some work to do, it's obvious; and we intend to act on this input.

I would like to remind you, again, before you leave to make sure and write down -- take a form on home with you just in case you have come up with any other comments. It's got an address on it. And I want to remind you also of the public review time period for the Inter-Agency Agreement and action plan, and that we will be back in approximately a month. I think it is the week of August -- September 16th. It will be a Thursday -- the Thursday in that week.

We look forward to seeing you.

And, Dave, did you want to close?

MR. HOVLAND: Basically, I appreciate the comments that were made at the meeting. I've taken quite a few notes and will be taking these concepts and ideas through the process.

MS. WELLES: Thank you.

(Proceedings concluded at 9:11 p.m.)

CERTIFICATE

STATE OF IDAHO)
: ss.
County of Nez Perce)

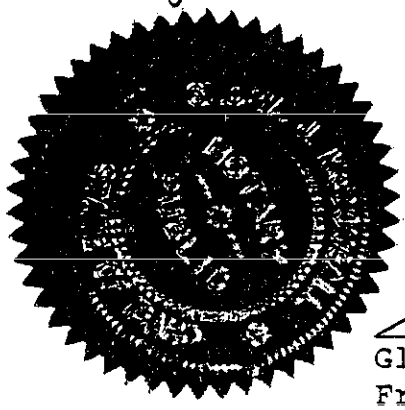
I, Gloria J. McDougall, CP, RPR, CSR, Freelance Court Reporter and Notary Public for the States of Idaho and Washington, residing in Lewiston, Idaho, do hereby certify:

That I was duly authorized to and did report the proceeding in the above-entitled public meeting;

That the foregoing pages of this procedding constitute a true and accurate transcription of my stenotype notes of the public meeting.

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 21st day of August, 1991.



Gloria J. McDougall, CP, RPR, CSR
Freelance Court Reporter
Notary Public, States of Idaho
and Washington
Residing in Lewiston, Idaho
My Commission expires: 9/9/91, 8/24/91

Bruce L. Schmalz

6445 Sidehill Lane
Idaho Falls, Idaho 83401

Phone (208) 522-7176

July 27, 1991

TO: J. Lyle, Director
Environmental Restoration Division
D.O.E. - Idaho
Idaho Falls, Idaho 83415-1902

SUBJECT: Comments Regarding Disposal Pond Clean-up

1. PERCHED WATER

A. Problem: Presence of tritium and chromium above drinking water standards; no one currently at risk.

B. Comment: Since people are not currently at risk, the listed response options are not presently required. If and when risk develops in the future, tritium will have been reduced by decay. Chromium concentration could then be reduced by treating water before consumption or use.

If use of present disposal pond is to be discontinued, future percolation will be eliminated, and should the contaminants unexpectedly continue to migrate, the concentration would be attenuated by sorption, diffusion, or dispersion.

2. POND SEDIMENTS

A. Problem: Radionuclides of cesium and cobalt at deptns less than two feet below pond bottoms. The cancer risk resulting from these nuclides, together with all others, approaches, but is below the upper inhalation limit of one chance in 1,000,000; above the risk range for external exposure, and below the upper limit for ingestion.

B. Comment: All three risk assessment scenarios are unrealistic or improbable with respect to the geologic, geographic and meteorologic location of the ponds. As an example, who or what would rationally eat dirt from the pond bottom or sit on the pond bottom 40% of the time 365 days a year?

Assuming discharge to ponds is to be eliminated, continued migration of contaminants would stabilize, and any threat to the ground water would be eliminated except that resulting from meteoric water, which in turn would be precluded by Alternative-2.

Alternative-4 results in a concentrated residue, which still presents a disposal problem.

Cost of the alternative solutions is not adequately considered. The estimated cost of Alternative-4 apparently does not include the treatment studies and the ultimate disposal costs. The difference

between Alternatives-2 and 4 of $2.5 million is not justified on the basis of risk. This amount might better be spent on other projects of major concern.

Alternative-4 places too much emphasis on relatively minor risks. Alternative-2 is suggested in lieu thereof.

Respectfully,

Bruce L. Schmalz

3860 Elgin Way
Boise, Idaho 83704
Phone: 208-375-3955
208-322-1039
August 2, 1991

Mr. Jerry Lyle, Director
Environmental Restoration Division
Department of Energy Field Office-Idaho
785 DOE Place
Idaho Falls, Idaho 83415-3902

Dear Mr. Lyle:

Thanks to Mr. Reuel Smith and Mr. Steven Baker I am able to make an informed decision concerning the disposal of perched water contaminates at the Test Reactor Area.

It is my opinion that of the four alternatives proposed the Chemical/ Physical proposal is the most efficient means to manage your waste problems.

The knowledge that may be gained by experimentation with extraction methods would far out weigh the financial expenditure and have very real benefits in dealing with other environmental restoration projects.

Sincerely,

John Wm Sackman

John Wm. Sackman, D.Sc.

JWm.S/cts

Received 8-5-91 MB

000458

Perched Water

Written Comment Form

The comment period on the Perched Water investigation is open until September 10, 1991. You may wish to use this form to submit written comments tonight, or mail it later to: Jerry Lyle, Director, DOE Field Office-Idaho, 785 DOE Place, Idaho Falls, ID 83415-3902.

Comment(s):

8/8/91

• IS IT NOT PROBABLE THAT EVEN IF A SOLUBLE WASTE DOES ENTER THE SRP AQUIFER IT WILL (1) DECAY OR BE (2) SORBED ON SRP SEDIMENTS OR (3) NATURALLY BIO REMEDIATED BEFORE THE SRP WATER WOULD FLOW TO AN AREA WHERE IT COULD BE "MINED" (PUMPED) AND REINTRODUCED TO THE ACCESSIBLE ENVIRONMENT?

CAPPING & TO RETARD SURFACE FLOW WOULD RETARD PERCHED WATER PERCOLATION AND LENGTHEN TIME FOR DECAY (over) OR BIO REMEDIATION. (HALF LIFE OF TRITIUM IS SHORT...)

THIS SHOULD BE A MAJOR COST SAVING ALTERNATIVE AND EQUALLY EFFECTIVE

(OBVIOUSLY, I THINK IT'S SILLY TO REMOVE THE H_2O ONLY TO RAPIDLY INTRODUCE THE WATER TO THE ACCESSIBLE ENVIRONMENT!)

Claire [signature]

Name:

Mailing Address:

000459

Warm Waste Pond
Written Comment Form

The comment period on the Proposed Plan to cleanup Warm Waste Pond sediments is open until August 28, 1991. You may wish to use this form to submit written comments tonight, or mail it later to: Jerry Lyle, Director, DOE Field Office-Idaho, 785 DOE Place, Idaho Falls, ID 83415-3902.

Comment(s):

I WOULD PREFER THAT THE DOE USE ALTERNATIVE FOUR FOR PROPOSED CLEANUP

Name: MARK HENNESSY

Mailing Address: P.O. BOX 272

POCATELLO, ID 83204

5-2.2.1

August 7, 1991

[redacted]

Comments to DOE/EPA/State of Idaho reagrding the Perched Water cleanup project and the Proposed plan to clean up Warm Waste Pond Sediments...

Dear Sirs:

After reading your materials concerning the above projects, it became stricking clear that the format of your studies are becoming increasingly "user-friendly". We, at FOCUS commend you on these improvements in communicating your intentions. The projects were much easier to understand and explain to others. We especially liked the "EVALUATION CRITERIA" (page 5 of WWPS). It's about time the public was allowed to see the criteria by which such projects are judged.

PERCHED WATER CONTAMINATION AT THE TEST REACTOR AREA

FOCUS does not have the expertise to suggest which method, if of those listed, are the best for cleaning up the perched water contamination. We do insist that all State and Federal laws be adhered to, and that the DOE not hide behind soverign immunity.

PROPOSED PLAN FOR CLEANUP OF THE WARM WASTE POND SEDIMENTS AT THE TEST REACTOR AREA AT THE INEL

Again, FOCUS does not have the expertise to suggest which method would be best. It seems that the INEL doesn't either. On paper the preferred plan (alternative 4) meets the most criteria, with one major hitch...the plan is not implementable. When are you guys going to come home from Disney Land and back to reality? How can you recommend a solution for which the technology does not yet exist? It is this kind of pie-in-the-sky thinking that keeps the public from really believing you will ever cleanup the radioactive mess at INEL.

Carolyn Hondo
Chairperson, FOCUS on Peace and Justice
412 HIllcrest Rd.
Burley, Idaho 83318

Carolyn Hondo

Perched Water
Written Comment Form

The comment period on the Perched Water investigation is open until September 10, 1991. You may wish to use this form to submit written comments tonight, or mail it later to: Jerry Lyle, Director, DOE Field Office-Idaho, 785 DOE Place, Idaho Falls, ID 83415-3902.

Comment(s):

As was noted earlier in the comment period there is some discrepancy between ~~WEA~~ what INEL claims its purpose is and what the DOE claims the purpose of INEL is. One claims to be for research & another claims to be for defense & weapons production. One of the best alternatives not mentioned tonight to be rid of all tritium, would be the cessation of nuclear weapons production.

Thanks.

Name: Deanah Messenger

Mailing Address: 707 No. 14th
Boise, Id. 83702

000462

Barbara F. Marsh
341 North 13th Avenue
Pocatello, Idaho 83201
(208) 232-7751

August 12, 1991

Mr. Jerry Lyle, Director
Environmental Restoration Division
Department of Energy Field Office - Idaho
785 DOE Place
Idaho Falls, Idaho 83415-3902

Dear Mr. Lyle:

Enclosed herewith are my comments on the subjects requested at the meeting held Thursday, August 8, 1991, at the Quality Inn, Pocatello.

Concerning the Questionaire, could you please see that answers are provided, in writing, and are representative of views from DOE-ID, EPA-ID, and the State of Idaho? If possible, I would like answers to be received no later than August 30, 1991. In the event these requests cannot be filled, please advise the reason.

Should you have questions regarding this correspondence or its enclosures, do not hesitate to contact me. I thank you for your time in this matter.

Sincerely,

Barbara F. Marsh
Resident, Homeowner

Enclosures: Comments - Action Plan
Comments - Warm Waste Pond Alternatives
Comments - Perched Water Alternatives
Questionaire

