UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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September 28, 1993

Lee E. Michael
Admistrative Record
Westinghouse Hnaford Company
P.O. Box 1970, H6-08
Richland, Washington 99352

RE: 1100 Area Administrative Record

Dear Lee:

Enclosed is the transcript from the public meeting held during the comment period for the 1100 Area Proposed Plan. This needs to be part of the administrative record (AR) for each of the four 1100 Area Operable Units (1100-EM-1, 1100-EM-2, 1100-EM-3, and 1100-IU-1), prior to the final signature on the Record of Decision. The final signature is expected on September 29, 1993. Please place this transcript in the AR as soon as possible.

I apologize for the late rush involved with this request. Thank you in advance for your help, and please call me at 376-3883 if there is anything else I need to do.

Sincerely,

David R. Einan
Unit Manager

TRANSCRIPT

SIDE A

KO: Can everybody hear me okay? Good. Well, we're about to get started. The first question I have for folks is, everybody who wants to get a handout, do you have one? There's some at the table near the door when you first come in. Everybody is all set? Okay.

The first thing that I wanted to talk about is the purpose of tonight's meeting. We're here tonight to solicit comments and public input on the proposed plan for remediation of operable units in the 1100 Area Superfund Site here at Hanford. We're going to be following largely through your handouts and the top one shows you an agenda of what we will be talking about tonight. I'd like to very briefly go through that. We will be going through a brief round of introductions; I'll then be providing an overview of the CERCLA process to provide a framework of where we've been so far in the 1100 Area, where we are now and what the next steps will be. That will be followed by a presentation of the results of the studies; what we found in these areas, the alternatives that were looked at for cleaning up, and the proposed plan that is being presented tonight for cleaning up these areas. We will then go into a question and answer period. I'd like to ask people when they have questions regarding tonight's presentation, to hold them until the question and answer period, unless it's something as I'm going along that I didn't speak clearly or you'd like to have some clarification about what's up there on the screen. Also, when you have questions and answers during the period, if you could please step up to the microphone and identify yourself because tonight's proceedings will be made into a transcript and become part of the official record; and then we'll have some closing statements at the end.

By way of introduction, I'll introduce myself first. I'm Kevin Oates, I work for the Corps of Engineers. The Corps is providing technical support to DOE here at Hanford in Superfund work, and for the past several months, I've been the technical manager for that work in the

1100 Area. In addition tonight, I'm getting to wear the hat of moderator and presenter and other folks to introduce are:

TP: I'm Thomas Parkhill, I'm project manager in training for this project for the Corps of Engineers taking over from the responsibilities that Walter has assumed.

WP: I'm Walter Perro, I'm the DOE unit manager for the 1100 Area.

DE: I'm Dave Einan, I'm the EPA unit manager for the 1100 Area.

KO: OK, on to the next part. I'm going to spend 5 or 10 minutes, as I said a minute ago, doing a quick overview of the CERCLA process. The site begins on the, what's known as the national priority list. It's scored by evaluating contamination and impacts to groundwater or surface water, air and soils and how they may impact human populations and wildlife. Once a site has been listed, it goes into what's often called the study phase, and that's the phase a lot of people say hurry up and get that over with, and I'm happy to say we're done with the study phase for the 1100 Area. The study phase primarily consists of collecting field data... I'm sorry, let me back up, the study phase has two discrete parts: the remedial investigation and feasibility study, and these are complimentary activities, they work hand-in-hand together.

In the RI phase, primarily, a team goes out into the field, collects data regarding the nature and extent of contamination at a site, whether it's in groundwater, surface water, air or soils. That information is then used to develop what's often called operable units or geographic areas that are related by a release from contamination or similar activities. In addition, that information is then used to develop remedial action objectives, namely where do you want to have the Site go to, how clean do you want to get it to, in a risk assessment to evaluate potential impacts to human health and to wildlife. I think it's worthwhile taking a minute to talk a little bit about risk assessment and the nomenclature since that's something that comes up a lot, and we'll be dealing with that a little bit later.