cc: Personal File
Legal File

BFM: hs

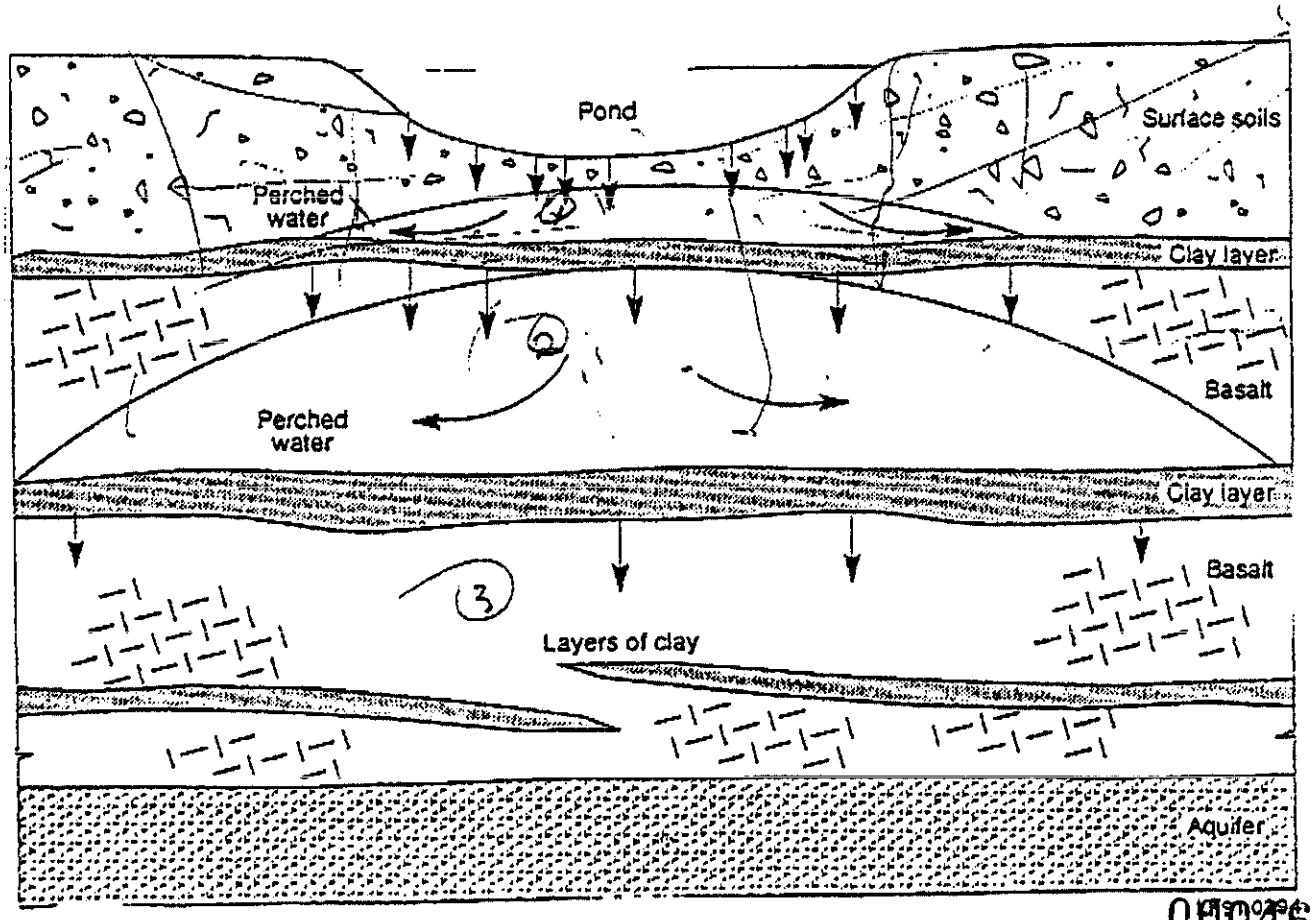
COMMENTS ON THE ACTION PLAN
PREPARED BY: BARBARA F. MARSH
POCATELLO, IDAHO - DATE: AUGUST 12, 1991

The plan was presented as an "interim action", yet "permanence" of the Alternatives was discussed with no mention of what final actions are to be, or even if final actions are planned. This was a bit confusing because compliance ARARs mentioned were for "interim" actions, and may not be applicable if indeed this is intended to be a "permanent" solution. Whatever the intention, I believe this to be an important point that deserves a good deal of consideration.

Between the two pamphlets provided at the meeting, "Sediment" and "Perched Water" dated July, 1991, it was made clear that these areas are to be considered as two waste sites and two separate projects. Again, there is difficulty ascertaining, from information given, what acceptance criteria will be required to be met. The Sediment pamphlet infers that there may be two different sets of requirements. Intentions should be made clear to the public as serious environmental impacts could arise, and the comments we are presently providing could undergo a change.

Because, essentially, one contaminated site is being broken down into two separate projects, I am almost certain that of the 6 contaminated areas at the TRA site, only two (2) will be addressed, regardless of whether the action is to be interim or permanent.

The reason for this opinion can be justified by using the diagram from the "Perched Water" pamphlet below:



As demonstrated above, the contaminated areas consist of the following, as evidenced by the second or lower layer of contaminated perched water:

1. Pond Water - the original source of contamination, (uncontrolled).

2. Pond sediments.

3. Surface soils between pond and perched water, first layer.

4. Perched water, first layer.

5. Clay between perched water, first layer and perched water, second layer.

6. Perched water, second layer. And, perhaps, clay, second layer.

Of these 6, possibly 7 contaminated areas, only two have been placed on the Superfund "CERCLA" program for some reason, and by Agency(ies) unknown. If this means that interim or permanent actions are intended for only two areas, the Superfund money is not being used effectively, and if it is allowed to happen by the Agencies responsible to police actions, we will be in the same situation later that we are in now. This opinion is justified as follows:

The "Sediment" pamphlet states that 90% of contaminants will have to be removed for the process to effectively bring sample readings into permissible safe zones for human health safety. Providing this task is achieved and only 10% of the contaminants are returned to the pond, the following represents the best results we can expect:

1. Remaining 10% of contaminants will seep through surface soils (already contaminated), between pond water and perched water second layer.

2. If the perched water, first layer, has been decontaminated, it will become contaminated a second time.

3. Perched water, first layer, will then seep through contaminated clay to perched water second layer adding a higher concentration of contaminants.

4. Contaminated perched water, second layer, will seep through final layer of clay to aquifer.

Radioactive and hazardous waste dumped into ponds prior to 1980 are more hazardous than those of today, logically, these are the contaminants that are now found in perched water, soils and clay beneath the surface.

Even if both water and sediment are removed and the area capped, if the remaining contaminated areas are not treated or replaced, seepage will somehow over the years, find its way through to the aquifer. I am unfamiliar with the state laws governing radioactive and hazardous waste in Idaho; I do not believe this situation would be allowed to exist in the state of California; nor for this period of time; nor do I believe that low-level radioactive and hazardous waste materials could continue to be dumped in unprotected areas.

ARARs

ARARs - defined in "Sediment" pamphlet as "Applicable or relevant and appropriate requirements. The federal and state laws that are legally applicable or relevant and appropriate under the circumstances." As interpreted by whom? Approved by whom? Do they aptly enforce and are they compatible with federal and state laws? How did ARARs evolve? If ARARs are the controlling regulations, and the only ones we follow, why is the contaminated waste at INEL uncontrolled? The Idaho State Representative, Boise, stated during the August 8th meeting that it is their goal to go from and uncontrolled situation to a controlled situation at the INEL site.

Employment of ARARs According to Pamphlet Data:

ARARs are broken down to three areas per each site and project:

- Chemical - specific
- Action - specific
-Location - specific

- Chemical-specific:

1. Regarding the pond, there are no chemical-specific ARARs governing cleanup levels of radioactive-contaminated soils.

   Writer's Note: Most regulations either state why, or give acceptable alternatives.

2. As the pamphlet states in item 1 above, there are no ARARs governing the chemical removal of radioactive-contaminated soils. However, the Agencies, according to the pamphlet recommend . Alternative 4 - Chemical Extraction/Physical Separation, A Risk Assessment will be used instead of ARARs.

   Writer's Note: It should be remembered this particular pond emits 125 mrem/hr. radiation. Some calculation factors in Risk Assessments are assumed.

3. Pamphlet states that, "Federal and state regulations concerning water quality are not applicable because the interim action does not deal with surface water or ground water.

Writer's Note: Contaminated perched water under the pond voids this theory. Perched water was placed on Superfund list because, "It does not meet federal requirements for safe drinking water." If this site is broken down into two projects efforts will be ineffective.

- Action-specific:

1. Pamphlet says, "The substantive standards for an air quality permit will be met if a large amount of dust will be potentially generated during the remedial action."

Writer's Note: Again, 125 mrem/hr. radiation is presently being emitted from the pond sediments. Cesium-137 concentrations were found ranging from 2.9 to 39,400 Picocurries per gram. Colbalt-60 concentrations were found .2 to 27,100 per gram. According to data received in the August 8th meeting, the pond area covers over 4 acres. That could make a very large dust cloud on a windy day. Maximum Permissible Contamination is now being researched, but was not mentioned.

2. Pamphlet says, "The sediment is not hazardous waste as described in Resource, Conservation and Recovery Act, (RCRA), based upon tests conducted in 1990."

Writers Note: It appears that there are serious conflicts between the different regulations that are being used as guidelines. According to the above statement, the pond has no business being on the Superfund list.

- Location-specific:

The pamphlet says, "There are no location-specific ARARS which impact this interim action."

Writer's Note: Perhaps there should be, and would be if this contaminated area were not broken down into two projects. The aquifer is situated directly underneath it. While the plan was presented as an interim action, there was a heading entitled, "Long-term Effectiveness And Permanence."

Summary

I found the Warm Waste Pond Sediment pamphlet very confusing, which may have been caused by it's brevity. Certainly, it is not a document to spend an hour on and be able to make intelligent comments on it's contents.

The Public Involvement requirement was explained, including the meeting I attended August 8th. During the meeting both pamphlets were handed me at the door with no other technical information beyond the slides shown, and they seemed to be more brief than the pamphlets. The public was expected to comment, for the record, prior to meeting adjournment. I understand now, that this document, because it too, was not submitted at the meeting, will be considered, but will not become a part of the public record. Questions the public were expected to write while the lights were turned off, (while the slides were shown), were answered in too much of a machine gun burst fashion. The questions I prepared, (general questions), for the meeting were not answered, for the record, because the General Question period promised, never came. The meeting ended after General Comments were received. I understand those questions, too, will not be a part of the public record. In my opinion, I do not believe the public involvement requirement was met.

Only 25 people attended the meeting, this could have been caused due to lack of media coverage.

In the plan itself, there were inconsistencies which may be construed as poor management practices. These inconsistencies have been pointed out earlier in this report.

One of the first things that should be learned in Management is, when there are conflicting regulations, or uncertainties on how to proceed in a given situation, go to the originator of the document and obtain written clarification. If there are outside agencies involved, it is a good idea to get clarification from the controlling authority. This does not appear to have been done in this case. It is unfortunate, because in the end, the price may be too great to pay.

Barbara F. Marsh
Resident, Homeowner

COMMENTS: WARM WASTE POND
POCATELLO, IDAHO - DATE: AUGUST 12, 1991
PREPARED BY: BARBARA F. MARSH

Alternative 1: No Action

The logic behind this alternative appears that, by law, it is required. It should not be considered further for the following reasons:

1. The pond is known to have contaminants, uncontrolled, beyond Federal Standard allowances.

2. Quality Control decisions should not be based upon rejected "bases". Therefore, the only acceptable criteria for acceptance must be proven and approved Federal Government Standards for safe drinking water and other Environmental Regulations.

3. The cost of such inane comparisons would be extremely high without achieving any apparent benefit.

Alternative 2 and 3: Capping/Stabilization

It seems that the basic differences between these two alternatives are a) Capping materials, b) Stabilization materials, and c) Batch Plant rental. While "c" has not been explained to the writer, comparison of the remaining differences, as well as similarities, may be addressed as follows:

Firstly, design criteria for "Capping", according to the leaflet dated July, 1991, is based upon "assumption." In my opinion, that knowledge alone would be enough, in comparison to cost, uncertainty of results and magnitude of the project, to disqualify this alternative.

In addition, we know that clay, which is the material slated for use as capping material is not sufficient to prevent seepage, which has been demonstrated by the Perched Water Diagram. While gutters and drainage ditches sound reasonable, there could and probably would be seepage from beneath the surface around the sides and water levels below ground could rise and saturate the contaminated soils and drain again, downward into the aquifer, or, create a second hazard to Perched Water which has already been treated. Clay may do little to slow alpha and beta radiation, however, I believe it will not effect the movement of gamma rays.

Stabilization: Cement substances may slow down alpha and beta rays but again, I do not believe they will have an effect on gamma rays. Too, with 125 mrem per hour/radiation being emitted from the pond at present, which is unacceptable by any standards, cement in 4 acre quantities is not easily encased in copper, aluminum or lead. This is not an acceptable alternative and the apparent cost to prove otherwise would be astronomical.

There is, however, a possible alternative number 5: Backfill Pond Waste and Remove it for Proper Containment and Storage:which will be defined later, in order.

The acid approach to solidifying the pond (s) is beyond my scope as I have no knowledge of the type or quantity of acid to be used; it's threat to the environment, or the amount which could seep into the soil prior to solidifying only to seep into the aquifer at a later date.

Alternative 4: Chemical Extraction/Physical Separation

Clearly out of my depth here, I will give it a best guess applying common sense.

Following the theory that hazardous waste may be treated or separated and removed from contaminated substances, I do not believe this to be true with long-lived radioisotopes. I believe that once they are manufactured, they can only be contained and that the containers must be replaced when they are no longer safe. Therefore, based upon that premise, this alternative does not seem to be a viable solution. Certainly, the sediment must be tested before it is returned to the pond. The question is, is the cost of carrying out this alternative worth the uncertain, unproven results?

Proposed Alternative 5: Backfill Pond and Remove Contaminated Soil:

The following steps could be left out of Alternatives number 2 and 3. Capping, Mechanical stabilization and Chemical stabilization.

Backfill the warm waste pond. This would prevent further seepage which would create a positive and compatible interim step. Remove contaminated soils and place in safe storage containers. These containers could be stored "on site" until such time they could be relocated to a permanent location. I seem to recall that the U.S. Government was experimenting with deep salt mines, in 1980, where radioactive waste could be placed and remain undisturbed for thousands of years.

I believe that after millions of dollars are spent on comparisons, surveys and statistics, this will be the only acceptable means of resolving the problems at the INEL. Cost savings realized would go a long way toward the expenditure of extra monies for removal and containment of contamination. Canyons are not the worst of things.

If contaminants aren't present, they can't contaminate. Research studies and surveys do not have to be performed to confirm that. I believe that Environmental Regulations would be met.

Summary:

The public in general have little or no expertise on issues and topics such as these. Therefore, unless it is intended otherwise, it is absolutely inane to expect scientific input without first providing technical data and allowing time for its digestion and understanding.

My opinion is the INEL site, in its present state, is a life threatening situation to every human being residing in the states of Idaho, Utah and Nevada as these states benefit from the Snake River. It makes me very angry to think that the U.S. Government has had environmental controls in place for the past thirty years and, to date, they apparently for some reason are not being enployed in the state of Idaho.

It would seem that the same agencies responsible for policing actions during the past 30 years will be the same agencies responsible to police Alternative selections and cleanup operations today and in the future. What significant changes have been made for improvement?

The INEL has enjoyed Government contracts since 1952. Did they not include costs for appropriate waste disposal in their quotations during all those years? If indeed they did, what happened to the funds allocated for that purpose?

We need more media coverage. We need better tools to work with if we are expected to make a difference. Are these meetings the only public or outside participation in the alternative selection and the cleanup process?

In view of the expanse and types of contamination along with the nature of the sources, it would not hurt to solicit assistance (input) from Utah and Nevada. Do they know what could possibly come downstream? Is it fair to them if they don't? If the statistics I heard the other night were true, (850 ft. between waste ponds and aquifer and contamination has seeped 525 ft in 39 years), do we have time to take 10 years from today to research and select alternatives and take another 20 years for cleanup? I don't think so.

Barbara F. Marsh

COMMENTS: PERCHED WATER CONTAMINATION
POCATELLO, IDAHO DATE: AUGUST 12, 1991
PREPARED BY: BARBARA F. MARSH

- No Action

While recognizing that law requires a "No Action" alternative to be considered, the published leaflet dated July, 1991, clearly states, "Samples of perched water taken at Test Reactor Area (TRA), revealed levels of tritium, (radioactive), and chromium, (heavy-metal), that exceed federal safe drinking water standards."

Such knowledge should eliminate this alternative from the list of those to be considered. Using the No Action alternative for comparison appears to be rediculous as one normally doesn't use rejected material as a "standards" base, and the cost for such comparisons would be astronomical.

- Pumping Contaminated Perched Water To A Water Treatment System For Removal of Contaminants

In the event that radioactive particles cannot be removed along with heavy metal and hazardous waste in the use of this process, then it would not be a feasible one to employ.

I do not understand why the Environmental Protection Agency - Idaho, state that Industrial Waste and Sewage are non-hazardous waste, (see leaflet on Perched Water dated July 1991), According to perched water samples taken, (see No Action above), this would mean that waste water going into the pond is non-hazardous, but once it reaches the perched water stage, it becomes hazardous. Too, concerning sewage, it would be interesting to see their statistics on permissible contaminants without endangering the body to such diseases as cholera.

- Pumping Contaminated Water Directly Into A Lined Evaporation Pool

Radiation levels of the warm waste pond are as high as 125 mrem per hour, (see pamphlet), I do not believe this to be an acceptable situation. There are no guarantees that perched water emits less radiation. Therefore, this alternative would be viable only if a means of containing radiation above the lined pond and keeping it from the atmosphere can be realized.

- Waste Management Practices Including Treatment and Recycling

I find it difficult to provide a civilized comment on this alternative much less a reasonably intelligent one. The reason being is that no further details, beyond the title, has been provided the public.

The public in general have little or no expertise on issues and topics such as these. Therefore, unless it is planned to be that way, it is absolutely inane to expect scientific input without first providing the public with technical data and other tools with which to equip themselves.

My opinion is the INEL site, in its present state, is a life threatening situation to every human being in the states of Idaho, Utah, and Nevada as these states benefit from the Snake River. It makes me angry to think that short cuts by moving documentation and soliciting public comment simultaneously, are being taken with matters of such importance. Particularly when the U.S. Government has had environmental controls in place for the past 30 years and the state of Idaho is just now getting around to enforcing them, it appears.

In the matter of radioactive contamination that is out of control, I believe that time is of the essence, however, it should not be rushed at public expense to make up for what could be past errors.

If other outside agencies are not being solicited for technical input, folks who are more qualified than the public, then a mailing list should be obtained from addresses which can be found in each state library, and at the expense of the INEL and other agencies concerned, should be mail 30 days prior to each meeting. Furthermore, these meetings should be publicized through every available means for a period of time sufficient for public awareness.

Barbara F. Marsh
Resident, Property Owner

QUESTIONAIRE
DOE-ID, EPA-ID, STATE OF IDAHO MEETING
INRE INEL SITE
POCATELLO, IDAHO - AUGUST 8, 1991

1. All forms of waste on the INEL site to date, are:

2. How is waste, in each form, monitored and by what agency? (please name the agency).

3. Are there any solid wastes on the INEL site? (please identify)

4. Concerning the wells; what is the depth of each well and the length of time it has been contaminated?

5. Have any of these wells penetrated the aquifer on a direct basis?

6. In the instance of pit waste, how is the date of container rupture determined and by what Agency?

7. What is the depth of the soil over the aquifer and what is the depth of contamination under pits, ponds and wells?

8. What is the water table depth and direction of flow?

9. What time frame has been established for research of solution alternatives/Cleanup efforts, and how much padding, timewise has been included? (Site-wide)

9. Are both efforts to be considered as one project?

10. Assuming the overall projects have a time frame of 30 years, how will continuity be maintained? and by what agency?

11. Who will be responsible for milestone and task definition, and who will be responsible for milestone and task approvals? (Site-wide)

12. What method (s) of tracking will be employed for checking progress against milestones?

13. Based upon known factors of time, water table depth and direction of flow, subterranian layer porousity and seepage to date, speaking on a "worse case" basis, what is the projected date for aquifer contamination using the same criteria for calculation?

14. If the aquifer is already contaminated, to what extent is it contaminated?

15. Has the information in items 13 and 14 above been confirmed by multiple agencies? if so, please name the agencies. Is the funding provided by Sate or Federal means?

16. Concerning the pond evaporation alternative, have studies been performed on impact to air quality and, if so, what are the results? who are the agencies concerned?

17. If 2%, 5%, 10% and 50% of all site contamination reaches the aquifer, what would be the impact on Human beings? Aquatic life? animal life? and vegetation?

18. What areas would be affected by contamination as stated in 17 above?

19. Is it true that no actual cleanup of radioactive and hazardous waste has taken place to date at the INEL site? Please state type and amount of cleanup.

20. Is it true that cleanup alternatives were not researched prior to CERCLA in 1989?

21. With the environmental controls the U.S. has had in place for the past 30 years, why is it the INEL are just now getting around to addressing uncontrolled waste concerns?

22. Aware of the dangers of radiation contamination, why is the INEL still dumping radioactive waste in unprotected areas?

23. Who is the Agency (ies) responsible for policing actions during the past 30 years?

24. Who will be the agencies to police current and future regulation enforcement at the INEL site?

25. Have there been any significant changes within those agencies during the past 5 years? 10 years? 20 years? please list the changes.

26. What are the substances that can comprise a safe, leak proof storage container for alpha, beta and gamma radioactive wastes?

26. What will be the method of selecting the cleanup process which will be used?

27. The Idaho State Journal stated that past employees of the INEL are a means of locating dump sites and other contaminated sites. What other methods are being used?

28. Can the INEL guarantee that all dump sites will be located and cleaned up? If not, why?

29. Why have we not seen results of Environmental Impact Statements?

29, When is all Site cleanup targeted for completion?

30. When will be the next meeting and when will answers to questions asked this evening, but not answered, be available to the public? How may a copy be obtained?

Barbara F. Marsh
Resident, Property Owner

Environmental Defense Institute

P.O.Box 8812 * Moscow, Idaho 83843
208-835-6152

COMMENTS

on

INEL PROPOSED PLAN

for

CLEANUP OF TEST REACTOR AREA

CONTAMINATED PERCHED WATER
and
WARM WASTE POND SEDIMENTS

Submitted by

Chuck Broscious

August 15, 1991

"The ultimate test of a moral society is the kind of world it leaves to its children." [Dietrich Bonhoeffer]

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FORWARD

The Environmental Defense Institute (EDI) is a non-profit public interest organization dedicated to research and public policy on environmental issues. EDI is the sponsor and coordinator of a coalition of ten organizations called the INEL Research Bureau (IRB) which has a collective membership of 1.6 million Americans. The IRB coalition has for several years focused on accessing documents through the Freedom of Information Act on the operating history of the Idaho National Engineering Laboratory (INEL) which is a Department of Energy (DOE) site. These documents are used for on-going analysis of the health and safety impact of INEL operations.

The following comments address two proposed INEL Cleanup Plans for Test Reactor Area (TRA). The first Plan covers the contaminated "Perched Water" under the TRA. The second Plan covers cleanup of contaminates in the Warm Waste Pond Sediments at the Test Reactor Area (TRA). The proposals (hereinafter referred to jointly as the Plan) have significant deficiencies. These problem areas are the result of basic structural defects which include: 1.) Conflict of interest in DOE/INEL setting its own cleanup priority system; 2.) Lack of accountability and credibility in DOE/INEL managing its own cleanup program; 3.) Inadequate cleanup standards to protect future generations; 4.) Inadequate enforcement by the Environmental Protection Agency (EPA) and the State of Idaho.

The proposed INEL Cleanup Inter-Agency Agreement between DOE, EPA, and Idaho, which was recently released for public comment, could have resolved many of the aforementioned structural defects. EPA and the State however did not demand adequate enforcement authority nor control over the cleanup process. A detailed analysis to the Agreement will be released by EDI prior to the October 8th comment deadline.

Early staff reports to the Atomic Energy Commission (AEC) in the 1950's were very critical of disposing of radioactive waste at INEL over Idaho's sole source aquifer because of the inevitable ground water contamination. Yet the AEC and its predecessor DOE ignored science and made political decisions - science be dammed. This flawed decision making process continues today and must be changed. Unfortunately the Test Reactor Area (TRA) cleanup Plan is a continuation of this flawed process because DOE/INEL insists that the leach pond continue to be used until an alternate treatment facility is funded and built.

EDI concurs with Congressional Office of Technology Assessment's findings, "that significant policy initiatives are required," involving "substituting independent, external regulation for the present DOE self-regulation over radioactive waste management." [OTA Brief 2/91]

BACKGROUND

INEL's characterization that its, "primary missions are nuclear reactor technology and waste management" [Plan @ 1] fails to include what US Representative Richard Stallings identified as 80% military programs at INEL. As one of two designated "Super-Sites" for DOE's Complex 21, INEL's mission will be nearly exclusively nuclear weapons production and other military nuclear programs. The public deserves a more candid and accurate disclosure of INEL's mission.

INEL's background discussion also fails to mention that the Test Reactor Area (TRA) has forty-nine Solid Waste Management Units. These include leaching ponds, underground tanks, rubble piles, cooling towers, waste injection well, french drains, and assorted spills where hazardous and mixed wastes exist. [SSP @ 72] A reader of INEL's Plan might be led to believe that the Warm Waste Pond and the contaminated Perched Water are the only problem area at TRA.