Risks are looked at from the standpoint of carcinogenic risks and non-carcinogenic risks. The carcinogenic risks are talked about on an exponential nomenclature, 10^{-4}, 10^{-6}, that sort of thing. 10^{-4} translates into a 1 in 10,000 risk, and what that means for the risk assessment purpose is, the current cancer statistics say about 1 to 4 people will be diagnosed as having cancer in their lifetime, not a fatality, just a cancer diagnosis. If you took population of 10,000 people, you would then expect 2,500 of them to have a diagnosis in their lifetime. If you took those 10,000 people and exposed them to a contaminant that's a potential carcinogen at a site like this, over a long period of time, say 30 or 40 years, you would then expect 1 additional cancer diagnosis based upon that exposure. For these 10,000 people now, 2,501 would be expected, or have the potential, to be diagnosed with cancer based upon the site contamination.

So we take this information and then go into the feasibility study and develop a series of technologies to address this contamination, help us eliminate or reduce these risks, and reach the remedial action objectives. These different technologies are then screened, they're compared and contrasted to each other, and in particular, they're evaluated against what's called the nine criteria, and at this point I'd like to direct people to the proposed plan, as the proposed plan says it better than I can probably do so. There's a glossary in here on page nine that lists out what the nine criteria are; and basically, running quickly through this, you'll see the first two are: protection of human health and the environment and compliance with ARAR's. ARARs are state and federal statutes that have cleanup numbers in them for the different media. The next five that you see here are things listed as: long-term effectiveness and permanence, reduction of toxicity and mobility or volume, short-term effectiveness, implementability, and cost. These deal a lot with the mechanics of the technology you're talking about, how well will it perform, do you need to be worried about risks to workers and to the local community while you're actually undertaking the action; is it a technology that's available? This is an issue that comes up a lot and that often times we're on the cutting edge of different technologies and often times we're trying to develop them as we go along.

So from an implementability standpoint, you want to be able to select a technology that there's vendors out there that can actually do the work, as opposed to something that might be 5 or 10 years out down the road. The last item here that's listed under these next group of criteria is costs. If you can have one technology or one approach that costs $10 and another one that costs $50, we look at those sorts of things to see if they're both going to get to the same place, the less expensive one might be the better way to go, all other things considered.

The last two criteria are State acceptance and community acceptance. The State, along with EPA and Department of Energy, have been partners in this process all the way through and the State has indicated its support for this proposed plan, which brings us to community acceptance, which is part of the reason why we're here tonight. There's a public comment period that we're in and this meeting is an opportunity for people to come and express, on the record, their concerns, their thoughts, their support if support is what they have for this, and how they would like to see the remedy implemented. It's, I think, important to stress that, at this point, what's being presented is a recommendation. It is the result of a lot of people's efforts to get to this point, and it's an opportunity for the community to say "here's our thoughts on it", and an opportunity to modify that approach to suit community concerns.

The next part is leading up to the Record of Decision--I kind of jumped ahead of myself there, I was about to say that the next part is the decision phase but I kind of gave you a big rundown of part of the decision phase already, which is the proposed plan, the public comment, and the Record of Decision.

The Record of Decision is something that will follow an evaluation of all the public comments, responses will be made to any written or verbal comments received during the public comment period, and then this Record of Decision will be issued. What follows that is the cleanup stage, which largely consists of construction, which would be moving contaminated material, building treatment processes, and in the case

where you've built the treatment process, the operation and maintenance of that until you have reached your cleanup goals.

The last phase is the deletion phase where you've finished it, the cleanup has become certified, closeout report is prepared, and a deletion package goes forward. That's my rundown of the overview of CERCLA.

In this next part I'm going to be presenting the findings of the investigations in the 1100 Area, the risks that are associated with the contamination that was found, the technologies that were evaluated, and the ones that were identified as the preferred alternative. As I mentioned a minute ago, this has really been a partnership process. It's also taken a few years to get here, and we really don't have the opportunity this evening to present all the information that was developed. So this presentation is largely going to focus on the significant findings and how they relate to risks at the site, and how those, in turn, fit into developing, evaluating, and selecting cleanup technologies.

By way of background, here's the Hanford Reservation--we don't use that term anymore--the Hanford Site. The 1100 Area is one of four NPL or Superfund sites here at Hanford. In addition, the 1100 Area consists of four operable units or geographically-related areas based upon contamination or use. When this process was started, the 1100-EM-1 Area, which is shown over here on this blowup, was, and the next slide will give you better view of it, was identified as an area of concern and given the highest priority for investigation and, ultimately, cleanup. The concern at the time that it was identified and given the highest priority, was it's proximity here to the Richland wellfield. This cross-hatched area, and the Horn Rapids Landfill, are the primary features of 1100-EM-1; this map also shows us the 1100-EM-2 and 1100-EM-3 operable units.