TRA's reactor fuel cooling canal at the Materials Test Reactor had a severe leak which was not drained and repaired until a decade after it was discovered. This leak allowed large quantities of contaminated coolant water to escape to the soil below the TRA, but has not been identified in the Cleanup Plan as a contamination source.

SITE DESCRIPTION

INEL's disclosure that, "The Warm Waste Pond is currently used only for disposal of reactor cooling water containing low levels of radioactivity", raises numerous questions: 1) how low are low levels of radioactivity; 2) why is the pond still in use?

1. The "low levels of radioactivity" the Plan describes as currently going to the Warm Waste Pond are actually not so low. "The service waste activity is allowed to average no more than three times drinking water tolerance in any isotope with the exception of very short-lived ones like Iodine-131." [IDO-14532 @ 49]

2. Continued use of the Warm Waste Pond is the clearest indication of INEL's misguided priorities and total disregard for environmental degradation. Not only is INEL continuing to add radioactive contaminates to a "cleanup" site which has been identified for over five years; but also the additional water will continue to leach previous contamination further down into the aquifer. Moreover the Environmental Protection Agency (EPA) and the State of Idaho are remiss in their respective enforcement responsibilities for not closing down the Test Reactor Area ponds. EPA and the State would have full justification to declare these ponds RCRA hazardous mixed waste sites and therefore under their jurisdiction.

"EPA is authorized [under RCRA] to issue a corrective action order, which can suspend or revoke the authority to operate an interim status Treatment/Storage/Disposal facility or to seek appropriate relief (including an injunction) from a US District Court. [OTA @ 28] [also see RCRA Section 3004(v); 42 USCA ss 6924(v)(West Supp. 1990]

"Over the past 5 years, DOE has gradually been required to acknowledge that cleanup of the Nuclear Weapons Complex [including INEL] is subject to regulation by EPA (or the States) to the extent that hazardous materials are involved or a site is placed on the Superfund's NPL. Until 1984, DOE claimed that it was exempted from regulation under hazardous waste laws such as RCRA because or its Atomic Energy Act authority relating to national security and sovereign immunity from State regulation. A 1984 Tennessee Federal court decision rejected this claim and ordered DOE to comply with all RCRA provisions." [OTA @ 34] [citing, Legal Environmental Assistance Foundation v. Hodel, 586 F. Supp. 1163 (E.D. Tenn. 1984]

SUMMARY OF SITE RISKS

The Plan's listing of contaminants fails to list Iodine-129 and Plutonium-238, 239, and 240. [DOE/ID-12111] Due to I-129's 17 million year half-life, and Plutonium's 24 thousand year half-life, these isotopes are considered permanent contaminates in the environment by EPA.

The Plan also fails to quantify tritium and chromium contamination at TRA. Readers of the Plan deserve more information than that they "exceed federal safe drinking water standards." [Plan @ 2] "Above background levels of tritium were noted in seven of the on-site wells monitored by Idaho State University. Well # 65, south of the Test Reactor Area, had the highest concentrations, ranging from 43,500 to 48,200 picocuries per liter." [INEL Oversight Program Annual Report @ 21] State drinking water standard is 20,000 picocuries per liter. [Ibid @ 19]

RISK ASSESSMENT

Human health risk information appears not to consider the combined cancer risks for non-radionuclide and radionuclide from inhalation. Since the radionuclide component already "approaches the upper National Contingency Plan (NCP) limit"[Plan @3], the combined risks may push it over the limit.

"The carcinogenic risks due to the external exposure to radionuclides were found to be significantly above the recommended NCP target risk range."[Ibid] This statement, as with other vague unquantified statements, deserves specific numbers attached to it due to their obvious significance.

Human health risks assessment additionally do not consider migratory water foul using the TRA waste ponds. I-129 and other gama-emitting nuclide in tissues of ducks from the Test Reactor Area (TRA) leaching ponds have been known by INEL at least since 1981. [Health Physics 40: 173-181] "Consumption of a duck immediately after leaving the TRA waste ponds would result in the predicted dose equivalent of about 10 mrem to an off-site individual from routine INEL operations (DOE/ID-12082(86))." [DOE-ID-12111 @ 36]

Despite the fact that DOE/INEL has known for a decade about water foul being contaminated in their radioactive waste ponds, no public notice has ever been released. "DOE has historically avoided public notification of releases from the weapons plants and their possible health effects. This practice has created substantial public distrust of DOE's methods and motivation." [OTA @ S-9]

Plutonium-238, 239, and 240 concentrations in TRA leach ponds has also been studied at length in a 1987 INEL report. This report stated that, "The highest plutonium concentrations was found in net plankton. Plankton concentrations ratios ranged from 40,000 to 400,000 for the plutonium isotopes and varied with sampling dates. These values reflect to efficiency with which plutonium is taken up by plankton." [DOE/ID-12111 @39]

The above Plutonium figures are relevant when considering that the migratory water foul are eating the plankton and moving off-site, and potentially into Idahoans diet. Two other DOE sites - Savannah River and Oak Ridge have had problems containing radioactivity on site.

The Savannah River Site has a permanent cannon which they fire many times a day to discourage birds from using their leach ponds. Oak Ridge recently had their radioactive frog population migrate into town causing an emergency alert to residents. The problem was discovered when vehicles leaving the site were found to have contaminated wheels from running over the frogs. These frogs were so contaminated that they were classified radioactive waste after being killed. What Warm Waste Pond risk assessment has been made for amphibious migration, predator uptake, and possible human consumption?

According to the Office of Technology Assessment (OTA), INEL has not attempted extensive ecological site characterization. "Although selected studies have been done on effects with potential relevance to the cleanup, there appears to be no systematic attempt to inform the cleanup process through ecological studies at INEL. The routine monitoring program there, is designed primarily to determine radionuclide pathways to human receptors and includes very little biological monitoring. Routine contaminant-level monitoring in animals is limited to game

animals obtained from road kills." [OTA @ 205]

Since the soil ingestion assessment for "cesium approached the upper limit of the recommended NCP target risk range" [Plan @ 3] INEL must specify which "worst-case conditions" were used. Was it a hot, dry, day, down-wind? "It could take over 400 years for the cesium to naturally decay to an acceptable level." [Plan @ 7]

INEL's statement that any wastes generated or isolated during re-mediation activities "will be properly disposed of" is not only inadequate, it is based on credibility that INEL no longer can claim. Therefore, a full discussion must describe the required "cradle to grave" waste process. "DOE's current decisions lack credibility because of past failures by DOE and its predecessor agencies to deal effectively with environmental contamination and to make full public disclosure regarding the contamination and its impacts." [OTA @ S-14]

The fact that INEL has known for decades that it was contaminating the environment and deliberately avoided compliance with environmental law, warrants challenges to its credibility. According to the Office of Technology Assessment of INEL, "No remediation work has been started and none is planned through 1995." [OTA @ 34] "Characterization work is proceeding at a slow pace and is probably limited by funding. Investigation and testing of more conventional stabilization and containment techniques could be pursued more aggressively." [OTA @ 34]

INTERIM ACTION ALTERNATIVES

The listing of alternatives is deficient. The list must include the immediate secession of use of the TRA leach ponds. EDI supports immediate secession of use of the leach ponds in combination with pumping contaminated perched water to a water treatment system for removal of ALL contaminates.

This immediate action is necessary because, "Contaminates may also form or absorb onto colloidal particles, which allows them to move with, or faster than the average groundwater flow. Flow can result from an apparently unrelated force, such as the flow of water and contaminates due to a thermal or electrical gradient instead of the expected hydraulic gradient. Chemical reactions and biotransformations may occur, possibly changing the toxicity or mobility of contaminates. Some contaminates dissolve and move with the water; some are in the gas phase; others are nonaqueous phase liquids; some are more dense than water and may move in a direction different from groundwater; others may be less sense than water and float on top of it." [OTA @ 38]

EDI also supports chemical extraction and physical separation of pond sediment contaminates. These separated wastes must be safely stored in a monitored, retrievable form.

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR's)

EDI challenges the Plan's statement that, "The sediment is not hazardous waste as described in RCRA, based upon tests conducted in 1990." [Plan @ 7] Clearly the sediment is a hazardous mixed waste as defined by court challenges to DOE's obfuscation of RCRA definitions.

IMPLEMENTABILITY

The Plan brazenly proclaims - without protest from the State nor EPA - that, "For alternatives 2,3, and 4, the new lined evaporation pond must be operational before significant cleanup can begin on cells currently in use." This statement clearly and unequivocally identifies EPA and the State with complicity with INEL's highest priority being continued operation - not protection of human health and the environment.

In phone conversations with State officials, EDI was told that if the pond is closed and allowed to dry, sediments could be blown off-site, thereby losing control of the spread of the contamination. EDI challenged this theory by suggesting that a plastic cover with a thin layer of soil to hold the cover down could easily eliminate this problem. Years may pass before final implementation of the sediment cleanup; and in the mean time millions of gallons of additional radioactive waste water will continue the spread of radioactive contamination into the aquifer.

"DOE's various priority systems have certain fundamental flaws and have yet to prove themselves useful in decision-making. The priority scheme used in the 1990 Five-Year Plan groups activities into four very broad categories. Most DOE activities fall into some portion of the first two categories primarily, ongoing activities..." "Yet, at present, the greatest uncertainty concerns the variables that should be given highest priority in these systems - reducing health and environmental risks." [OTA @ 62-63][emphasis added]

The priority system developed by DOE's Office of Waste Operations provides the following catagories in descending order of importance for action and funding: [DOE Waste Management Operations Priority System Fact Sheet, Spring 1991]

1. Activities that are necessary to prevent near-term adverse impact to workers, the public, or the environment, and continuing activities that are required to maintain safe conditions or prevent significant negative impacts to programs or resources.
    1A. Provides safe operation
    1B. Prevents potential releases to the environment

1C. Maintains ongoing activities

2. Activities that are required to meet the terms of formal agreements (in place or in negotiations) between DOE and local, State, and Federal agencies.

2A. Complies with agreement provisions that have criminal or civil liability penalties.

2B. Complies with agreement provisions that have administrative penalties.

2C. Complies with other agreement provisions.

3. Activities that are required to comply with external environmental regulations not captured by Catagories 1 or 2; to address DOE Orders that implement external regulations or that set specific DOE regulatory standards; to reduce risks or costs; and to prevent disruption of DOE's mission.

3A. Complies with external regulations and DOE regulatory standards.

3B. Maintains supporting activities.

3C. Provides for long-term mission continuation and cost benefits.

4. Activities that are not required by regulation but that would be desirable, such as complying with DOE Orders that are more stringent than external regulations, implementing improved management practices, reducing personnel exposures below levels required by regulations or standards, and acceleration actions to satisfy and agreement or milestone ahead of schedule.

4A. Provides supplementary environmental, safety and health improvements.

4B. Improves other practices.

4C. Accelerates schedules.

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Once again, DOE's priority system reflects the same misguided emphasis on continuing "operation" and "maintaining ongoing activities" in priority number 1 over its legal obligations to comply with environmental regulations in priority number 3. INEL's current crisis can be attributed to its historic failure to emphasize environmental compliance.

Placing formal agreements between DOE and local, State and Federal agencies in priority 2 ahead of its requirements to comply with external environmental regulations in priority number 3 is inappropriate. These agreements could be less restrictive and less adequate to protect health, safety and the environment. For example, funding for a weapons production facility could have a higher priority than complying with standards for radionuclide emissions, depending on the provisions of a particular compliance agreement with a state entity.

Protection of the public, compliance with environmental regulation, and environmental restoration must be priority 1 PERIOD. Because of the inherent conflict of interest, DOE should not be allowed to form its own priority system. Moreover, due to the fact that other departments such as Defense, Interior, and Agriculture also have massive contaminated sites requiring cleanup, a standardized priority system needs to be implemented. The Environmental Protection Agency has been trying unsuccessfully for several years to convince the Administration of this need. Public input and full public participation however must be included in developing any priority system.

Public confidence continues to be eroded by DOE's misguided priorities and its lack of commitment to meaningful environmental restoration and compliance with environmental regulation. DOE's credibility is so low and the inherent conflict of interest so great that another agency must be considered to undertake the massive cleanup - expected to exceed $ 200 billion. Clearly, DOE can not be trusted to manage cleanup funding when it is diverting "cleanup" funding into nuclear weapons production programs.

CLEANUP COST

Giving DOE/INEL $ 6,895,000 to cleanup the Warm Waste Pond is like giving a burglar who just broke down your door, $5,000 to go buy a new door to replace the one he just tore down. DOE has no credibility nor accountability, and therefore the cleanup must be managed by a totally independent agency.

Congressional Office of Technology Assessment (OTA) recommended that Congress "authorize an institution other than DOE to regulate those aspects of radioactive waste management activities not subject to DOE authority, and over which no other agency has authority, in order to enhance the credibility and effectiveness of those programs." [OTA @ 141]

"By limiting DOE self-regulation and providing appropriate independent regulation of radioactive waste management at the [DOE] Weapons Complex, Congress could provide a credible and effective mechanism for addressing the issues, problems, and prospective solutions related to the safe treatment, storage, and disposal of existing and future radioactive waste." [OTA @ 142]

A detailed DOE budget analysis for FY-92 by Heart of America Northwest in The Dirt in the USDOE's Nuclear Waste Clean-up Budget further reveals how DOE is diverting $547,859,000 from clean-up to subsidize Atomic Energy Defense Nuclear Materials Production programs. "44% of all 'clean-up account' construction projects were found to be for weapons production and research missions, instead of clean-up."[Dirt, @iii] "The 1992 cost of these projects that do not belong in the clean-up account is actually the tip of the iceberg. Over the course of the complete

construction schedules for these projects, they will cost the Clean-up Account $821.484 million. (Based on the USDOE listed Total Estimated cost, or TEC, for each project) [Dirt, @ 22]

INEL's "clean-up" construction projects supporting defense production missions for FY-92 is $12,995,000; and $91,600,000 over the complete construction schedules. [Dirt, @ 33] Specific INEL defense mission projects funded under the guise of "clean-up" include:

1. Remodeled Employee cafeteria at the Test Reactor Area, and
2. Operators training facility at the ID Chemical Processing Plant (ICPP); ICPP is a production facility and therefore operator training and the facilities for that training should be regarded as costs of production and funded appropriately. Both #1 and #2 are included in a $225,565,000 "Waste management General Plant Projects".
3. ICPP nitrogen oxides Abatement Facility, ($40,600,000); This project is part of the reactor fuel processing for nuclear weapons production and should therefore be funded in the Defense Programs or the Naval Reactors Budget - not under "clean-up".
4. INEL Fire Safety Improvements, ($29,000,000)
   Because INEL is primarily a production facility, these improvements will mostly be made to production facilities. As such, they should be paid out of production budgets - not under "clean-up".
5. INEL Sewer System Upgrade, ($2,100,000)
   Disposing of the human wastes associated with a production or research facility should be regarded as a cost of doing that work. These sewer upgrades should therefore be funded through the appropriate DOE production and or research budgets.
6. INEL Transportation Complex, ($11,600,000)
   This project is essentially a logistical reorganization of the transportation complex, consisting of consolidation of geographically diverse facilities into one new facility, new buildings, new maintenance and repair facilities, etc. As such, it provides little or no environmental benefit, and is mainly a modernization effort in-appropriately carried out with "clean-up" funds. [Dirt, @ 39-40]

STANDARDS FOR DETERMINING "HOW CLEAN IS CLEAN"

Conscientious environmental restoration of the INEL site where massive quantities of radioactive and chemical wastes have been recklessly dumped will not occur unless clear quantitative environmental standards are established. "How clean is clean." The Environmental Protection Agency tried to promulgate standards for high level and transuranic radioactive wastes in 1985 which

offered inadequate protection. These standards were challenged by the Natural Resources Defense Council and were overturned by the First District Court of Appeals in 1987.

Office of Technology Assessment report states that: "The existing Federal guidance for protection of the public against radiation is outdated, and the development of new guidance is uncertain." "It is uncertain when and whether EPA would revise their standards to reflect: 1.) recent findings by the National Research Council's Committee on Biological Effects of Ionizing Radiation (BEIR V report) that the risks of low-level ionizing radiation are two to three times more serious than it previously anticipated and 2.) the draft recommendation by the International Commission on Radiological Protection that the current radiation limit for workers be reduced by 60 percent." [OTA @ 41]

The Nuclear Regulatory Commission in 1990 adopted policy for radioactive waste below 10 millirem - declaring it "below regulatory concern" (BRC). According to this NRC policy, BRC waste can be disposed of like regular garbage without regard for its radioactivity. DOE wasted no time adopting the NRC's BRC standard because it allowed them to write off huge quantities of defense waste that might otherwise have been disposed of as radioactive waste. Due to an overwhelming public out-cry, the BRC classification has been temporarily put on hold by the NRC.

The federal government continues to violate its obligation to clean up its environmental disasters by setting standards which will minimize clean up costs - not maximize restoration. Risk minimization dictates that the establishment of environmental standards be guided by considerations of health impacts on current and future residents. DOE must assume that currently sparsely populated areas will not remain so. Declaring large areas of land as "nuclear sacrifice zones" into perpetuity is unacceptable - if not grossly unconscionable.

The National Academy of Sciences (NAS) offered standards in A Study of the Isolation System for Geologic Disposal of Radioactive Wastes. This study used risk based approach for standards setting. The NAS panel recommended that there be a limit on the dose to the maximally exposed individual at any future time from wastes buried in a repository. The NSA's risk based approach is the most sensible and scientifically supportable approach to standards. However the 10 millirem limit NSA recommended is far too high. Recent epidemiological studies are revealing that exposures at that level can cause serious health effects.

Oil, Chemical, and Atomic Workers Union is proposing contract language which requests a 90% reduction of work exposure. "At the present level of 5 rem/year for a work life of forty years, the increase risk for developing cancer is estimated to range from eight times greater than that for the reference

"safe industry" according to the Nuclear Regulatory Commission, to 20 times greater by the US Environmental Protection Agency. This risk estimate assumes that in the reference "safe industry" one death per 10,000 workers is acceptable. This accounts only for the cancer risk linked to radiation exposure; it does not reflect the other health and safety risks in the nuclear industry." [OCAW @ I-A] Exposure to non-radioactive carcinogens by DOE contract workers is considered by Union members to be equally as hazardous as radioactive exposures.

The public must be involved and able to fully participate in clean up standards. This issue must be specifically addressed and ample opportunity for public comment. The question of "How Clean is Clean" is a question that the public not government agencies must decide. Therefore, Congressional hearings are needed not only to address standards, but also the fundamental structural issues concerning the transfer of cleanup programs out of DOE and over to another agency or as OTA recommends a new independent external commission.

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OCAW, Oil, Chemical, and Atomic Workers, Health and Safety Language, 10/4/90

OTA, Complex Cleanup, The Environmental Legacy of Nuclear Weapons Production, Congress of the United States Office of Technology Assessment, February 1991 OTA-O-484

ID-10054-81, Radioactive Waste Management Information 1981 Summary and record to date, June 1982

ULAHWTI
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USA 19

Environmental Restoration Division
D.O.E. Field Office, Idaho
785 DOE Place
Idaho Falls, ID 83415-3902

Are you bureaucrats 8-15-91
as crooked as a "dog's hind leg" or what?

Your own budget shows that for FY-92 you are going to spend 44% of the clean-up account on weapons production & research missions. For FY-92 $12,995,000 of the tiny allocation for cleaning up the INEL will be spent on projects other than clean-up.

How would you feel about me, if you paid me very well to clean your house & I spent almost half the time I charged to you working @ my own house & using your cleaning supplies to do it? Would you fire me? Or if you "caught" me would you shrug it off & keep paying me for ripping you off?

Shame on you.. Ulahuti

Environmental Defense Institute

P.O.Box 8812 * Moscow, Idaho 83843
208-835-6152

COMMENTS

on

INEL PROPOSED PLAN

for

CLEANUP OF TEST REACTOR AREA

CONTAMINATED PERCHED WATER
and
WARM WASTE POND SEDIMENTS

Submitted by

Chuck Broscious

August 15, 1991

"The ultimate test of a moral society is the kind of world it leaves to its children." [Dietrich Bonhoeffer]

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FORWARD

The Environmental Defense Institute (EDI) is a non-profit public interest organization dedicated to research and public policy on environmental issues. EDI is the sponsor and coordinator of a coalition of ten organizations called the INEL Research Bureau (IRB) which has a collective membership of 1.6 million Americans. The IRB coalition has for several years focused on accessing documents through the Freedom of Information Act on the operating history of the Idaho National Engineering Laboratory (INEL) which is a Department of Energy (DOE) site. These documents are used for on-going analysis of the health and safety impact of INEL operations.

The following comments address two proposed INEL Cleanup Plans for Test Reactor Area (TRA). The first Plan covers the contaminated "Perched Water" under the TRA. The second Plan covers cleanup of contaminates in the Warm Waste Pond Sediments at the Test Reactor Area (TRA). The proposals (hereinafter referred to jointly as the Plan) have significant deficiencies. These problem areas are the result of basic structural defects which include: 1.) Conflict of interest in DOE/INEL setting its own cleanup priority system; 2.) Lack of accountability and credibility in DOE/INEL managing its own cleanup program; 3.) Inadequate cleanup standards to protect future generations; 4.) Inadequate enforcement by the Environmental Protection Agency (EPA) and the State of Idaho.

The proposed INEL Cleanup Inter-Agency Agreement between DOE, EPA, and Idaho, which was recently released for public comment, could have resolved many of the aforementioned structural defects. EPA and the State however did not demand adequate enforcement authority nor control over the cleanup process. A detailed analysis to the Agreement will be released by EDI prior to the October 8th comment deadline.

Early staff reports to the Atomic Energy Commission (AEC) in the 1950's were very critical of disposing of radioactive waste at INEL over Idaho's sole source aquifer because of the inevitable ground water contamination. Yet the AEC and its predecessor DOE ignored science and made political decisions - science be dammed. This flawed decision making process continues today and must be changed. Unfortunately the Test Reactor Area (TRA) cleanup Plan is a continuation of this flawed process because DOE/INEL insists that the leach pond continue to be used until an alternate treatment facility is funded and built.

EDI concurs with Congressional Office of Technology Assessment's findings that significant fundimental policy initiatives are required - involving substituting independent, external regulation for the present DOE self-regulation over radioactive waste management. [OTA Brief 2/91]

BACKGROUND

INEL's characterization that its, "primary missions are nuclear reactor technology and waste management" [Plan @ 1] fails to include what US Representative Richard Stallings identified as 80% military programs at INEL. As one of two designated "Super-Sites" for DOE's Complex 21, INEL's mission will be nearly exclusively nuclear weapons production and other military nuclear programs. The public deserves a more candid and accurate disclosure of INEL's mission.

INEL's background discussion also fails to mention that the Test Reactor Area (TRA) has forty-nine Solid Waste Management Units. These include leaching ponds, underground tanks, rubble piles, cooling towers, waste injection well, french drains, and assorted spills where hazardous and mixed wastes exist. [SSP @ 72] A reader of INEL's Plan might be led to believe that the Warm Waste Pond and the contaminated Perched Water are the only problem area at TRA.

TRA's reactor fuel cooling canal at the Materials Test Reactor had a severe leak which was not drained and repaired until a decade after it was discovered. This leak allowed large quantities of contaminated coolant water to escape to the soil below the TRA, but has not been identified in the Cleanup Plan as a contamination source. The largest contributor to groundwater contamination under the TRA was the radioactive waste injection well which was not closed until 1984. Discontinuing the use of injection wells due to pressure from the State, volumes to the leach ponds increased proportionally.

SITE DESCRIPTION

INEL's disclosure that, "The Warm Waste Pond is currently used only for disposal of reactor cooling water containing low levels of radioactivity", raises numerous questions: 1) how low are low levels of radioactivity; 2) why is the pond still in use?