A decision was made last fall to accelerate the investigation and cleanup at 1100-EM-2, EM-3, and what's known as IU-1. IU-1 is the area out at Rattlesnake Mountain, was a former Nike missile base, it now houses personnel from Pacific Northwest Labs, primarily folks that administer to

the Arid Lands Ecology Reserve, and the culture resources group, and some other folks we haven't met yet.

The next part I'm going to talk about what we found in the 1100-EM-1 and I'll present the information on soils for EM-1, and then present what was found for soils, or rather the approach that was taken for soils, in EM-2, EM-3, and IU-1, and I'll follow that with a presentation of groundwater. The reason for doing that is this is the way it's presented in all the documents that were developed, again because EM-1 was started first; it's also the way it's presented in the proposed plan and the materials you have in front of you, so I think it will flow pretty well that way.

In the 1100-EM-1, there were three areas, after we had collected all the data, that were considered candidates to carry forward and look at for remediation. These areas are what's known as the Ephemeral Pool, the Discolored Soil Site, and the Horn Rapids Landfill. The first one here is the Ephemeral Pool and the contaminants that we found that were of concern were polychlorinated biphenyls, PCB's, and Chlordane which is pesticide; the PCBs are the ones that will drive the cleanup. Looking at this grid, the particular areas where PCBs are at a level that need cleanup is these two right here, E-3 and E-4, and to give you a better perspective of what you're looking at, we also have some photographs that show these. This is what the Ephemeral Pool really looks like. This is an area adjacent to a parking area where runoff collects, and evaporates currently. It's not known why the PCBs are there; at one point, we've had anecdotal information that transformers were stored on pallets in this area, they may have just been runoff.

The next area is the Discolored Soil Site. This is a small area of about 20 feet by 10 feet; it's an area where a plasticizing agent known as bis-(2-ethylhexyl) phthalate, BEHP, was apparently spilled. It's a very sticky viscous substance, it really doesn't go anywhere, and it's fairly confined to that area in the surface soils; we also have a picture of what this looks like. You can sort of see the discoloration of the soil

right here, right in this area here, and you can also see in some of the areas immediately adjacent to that there's no vegetation.

KO: The area where we spent a significant amount of time and resources investigating is the Horn Rapids Landfill, and before I show you the sampling grid on that, I'll show a picture of the Horn Rapids Landfill. This is the Horn Rapids Landfill; this area out in here was historically used for disposal of a variety of debris from the site. Our investigations found things like construction debris, automobile parts, tires, office wastes, you name it, folks seemed to like to take it out there. This shows some of the areas that were sampled; this dotted line represents the basic boundary of the Horn Rapids Landfill. A lot of disposal took place in this area, and looking at this also, an area that was identified with PCBs at a level that would need to be cleaned up is this circle down in here. You're looking at a variety of types of sampling that was done: surface soils, boreholes, asbestos sampling--asbestos was also determined to be a contaminant concern in this area in surface soils from an exposure standpoint.

Other studies that were done at the Horn Rapids Landfill were geophysical studies to determine if there was metallic waste below ground, soil gas surveys to look for the presence of organics, and a series of groundwater monitoring wells were installed and are monitored in the area. In addition to that activity, trenching and test pits were dug around the landfill to get a better characterization of what actually is below ground, and this is where we got a better idea of the characterization of a lot of the construction debris and other debris that was buried at the site.

What all this information brought us to is the risk assessment and this next overhead shows the specific operable units, the contaminant of concern. It shows us the maximum concentration for those areas and contaminants and potential risks, both residential and industrial, and at the end it shows the hazard index which is the measure for non-carcinogenic affects, so a hazard index greater than 1.0 is something

that you want to address; generally if it's less than 1.0, it's not considered to be a problem.