1. The "low levels of radioactivity" the Plan describes as currently going to the Warm Waste Pond are actually not so low. "The service waste activity is allowed to average no more than three times drinking water tolerance in any isotope with the exception of very short-lived ones like Iodine-131." [IDO-14532 @ 49]

2. Continued use of the Warm Waste Pond is the clearest indication of INEL's misguided priorities and total disregard for environmental degradation. Not only is INEL continuing to add radioactive contaminates to a "cleanup" site which has been identified for over five years; but also the additional water will continue to leach previous contamination further down into the aquifer. Moreover the Environmental Protection Agency (EPA) and the State of Idaho are remiss in their respective enforcement

responsibilities for not closing down the Test Reactor Area ponds. EPA and the State would have full justification to declare these ponds RCRA hazardous mixed waste sites and therefore under their jurisdiction.

"EPA is authorized [under RCRA] to issue a corrective action order, which can suspend or revoke the authority to operate an interim status Treatment/Storage/Disposal facility or to seek appropriate relief (including an injunction) from a US District Court. [OTA @ 28] [also see RCRA Section 3004(v); 42 USCA ss 6924(v)(West Supp. 1990]

"Over the past 5 years, DOE has gradually been required to acknowledge that cleanup of the Nuclear Weapons Complex [including INEL] is subject to regulation by EPA (or the States) to the extent that hazardous materials are involved or a site is placed on the Superfund's NPL. Until 1984, DOE claimed that it was exempted from regulation under hazardous waste laws such as RCRA because or its Atomic Energy Act authority relating to national security and sovereign immunity from State regulation. A 1984 Tennessee Federal court decision rejected this claim and ordered DOE to comply with all RCRA provisions." [OTA @ 34] [citing, Legal Environmental Assistance Foundation v. Hodel, 586 F. Supp. 1163 (E.D. Tenn. 1984]

SUMMARY OF SITE RISKS

The Plan's listing of contaminants fails to list Iodine-129 and Plutonium-238, 239, and 240. [DOE/ID-12111] Due to I-129's 17 million year half-life, and Plutonium's 24 thousand year half-life, these isotopes are considered permanent contaminates in the environment by EPA.

The Plan also fails to quantify tritium and chromium contamination at TRA. Readers of the Plan deserve more information than that they "exceed federal safe drinking water standards." [Plan @ 2] "Above background levels of tritium were noted in seven of the on-site wells monitored by Idaho State University. Well # 65, south of the Test Reactor Area, had the highest concentrations, ranging from 43,500 to 48,200 picocuries per liter." [INEL Oversight Program Annual Report @ 21] State drinking water standard is 20,000 picocuries per liter. [Ibid @ 19]

RISK ASSESSMENT

Human health risk information appears not to consider the combined cancer risks for non-radionuclide and radionuclide from inhalation. Since the radionuclide component already "approaches the upper National Contingency Plan (NCP) limit"[Plan @3], the combined risks may push it over the limit.

"The carcinogenic risks due to the external exposure to radionuclides were found to be significantly above the recommended NCP target risk range."[Ibid] This statement, as with other vague unquantified statements, deserves specific numbers attached to it due to their obvious significance.

Human health risks assessment additionally do not consider migratory water foul using the TRA waste ponds. I-129 and other gama-emitting nuclide in tissues of ducks from the Test Reactor Area (TRA) leaching ponds have been known by INEL at least since 1981. [Health Physics 40: 173-181] "Consumption of a duck immediately after leaving the TRA waste ponds would result in the predicted dose equivalent of about 10 mrem to an off-site individual from routine INEL operations (DOE/ID-12082(86))." [DOE-ID-12111 @ 36]

Despite the fact that DOE/INEL has known for a decade about water foul being contaminated in their radioactive waste ponds, no public notice has ever been released. "DOE has historically avoided public notification of releases from the weapons plants and their possible health effects. This practice has created substantial public distrust of DOE's methods and motivation." [OTA @ S-9]

Plutonium-238, 239, and 240 concentrations in TRA leach ponds has also been studied at length in a 1987 INEL report. This report stated that, "The highest plutonium concentrations was found in net plankton. Plankton concentrations ratios ranged from 40,000 to 400,000 for the plutonium isotopes and varied with sampling dates. These values reflect to efficiency with which plutonium is taken up by plankton." [DOE/ID-12111 @39]

The above Plutonium figures are relevant when considering that the migratory water foul are eating the plankton and moving off-site, and potentially into Idahoans diet. Two other DOE sites - Savannah River and Oak Ridge have had problems containing radioactivity on site.

The Savannah River Site has a permanent cannon which they fire many times a day to discourage birds from using their leach ponds. Oak Ridge recently had their radioactive frog population migrate into town causing an emergency alert to residents. The problem was discovered when vehicles leaving the site were found to have contaminated wheels from running over the frogs. These frogs were so contaminated that they were classified radioactive waste after being killed. What Warm Waste Pond risk assessment has been made for amphibious migration, predator uptake, and possible human consumption?

According to the Office of Technology Assessment (OTA), INEL has not attempted extensive ecological site characterization. "Although selected studies have been done on effects with

potential relevance to the cleanup, there appears to be no systematic attempt to inform the cleanup process through ecological studies at INEL. The routine monitoring program there, is designed primarily to determine radionuclide pathways to human receptors and includes very little biological monitoring. Routine contaminant-level monitoring in animals is limited to game animals obtained from road kills." [OTA @ 205]

Since the soil ingestion assessment for "cesium approached the upper limit of the recommended NCP target risk range" [Plan @ 3] INEL must specify which "worst-case conditions" were used. Was it a hot, dry, day, down-wind? "It could take over 400 years for the cesium to naturally decay to an acceptable level." [Plan @ 7]

INEL's statement that any wastes generated or isolated during re-mediation activities "will be properly disposed of" is not only inadequate, it is based on credibility that INEL no longer can claim. Therefore, a full discussion must describe the required "cradle to grave" waste process. "DOE's current decisions lack credibility because of past failures by DOE and its predecessor agencies to deal effectively with environmental contamination and to make full public disclosure regarding the contamination and its impacts." [OTA @ S-14]

The fact that INEL has known for decades that it was contaminating the environment and deliberately avoided compliance with environmental law, warrants challenges to its credibility. According to the Office of Technology Assessment of INEL, "No remediation work has been started and none is planned through 1995." [OTA @ 34] "Characterization work is proceeding at a slow pace and is probably limited by funding. Investigation and testing of more conventional stabilization and containment techniques could be pursued more aggressively." [OTA @ 34]

INTERIM ACTION ALTERNATIVES

The listing of alternatives is deficient. The list must include the immediate secession of use of the TRA leach ponds. EDI supports immediate secession of use of the leach ponds in combination with pumping contaminated perched water to a water treatment system for removal of ALL contaminates.

This immediate action is necessary because, "Contaminates may also form or absorb onto colloidal particles, which allows them to move with, or faster than the average groundwater flow. Flow can result from an apparently unrelated force, such as the flow of water and contaminates due to a thermal or electrical gradient instead of the expected hydraulic gradient. Chemical reactions and biotransformations may occur, possibly changing the toxicity or mobility of contaminates. Some contaminates dissolve and move with the water: some are in the gas phase; others are

nonaqueous phase liquids; some are more dense than water and may move in a direction different from groundwater; others may be less sense than water and float on top of it." [OTA @ 38]

EDI also supports chemical extraction and physical separation of pond sediment contaminates. These separated wastes must be safely stored in a monitored, retrievable form.

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARAR's)

EDI challenges the Plan's statement that, "The sediment is not hazardous waste as described in RCRA, based upon tests conducted in 1990." [Plan @ 7] Clearly the sediment is a hazardous mixed waste as defined by court challenges to DOE's obfuscation of RCRA definitions.

IMPLEMENTABILITY

The Plan brazenly proclaims - without protest from the State nor EPA - that, "For alternatives 2,3, and 4, the new lined evaporation pond must be operational before significant cleanup can begin on cells currently in use." This statement clearly and unequivocally identifies EPA and the State with complicity with INEL's highest priority being continued operation - not protection of human health and the environment.

In phone conversations with State officials, EDI was told that if the pond is closed and allowed to dry, sediments could be blown off-site, thereby losing control of the spread of the contamination. EDI challenged this theory by suggesting that a plastic cover with a thin layer of soil to hold the cover down could easily eliminate this problem. Years may pass before final implementation of the sediment cleanup; and in the mean time millions of gallons of additional radioactive waste water will continue the spread of radioactive contamination into the aquifer.

"DOE's various priority systems have certain fundamental flaws and have yet to prove themselves useful in decision-making. The priority scheme used in the 1990 Five-Year Plan groups activities into four very broad categories. Most DOE activities fall into some portion of the first two categories primarily, ongoing activities..." "Yet, at present, the greatest uncertainty concerns the variables that should be given highest priority in these systems - reducing health and environmental risks." [OTA @ 62-63][emphasis added]

The priority system developed by DOE's Office of Waste Operations provides the following catagories in descending order of importance for action and funding: [DOE Waste Management Operations Priority System Fact Sheet, Spring 1991]

1. Activities that are necessary to prevent near-term adverse impact to workers, the public, or the environment, and continuing activities that are required to maintain safe conditions or prevent significant negative impacts to programs or resources.
   - 1A. Provides safe operation
   - 1B. Prevents potential releases to the environment
   - 1C. Maintains ongoing activities

2. Activities that are required to meet the terms of formal agreements (in place or in negotiations) between DOE and local, State, and Federal agencies.
   - 2A. Complies with agreement provisions that have criminal or civil liability penalties.
   - 2B. Complies with agreement provisions that have administrative penalties.
   - 2C. Complies with other agreement provisions.

3. Activities that are required to comply with external environmental regulations not captured by Catagories 1 or 2; to address DOE Orders that implement external regulations or that set specific DOE regulatory standards; to reduce risks or costs; and to prevent disruption of DOE's mission.
   - 3A. Complies with external regulations and DOE regulatory standards.
   - 3B. Maintains supporting activities.
   - 3C. Provides for long-term mission continuation and cost benefits.

4. Activities that are not required by regulation but that would be desirable, such as complying with DOE Orders that are more stringent than external regulations, implementing improved management practices, reducing personnel exposures below levels required by regulations or standards, and acceleration actions to satisfy and agreement or milestone ahead of schedule.
   - 4A. Provides supplementary environmental, safety and health improvements.
   - 4B. Improves other practices.
   - 4C. Accelerates schedules.

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Once again, DOE's priority system reflects the same misguided emphasis on continuing "operation" and "maintaining ongoing activities" in priority number 1 over its legal obligations to comply with environmental regulations in priority number 3. INEL's current crisis can be attributed to its historic failure to emphasize environmental compliance.

Placing formal agreements between DOE and local, State and Federal agencies in priority 2 ahead of its requirements to comply with external environmental regulations in priority number 3 is inappropriate. These agreements could be less restrictive and less adequate to protect health, safety and the environment. For example, funding for a weapons production facility could have

a higher priority than complying with standards for radionuclide emissions, depending on the provisions of a particular compliance agreement with a state entity.

Protection of the public, compliance with environmental regulation, and environmental restoration must be priority 1 PERIOD. Because of the inherent conflict of interest, DOE should not be allowed to form its own priority system. Moreover, due to the fact that other departments such as Defense, Interior, and Agriculture also have massive contaminated sites requiring cleanup, a standardized priority system needs to be implemented. The Environmental Protection Agency has been trying unsuccessfully for several years to convince the Administration of this need. Public input and full public participation however must be included in developing any priority system.

Public confidence continues to be eroded by DOE's misguided priorities and its lack of commitment to meaningful environmental restoration and compliance with environmental regulation. DOE's credibility is so low and the inherent conflict of interest so great that another agency must be considered to undertake the massive cleanup - expected to exceed $ 200 billion. Clearly, DOE can not be trusted to manage cleanup funding when it is diverting "cleanup" funding into nuclear weapons production programs.