Our Table 1 at the top shows what the current risks are at the site if nothing else was done. And what we see in the residential area, or under a residential scenario, some risks at 10^{-3}, 10^{-4}, 10^{-5}, where this fits into the regulatory scheme of things is a risk range of 10^{-4} to 10^{-6} is an area where you want to look at a site and determine if it should be cleaned up. If the risk is less than that, say 10^{-8} or 10^{-7} or lower, it's generally not considered a problem. If it's greater than that, say 10^{-3}, at that point it's a very serious candidate for remediation. So what we see under a potential future residential scenario, we've got a couple of areas that may require clean up. Looking at a residential scenario, something that was discussed a lot and decided to go ahead with, largely based upon the fact that the Future Site Uses Working Group had not come to determinations yet, and rather than guess what that result would be, a decision was made to look at it from both a residential future use and an industrial future use so that we would have the answers in front of them when they finished their work. As you can see from an industrial standpoint, the risks are largely within that range where you want to look at it, but it doesn't necessarily require action.

From this we developed cleanup goals based upon reducing risk and trying to meet state and federal statutory cleanup levels, and these are the numbers down here for the different contaminants. It's worthwhile stopping to explain for a minute why there is a difference for PCBs between one site and the other. For the Ephemeral Pool Site we're dealing with a very small amount of contamination and the determination was made it would actually be rather inexpensive to pick it up and take it away. For the Landfill, there's one area of concentrated PCBs and a determination was made that should be taken up and disposed of offsite at a permitted facility, but the rest of it was relatively low levels scattered throughout the site, and that something that would have to be done at the landfill, irregardless, to reduce exposure to asbestos. So therefore, the higher number for PCBs popped out of that equation and

I'll talk about that a little bit more when we get to the technologies for the areas. I've also got groundwater up here--I'll be coming back to that slide. The thing I want people to focus on in looking at this is if we, through the technologies that were developed and the recommended one put forward, if we meet these cleanup goals, the remaining risks either are at the far end of this risk range or they're below the risk range.

The next things I'm going to be throwing up on the screen here are specific alternatives that were considered the final candidate alternatives and the preferred one for each one of the areas. What we have here is the Ephemeral Pool, the contaminant of concern was PCBs. We're looking at a volume that ranged from 165 to 340 yd^3 of soil. Technologies that were looked at were offsite disposal, onsite incineration, and offsite incineration. The time to implement for all of them were pretty rapid and the costs associated with them are self-evident--they're right up there--and as you can see by following through in your proposed plan, there's a greater discussion of these, as well as how the various technologies match up against the nine criteria. The preferred alternative for the Ephemeral Pool is offsite disposal.

The next one that we have is the Discolored Soil Site and again, in the proposed plan, there's a greater discussion about how all these match up against the nine criteria. It's worthwhile saying that they all meet the nine criteria to various degrees, some do it better than others and some at different costs. For the BEHP soil, we looked at onsite bioremediation, we looked at onsite incineration, and we looked at offsite incineration. As you can see though, the costs are up there, the time of implementation is not that much different. There was a pilot study done for onsite bioremediation that gave pretty good results--it was better than 90% removal, but that wouldn't get us down to our cleanup level. Onsite incineration is something that would work as well as offsite incineration. The recommendation for going to offsite incineration is that the incinerators are in place, they're permitted, and at this point, there isn't anything onsite for incineration that's in place or permitted. So at this point, the recommendation is to send it offsite for incineration.

For the Horn Rapids Landfill, basically two alternatives came through the screening process to the end, and they are fairly similar. What we're looking at is two different types of capping, and in both cases, the recommendation is to take the contaminated soil above 50 parts per million, which constitutes about 30 yd^3 of soil, and send that to a permitted offsite disposal facility.

The difference in the two caps is the asbestos cap is a cap that would go on an asbestos landfill where you want to ensure that that asbestos is not something that's going to get out into the ambient environment. The second cap, which is more expensive, is a cap that would typically go on a municipal landfill under the State regulations governing that. What was looked at in these and evaluating these, also, was the Site-specific conditions, primarily looking at rainfall data for this area, it's a very arid climate. The additional protection you would get from having a synthetic liner cap versus a compacted soil cap didn't work out particularly well in that sort of context where you've got a very dry environment. In addition, looking at the contaminants that were present at the landfill, we didn't find them in the groundwater adjacent to the landfill, so it raised the question of "are you gaining anything with this additional, more stringent cap?" So the recommendation that was put forward at this point was to go with the asbestos cap and to remove the PCBs above 50 parts per million.

That covers the 1100-EM-1 area and I'll briefly go through 1100-EM-2, EM-3, and IU-1. What was done in that area was a decidedly different approach than what was done in the 1100-EM-1. Actually, let me hold it back on that slide for a second. What was done in those areas is what's known as a limited investigation/focused feasibility study and what this relies upon is looking at historical data to determine what type of waste might be present at a site, and to make a determination about how to go ahead and look at that in very much a combined field screening evaluation and cleanup all at one time. You'll hear this approach called the observational approach sometimes here at Hanford. It's also something that's very consistent and talked about in the Hanford Past-Practice Strategy Report. One of the real focuses of that report and this

approach is to take your resources and focus it a lot more on getting to cleanup sooner in the process, and take your investigation stage and bring it into the cleanup stage to the extent you can, and we think it has a great deal of promise.

What we looked at, specifically, at these areas was historical photographs, as-built drawings that would indicate the presence of transformer locations, storage tanks, things of that nature. We looked at manifests to determine what type of wastes might have been handled in an area, whether it was solvents, or PCBs in transformers, paints, fuels, things of that nature, fairly standard, straight-forward stuff, with one exception and that's the Nike missile base. That has, in the past, had some exotic materials up there, as you would expect, where you've got missiles and some ordnance. Those areas were addressed, actually, through the Corps of Engineers a couple of decades ago where they were coming in and decommissioning these type of facilities and cleaning them up--there was a ring of them around the Site. Our expectation is a lot of that material will be gone; there will be an ordnance survey done up there to ensure that's the case as there will be one done on the North Slope.

What we looked at then was reported contaminants that might be present in these areas based upon the type of use where you had, in the information systems, a solvent waste tank that held 1,1,1-trichlorethane, that's something reasonable to look for in the area, as are some of the other solvents and materials you see up there. We also developed a list of things that potentially might be there based upon site use, such as ordnance and other things to go along with the missile base. From this information, a plan was developed for going out and screening for specific contaminants and cleanup action levels were developed based upon State standards and standards provided by EPA. So pretty much what we would see is go out in the field, do field screening, get a yes/no in relation to "are you above or below the cleanup level", and then be prepared to go ahead with the remediation. In the case of these type of facilities, by and large, what our investigation showed us was they were small areas, they were areas that would be associated with some kind of

tank and perhaps would be some dripping or soils nearby or pads. In a couple of places near the missile base, there are some old debris landfills, but by and large, we are looking at small contained areas where we shouldn't be finding unexpected contamination and we're also looking at a list of contaminants that are routinely disposed of or incinerated. So this leads us into the second part of the approach, which is the focused feasibility study. In a focused FS, the philosophy of it is if you have a pretty good idea that you're dealing with limited waste types and there are known technologies for dealing with it, you don't need to cast a broad net and evaluate a lot of different technologies and spend a lot of time evaluating them. If there's a known way of dealing with it and it's efficient and effective, go right ahead and go for it, and that's something that I see more and more in the Superfund program, people are going in that direction.

The last part I'm going to talk about, and then folks can start to ask questions, is the groundwater. And again for the groundwater, I'll be presenting the findings, the risks, and the approaches for EM-1 first and then talking about the other three operable units. Looking at the groundwater, groundwater investigations basically tell us two things: how the groundwater is behaving, that is, which direction it is flowing in and if there's any contamination present and what it's levels are, where it's going. To look at this information, we started off with 16 wells in the 1100-EM-1 area to get you oriented--actually this isn't north-south, this is north-south. Some of the physical features you're looking at is the Richland well field, which is why EM-1 was accelerated in the first place and Horn Rapids Landfill up here. We started off with this group of 16 wells and based upon information from that, an additional 7 wells were installed to get a better understanding what was going on in the groundwater and to understand better where some contaminants were and where they were heading.

I briefly just want to throw up the figures showing how the groundwater does behave in the area. Again, here's the Richland well field, here's the Horn Rapids Landfill. What these are is the surface of the groundwater; groundwater, like surface water, flows from higher areas to

lower areas. This is an elevation of groundwater at 108 feet above sea level, over here at 104.5 feet above sea level. The general direction of flow of groundwater at the Hanford Site is east to west--that doesn't change--and in this area, we're getting localized affect of flowing more to the northeast and again, this really doesn't change. I think it's well illustrated in the next slide, which is a year later at the same place and the well field is an area where the city actually pumps in groundwater to hold it as an underground reservoir, so here we've got this mounded affect pushing water out to the sides and our general flow of direction is still the same, towards the northeast.