CLEANUP COST

Giving DOE/INEL $ 6,895,000 to cleanup the Warm Waste Pond is like giving a burglar who just broke down your door. $5,000 to go buy a new door to replace the one he just tore down. DOE has no credibility nor accountability, and therefore the cleanup must be managed by a totally independent agency.

Congressional Office of Technology Assessment (OTA) recommended that Congress "authorize an institution other than DOE to regulate those aspects of radioactive waste management activities not subject to DOE authority, and over which no other agency has authority, in order to enhance the credibility and effectiveness of those programs." [OTA @ 141]

"By limiting DOE self-regulation and providing appropriate independent regulation of radioactive waste management at the [DOE] Weapons Complex, Congress could provide a credible and effective mechanism for addressing the issues, problems, and prospective solutions related to the safe treatment, storage, and disposal of existing and future radioactive waste." [OTA @ 142]

A detailed DOE budget analysis for FY-92 by Heart of America Northwest in The Dirt in the USDOE's Nuclear Waste Clean-up Budget further reveals how DOE is diverting $547.859.000 from clean-up to subsidize Atomic Energy Defense Nuclear Materials Production programs. "44% of all 'clean-up account' construction

projects were found to be for weapons production and research missions, instead of clean-up."[Dirt, @iii] "The 1992 cost of these projects that do not belong in the clean-up account is actually the tip of the iceberg. Over the course of the complete construction schedules for these projects, they will cost the Clean-up Account $821.484 million. (Based on the USDOE listed Total Estimated cost, or TEC, for each project) [Dirt, @ 22]

INEL's "clean-up" construction projects supporting defense production missions for FY-92 is $12,995,000; and $91,600,000 over the complete construction schedules. [Dirt, @ 33] Specific INEL defense mission projects funded under the guise of "clean-up" include:

1. Remodeled Employee cafeteria at the Test Reactor Area;
2. Operators training facility at the ID Chemical Processing Plant (ICPP); ICPP is a production facility and therefore operator training and the facilities for that training should be regarded as costs of production and funded appropriately. Both #1 and #2 are included in a $225,565,000 "Waste management General Plant Projects".
3. ICPP nitrogen oxides Abatement Facility, ($40,600,000); This project is part of the reactor fuel processing for nuclear weapons production and should therefore be funded in the Defense Programs or the Naval Reactors Budget - not under "clean-up".
4. INEL Fire Safety Improvements, ($29,000,000)
   Because INEL is primarily a production facility, these improvements will mostly be made to production facilities. As such, they should be paid out of production budgets - not under "clean-up".
5. INEL Sewer System Upgrade, ($2,100,000)
   Disposing of the human wastes associated with a production or research facility should be regarded as a cost of doing that work. These sewer upgrades should therefore be funded through the appropriate DOE production and or research budgets.
6. INEL Transportation Complex, ($11,600,000)
   This project is essentially a logistical reorganization of the transportation complex, consisting of consolidation of geographically diverse facilities into one new facility, new buildings, new maintenance and repair facilities, etc. As such, it provides little or no environmental benefit, and is mainly a modernization effort in-appropriately carried out with "clean-up" funds. [Dirt, @ 39-40]

NATIONAL NUCLEAR WASTE CLEAN-UP TRUST FUND

US Representative Norm Dicks (D-WA) and US Senator Brock Adams (D-WA) have introduced the Federal Nuclear Facilities Environmental Response Fund Act, (HR-3065 & S.1462). This legislation offers a solution to funding problems for cleanup of

DOE's sites. 10 Governors of states with DOE sites and 27 members of Congress have signed onto this cleanup legislation.

A "Dedicated Cleanup Account" would be created for the funds that Congress appropriates for meeting DOE's cleanup obligations. Those funds could only be used for meeting cleanup obligations and could not be diverted to other uses by DOE. DOE would not be able to hide in the "cleanup account" funds for weapons production, atomic energy defense activities or landlord programs. Funds would be available to be used until expended to prevent "start and stop" cleanup remedial actions. [DOE Legislative Watchdog @ 22]]

STANDARDS FOR DETERMINING "HOW CLEAN IS CLEAN"

Conscientious environmental restoration of the INEL site where massive quantities of radioactive and chemical wastes have been recklessly dumped will not occur unless clear quantitative environmental standards are established. "How clean is clean." The Environmental Protection Agency tried to promulgate standards for high level and transuranic radioactive wastes in 1985 which offered inadequate protection. These standards were challenged by the Natural Resources Defense Council and were overturned by the First District Court of Appeals in 1987.

Office of Technology Assessment report states that: "The existing Federal guidance for protection of the public against radiation is outdated, and the development of new guidance is uncertain." "It is uncertain when and whether EPA would revise their standards to reflect: 1.) recent findings by the National Research Council's Committee on Biological Effects of Ionizing Radiation (BEIR V report) that the risks of low-level ionizing radiation are two to three times more serious than it previously anticipated and 2.) the draft recommendation by the International Commission on Radiological Protection that the current radiation limit for workers be reduced by 60 percent." [OTA @ 41]

The Nuclear Regulatory Commission in 1990 adopted policy for radioactive waste below 10 millirem - declaring it "below regulatory concern" (BRC). According to this NRC policy, BRC waste can be disposed of like regular garbage without regard for its radioactivity. DOE wasted no time adopting the NRC's BRC standard because it allowed them to write off huge quantities of defense waste that might otherwise have been disposed of as radioactive waste. Due to an overwhelming public out-cry, the BRC classification has been temporarily put on hold by the NRC.

The federal government continues to violate its obligation to clean up its environmental disasters by setting standards which will minimize clean up costs - not maximize restoration. Risk minimization dictates that the establishment of environmental standards be guided by considerations of health impacts on

current and future residents. DOE must assume that currently sparsely populated areas will not remain so. Declaring large areas of land as "nuclear sacrifice zones" into perpetuity is unacceptable - if not grossly unconscionable.

The National Academy of Sciences (NAS) offered standards in A Study of the Isolation System for Geologic Disposal of Radioactive Wastes. This study used risk based approach for standards setting. The NAS panel recommended that there be a limit on the dose to the maximally exposed individual at any future time from wastes buried in a repository. The NSA's risk based approach is the most sensible and scientifically supportable approach to standards. However the 10 millirem limit NSA recommended is far too high. Recent epidemiological studies are revealing that exposures at that level can cause serious health effects.

Oil, Chemical, and Atomic Workers Union is proposing contract language which requests a 90% reduction of work exposure. "At the present level of 5 rem/year for a work life of forty years, the increase risk for developing cancer is estimated to range from eight times greater than that for the reference "safe industry" according to the Nuclear Regulatory Commission, to 20 times greater by the US Environmental Protection Agency. This risk estimate assumes that in the reference "safe industry" one death per 10,000 workers is acceptable. This accounts only for the cancer risk linked to radiation exposure; it does not reflect the other health and safety risks in the nuclear industry." [OCAW @ I-A] Exposure to non-radioactive carcinogens by DOE contract workers is considered by Union members to be equally as hazardous as radioactive exposures.

The public must be involved and able to fully participate in clean up standards. This issue must be specifically addressed and ample opportunity for public comment. The question of "How Clean is Clean" is a question that the public not government agencies must decide. Therefore, Congressional hearings are needed not only to address standards, but also the fundamental structural issues concerning the transfer of cleanup programs out of DOE and over to another agency or as Office of Technology Assessment (OTA) recommends a new independent external commission.

DOE TIGER TEAM ASSESSMENT OF INEL

DOE Secretary Watkins established a special investigative "Tiger Team" comprised of environmental, health and safety experts to evaluate the DOE sites. The Tiger Team investigated INEL in July 1991 and characterized the site as an extremely complex entity with a diverse multi-program mission. This diversity of organizations/contractors and the fact that programs at the INEL are sponsored by several offices at DOE Headquarters, has contributed substantially to the overall complexity of the Tiger Team assessment. The following deficiencies were cited:

1. The programs required to achieve full compliance with current Environmental, Safety, and Health (ES&H) requirements and to ensure progress towards excellence have not been developed and implemented at the INEL.

2. Of particular concern is the lack of oversight of construction, EG&G Idaho's semi-autonomous departments and a particularly deficient radiation protection program, and a pervasive lack of attention to detail at the Chem Plant.

3. No environmental expertise was on staff within the Argonne Area at INEL and that several deficiencies that related to the validity of data produced or used by the Radiological and Environmental Sciences Lab for the calculation of dose to members of the public from radiological releases.

4. There is doubt as to the ability to accurately measure emissions and calculate dose as a result of unplanned releases.

5. Staff and management training and experience in the recognition of OSHA hazards are severely lacking at the INEL.

6. INEL has a lack of a comprehensive, cohesive management approach, and virtually no independent ES&H oversight program.

7. INEL operations office lacks an arms length relationship with the contractors resulting in ineffective management of the process of awarding of fees which are several areas fundamental to successful operations at the INEL but for which the performance level is deficient.

8. Both the large number and the significance of the non-compliance found throughout INEL and its contractors are particularly troubling considering that the overall Tiger Team initiative has been underway for more than two years. [USDOE Tiger Team INEL Assessment, Executive Summary, August, 1991]

SUMMARY

The Department of Energy's (DOE) credibility continues to erode as revelations concerning its mismanagement of past and current nuclear weapons production programs reach the public. Recent reports by Congressional investigative agencies such as the General Accounting Office and the Office of Technology Assessment confirm what the environmental community have been saying for decades.

DOE's inability to correct its internal policy and management problems coupled with the enormous cleanup required to mitigate the resultant nuclear sacrifice zones, demands Congressional action to structurally change the system. The Environmental Defense Institute endorses the Office of Technology Assessment's recommendation to Congress for the creation of a totally independent and external commission to take over all management of radioactive waste programs currently under DOE authority. Congress further has an obligation to reevaluate need for continued nuclear weapons production. The current world climate clearly does not support additional production, and the environment clearly can not tolerate additional waste production.

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ID-10054-81. Radioactive Waste Management Information 1981 Summary and record to date. June 1982

000503

August 1991

Dear Department of Energy:

Here are my comments on the Proposed Plan.

I have just received in the mail a copy of the factsheet titled INEL Studies Perched Water Contamination at the Test Reactor Area. There are many problems with the quality of this document and I find it a typical example of how the Department of Energy communicates with the public.

One example is the use of acronyms in the document. If you examine the first page alone there are 4-5 acronyms used not to mention complex technical concepts like perched, aquifer, low-level waste water, a map and a table of contents. Does not anyone there understand how to present information on a simple form without jargon and cluttered information all on one page?

Many times words are used that are technical and scientific in nature with no explanation. Figure 2 on page 2 is not easily understandable and needs revising if the goal is to have the general public understand it. Page 3 has 10 different acronyms while introducing complex laws and cleanup methods. This is ridiculous as a piece of information for me to read.

Please employee some expertise in writing and communication with the public. It seems that the first part of this factsheet was written by people who did not know how to write or communicate with the public. It does not fit with the second part of the information titled Proposed Plan.

The Proposed Plan section is nicely written and laid out. It also suffers from too much information on one page. The type is better and the organization is better then the fact sheet. The fact sheet should not have been prepared because it is completely not useful as a public information piece. Please stop wasting tax payers money with fact sheets and proposed plans mailed together when the proposed plan would have been sufficient if prepared correctly. There was no need to duplicate the same information in the fact sheet especially when the fact sheet was of poorer quality then the proposed plan document.

Please acquire some sophisticated staff other then what you currently have who can work with the public and write understandable information. I found similar problems with the community relations plan. Previous fact sheets mailed to me on the test reactor and warm waste ponds were of much better quality and lay out. The technical information was at a better level of understanding. Something has changed and the information coming out of the program is below standard from past issues of fact sheets and the newsletter the INEL Reporters.

A 28, 1991

To: DOE, INEL, and Jerry Lyle

From: Dr. Peter Rickards, DPM, Box 1411, Twin Falls, Idaho

Re: Clean up plan, public comment, for warm water waste pond.

Enclosed: Chart Analysis

I attended the August 13th Twin Falls meeting and received the July, 1991 INEL handout on the Proposed Plan for warm water waste pond at TRA.

I believe there are incorrect assessments made on Page 6 chart "Comparative Analysis of Alternatives."

I believe my proposal meets all criterion on your analysis, much better than your four proposals. I propose Alternative 5, which is basically as follows:

1) Build wind breaking containment structure, similar to proposed Transuranic Storage and Retrieval area. This would and should be cost analyzed for Alternatives 2, 3, and 4 as well. In your assessments, wind resuspension of dry ponds is your worst scenario. This would be nearly 100% reduced doing the retrieval or treatment without wind. The water drainage and dykes would be supplementing this, as well.

2) Partially cap the dry ponds for extra wind and/or indoor air current resuspension, by applying 3 inches of dirt. Even 1 inch would help if volume increase is too unacceptable.

3) Wait for NEPA-ROD for waste management for answering on In-Situ Vitrification, HEPA filter efficiency, Medical Record for DOE worker analysis, unique particle variations, etc.

4) See if cement mixing stabilization provides less exposure than I.S.V., but use either technique to stabilize and then remove the waste, **NOT** stabilize temporarily and leave in place!

5) Analyze plans through to final disposal. As I pointed out at meeting and Jerry Lyle agreed, Alternative 4 would isolate radioactive waste and allow reburial in concentrated form, in the trenches at INEL sub-surface disposal area! My plan is to stabilize, in depth deeper than contamination by 2 feet, then remove to above ground, temporary, inspected storage until permanent burial sites other than INEL's soil over the aquifer. See enclosed chart for how may Alternative 5 meets all criteria!

Now, to correct your analysis...

On Page 6, I'm not sure why external exposure is primary, over the more dangerous internal exposure, either immediate or long term.

y avoiding long term uncertainty of disposal of Alternative 4 waste products after exhumation,

it falsely appears as the favored plan.

Alternative 4 must be analyzed more fully. Each step of processing would expose airborne and/or liquid or solid waste.

The HEPA filter efficiency for individual types and sizes of pollutants must be verified for accurate assessments of risks, as asked in NEPA Scoping hearing for waste management and in appeals of Idaho Air Quality permits for evaporation pond and TSA projects.

The concentrated cesium and unquantified plutonium remaining is now available for transportation accident exposure in much more dangerous concentrations.

After isolating the cesium and plutonium, the DOE now controls that waste. The DOE can and will rebury the cesium and plutonium at INEL, permanently. The state of Idaho cannot stop this unless an irrevocable waiver of federal sovereign immunity is granted by Congress.

My plan allows stabilization first, to avoid inhalation exposure, but keeps the waste mixed, and under CERCLA and RCRA and state control!

I recommend a 2 foot wide excision of the waste because that's the prevention used medically for the worst cancer surgery. We've got lots of above ground, inspectable storage sites, to avoid ground and water and air exposure.

Alternative 2 and 3 ignore the imperfect rain ditches in this flood zone. Cement can crack in one year, let alone the 400 year life of Cesium.

The cement of Alternative 3 prevents use of I.S.V. and the NEPA law prevents "an irretrievable commitment of resources before a record of decision." So Alternative 3 does **NOT** fully meet Environmental laws. This applies to starting Alternative 4 as well! NEPA supersedes CERCLA and RCRA so my plan is the only plan that fully complies with environmental laws.

Alternative 4 does **NOT** reduce Toxicity, Mobility, or Volume. Waste products along the process must be measured. The only volume reduction of the cesium contamination, keeps all the cesium, but hugely increases the Toxicity by increasing concentration.

To expose cesium by exhumation and processing only to rebury the cesium across the INEL complex increases exposure and mobility and toxicity!

My plan not only reduces mobility and toxicity and only slightly increases volume, but my plan would cost less during the next 400 years that cesium will remain deadly.

Dr. Peter Rickards, DPM

Dr Peter Rickards DPM

is based upon stabilization using commercially available soil blending equipment, backfilling to ground level, revegetation, and assumes site preparation to reduce worker risk during implementation. Total estimated cost is $5,296,000.

Alternative 4 - Chemical Extraction/ Physical Separation

Chemical extraction methods use water, acids, or salts to extract contaminants from the soil. The extract is then treated using precipitation, solvent extraction, ion exchange, or physical separation techniques. Physical separation processes are mechanical methods of separating mixtures of solids to obtain a concentrated form of the contaminants. These include wet or dry screening, flotation, classification, gravity concentration, sedimentation, and filtration. The contaminated sediment would be excavated from the pond, pretreated and processed. In the case of the Pond sediments, it is expected that the volume of contaminated sediment can be significantly reduced due to the distribution of the contaminants on fined-grained particles. The contaminants would then be chemically extracted from that reduced volume. The clean sediment would then be returned to the pond. The concentrated residual waste would be treated as necessary and managed on site until a final remedial decision is reached. Currently a treatability study is ongoing to determine the most cost effective technique or combination of techniques. A pilot-scale test would likely be required. The estimated cost including backfilling the pond to ground level and the pilot-scale test is $6,895,000.

Comparative Analysis of Alternatives

The Agencies evaluated the first 7 of the 9 criteria established by the National Contingency Plan (see box previous page). The box on the this page summarizes that evaluation. The eighth criterion, State Acceptance, is addressed on page 9. The ninth criterion which cannot be evaluated in the Plan is public acceptance, which will be evaluated in the Interim Action Record of Decision based upon public comments.

Overall Protection of Human Health and the Environment

The primary risk to be reduced is external exposure to radiation, with secondary objectives of reducing concentrations of radioactive contaminants that could be ingested at some future time, and reducing airborne radioactive contaminants.

Peters Plan alternate 5

Comparative Analysis of Alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	No Action	Capping	Stabilization	Chemical/ Physical Extraction
Human Health and Environment	Ø	○	●	●
Environmental Laws	Ø	●	●	●
Long-Term Effectiveness	Ø	○	○	●
Reduction of Toxicity, Mobility, or Volume	Ø	Ø	○	●
Short-Term Effectiveness	Ø	○	○	○
Implementability	●	●	○	○
Cost	●	●	○	○

● Remedy meets the criterion
○ Remedy partially meets the criterion
Ø Remedy does not meet the criterion

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Due

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AUG 29 1991

Environmental Restoration Division

Warm Waste Pond

Written Comment Form

The comment period on the Proposed Plan to cleanup Warm Waste Pond sediments is open until August 28, 1991. You may wish to use this form to submit written comments tonight, or mail it later to: Jerry Lyle, Director, DOE Field Office-Idaho, 785 DOE Place, Idaho Falls, ID 83415-3902.

Comment(s):

There is no question of a need for remedial action to reduce the minor local radiological problems once liquid discharges are stopped to the TRA ponds. However there is no urgency to take such action when there is such slight health risks from an activity which has existed for over 30 years. In reading the proposed plan one is struck by the lack of detail and basic information such as the following:-

- The public has not yet seen the interagency agreement much less commented on it.
- The study of the effect of leaching from the ponds will not be completed until 1992.
- The risk due to ingestion of groundwater (cont)

Name: JOHN R. HORAN, C.H.P.

Mailing Address: 1091 CORONADO ST.

IDAHO FALLS ID

83402-1769

is being assessed and will be completed in 1992
How much water would one have to drink from the warm waste pond to equal a chest X-ray?
- The no-action alternative has not been evaluated in detail, as required by law.
- The target clean up levels have not been established
- The ~~shoddy~~ characterization of risk requires the presentation of the uncertainties involved, this has not been done.
- How many health effects, if any, will be prevented by the increased costs in going from alternative # 1 to # 2 to # 3 and to # 4?

The proposed plan has overlooked the fundamental principle of Radiation Protection namely; Justification or to quote I.C.R.P. "No practice shall be adopted unless its introduction produces a positive net benefit". No comparison has been made of the radiation exposure received during the remedial actions and the future exposures prevented. Without this data no action is justified.

The risk philosophy used in this proposal is EPA's own creation and does not have the technical support of DOE, NCRP, NAS, ICRP, IAEA, WHO or the Health Physics Society. DOE by endorsing the unrealistic external risk assessment in the proposed plan for an exposure dose of 1250 mr/yr, must now explain to all personnel who have received this level of exposure over the years, why their cancer risks have now been increased by at least a factor of six

The cost estimates are acknowledged to be approximations, so the use of four significant figures is deceptive particularly for alternatives # 3 and # 4 where the technology has not been demonstrated even in laboratory tests on the materials involved. The greatest waste of all would be a pork-barrel alternative costing millions of dollars for no environmental gain.

The interim action plan has failed to justify spending even $500,000 for remedial action on the TRA ponds much less 14 times that value. Your preferred alternative is nothing more than a hidden environmental tax on the State of Idaho without any health benefits. Since there is an infinitesimal potential risk, the common sense approach would be a minimum expenditure using proven techniques, namely covering the ponds with backfill thus achieving 90 % of the written goals. This best approach would be somewhere between alternatives #1 + #2.

Buying microscopes and supporting the proposed Boron Neutron Capture Therapy Project at the INEL would be a far superior use of our tax dollars. Even the purchase of one additional car seat safety belt or installing a smoke detector in one home would be a more positive contribution to public health and protecting the environment from wasteful expenditures

Warm Waste Ponds

~~Perched Water~~

Written Comment Form

The comment period on the Perched Water investigation is open until September 10, 1991. You may wish to use this form to submit written comments tonight, or mail it later to: Jerry Lyle, Director, DOE Field Office-Idaho, 785 DOE Place, Idaho Falls, ID 83415-3902.

Comment(s):

The immediate concern would be whether radioactivity in the pond sediments would give significant exposures to workers in the vicinity. Apparently this does not occur because of fencing, worker training, and dosimetry. So the concern seems to be for some distant day when TRA is shut down, everything is disorganized, and the past is forgotten.

The source of the radioactivity has been cut off because the reactor discharge water is now cleaned much more thoroughly, by ion exchange. Thus radioactivity in the pond sediments will slowly decrease. It would be adequate to leave the sediments alone for now, then cap them over some day when TRA is decommissioned. In the meantime it would be advantageous to continue to discharge the reactor water there to leech some of the radioactivity deeper, more out of harm's way.

Alternatively, one could cap the pond now, then inspect, repair, and upgrade the cap along with the decommissioning of TRA, so that it would last 100 years (or whatever) beyond that time. Actually, 100 years seems like a nominal, minimum lifetime for a cap, considering the stability of old stream beds and demolition pits in the area, and the presistence of ancient Indian artifacts on the surface. In these desert conditions wouldn't a cap last much longer than 100 years?

Deep monitoring of migration below the cap should not even be considered, since downward migration of the radioactivity would be desirable. Instead of simple,economical, but adequate solutions DOE/EPA/Idaho have chosen the most elaborate and expensive one. $7M of taxpayers' money, or much more, because of the experimentation required, is to be wasted on what could be dealt with simply.

Name: John E. Tanner, Jr.

Mailing Address: 2175 Tasman Av.
Idaho Falls, ID 83404

John E. Tanner, Jr.

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Perched Water
Written Comment Form

The comment period on the Perched Water investigation is open until September 10, 1991. You may wish to use this form to submit written comments tonight, or mail it later to: Jerry Lyle, Director, DOE Field Office-Idaho, 785 DOE Place, Idaho Falls, ID 83415-3902.

Comment(s):

A person really has to stretch the scenarios to find any harm that could come by leaving things alone. Only the tritium has found its way down to the aquifer more than briefly, and even that has decayed to safe drinking water concentrations by the time it reaches the first drinking water wells, 3 miles downflow at the Central Facilities Area in the middle of the INEL.

Relatively little radioactivity is now being added to the perched water because of more thorough cleanup of the TRA reactor discharge water. Radioactivity remaining in the perched water can perfectly well be left to decay away in place.

Future use of water from the perched water zone after TRA is closed is impossible, since the water will drain away a few years after TRA has been decommissioned and stops replenishing it.

"No action" is the only reasonable alternative.

John E. Tanner, Jr.

Name: John E. Tanner, Jr.

Mailing Address: 2175 Tasman Av.
Idaho Falls, ID 83404