Where we did find a contaminated plume at the site, was in the area nearby the Horn Rapids Landfill and these show the contamination from Fall of '87 to Spring of 1992. What we're looking at is trichlorethene contamination which was, along with nitrate, determined to be the contaminants of concern for groundwater in the 1100 Area. The interesting thing about this contaminant plume is, as you can see, in the top slide we really didn't have a good definition of what was, where it was, and some of that was associated with just how many wells there were. As we got better well distribution, we were defining the plume and the leading edge here is 5 parts per billion--5 parts per billion happens to be the drinking water standard for TCE. As you can see from the slide, this plume has not traveled very far and as you see even more clearly from the next slide, the concentrations of TCE in groundwater have been dropping off dramatically. What this is typically indicative of is a one-time spill or a limited release over a short period of time where you get a spike of contamination into the environment and in groundwater it tends to dilute, degrade, and attenuate over time and the levels are dropping off.

Going back to one of the slides I had up a minute ago about risk levels, looking at the bottom line on both of these, the risk level we're looking at for TCE in groundwater, as you can see at the high level of the current, is middle 10^{-5}; if you reach the groundwater drinking standard, it would be 10^{-6}, a drop of, roughly, one order of magnitude.

Looking at this information and giving consideration that the direction of the groundwater is flowing in, to the northeast, there are no users of groundwater and that the city of Richland has a moratorium on groundwater drinking wells in that area, all this was fed into looking at different alternatives for evaluating groundwater, ranging from no action, which is a statutory requirement which basically says if you don't do anything and things stay the way they are today, what does that mean? This next one, Groundwater 1, which actually should read Monitor and Point of Compliance, is actually the recommended or preferred alternative based upon the fact that the concentrations are dropping off, there are no users down gradient. The modeling results that we have indicate that the levels will continue to drop off over time and, as I said, there's no users there so there really is no current exposure to this contamination.

The next four that are looked at were various combinations of pumping the groundwater out of the ground and running it through a treatment system. The first two consist of either an air-stripping system or UV oxidation to remove the contamination from the groundwater. The last two are the same but just at a higher pumping rate. What these would get you in terms of achieving the 5 part per billion level in groundwater: the modeling tells us for monitoring, establishing a point of compliance to make sure this contamination doesn't go any further and say, reach the Columbia River at levels that would be unacceptable, the modeling tells us that over a period of about 22 years, this plume would dissipate and go away. If we did the 100 gal/min pumping scheme then we'd get there at about 17 years, and at the 300 gal/min pumping rate, we would get there at about 13 years, and as you can see, there's additional costs that go up as you pump at a harder rate.

The last part, then I'll be done, is what we looked at, at the 1100-EM-2 and EM-3 areas. These are the current monitoring wells that exist in the area and we had done some sampling and had looked at some databases that existed from these monitoring wells, ran them through a risk screening analysis, and basically came out with nitrate as a contaminative concern, and I'm sorry, I skipped over nitrate in the last one. Nitrate is also above MCLs in the area up around Horn Rapids Landfill as it is in many

areas at the Site, it's largely believed that the elevated nitrate is due to agricultural practices in the area. If you were to do a pump and treat in the other area for trichlorethene, you would have to include, as part of that, treating nitrate.

Currently in this area we're finding some nitrate down in here that is also above MCLs for drinking water. A recommendation has been made, at this point, to add a few additional wells, primarily in the area closer to the Richland well field recharge zone, which is over here, to get a better understanding of exactly how the water is behaving around there as well as to just provide more of an early warning system, if you will, in the event anything is moving in that direction.

For the IU-1, the recommendation that was made for addressing groundwater is, as we go through the process of evaluating areas up there, if it's found that there's contamination at high levels or is particularly mobile or appears to be migrating towards groundwater, at that point in the process to install groundwater monitoring wells. Currently we don't have very much information about groundwater in that area; the one thing I do know about groundwater up there is the mineralogy is such that the fluoride content is naturally very high--it's so high, it exceeds drinking water standards--so the folks that work out there at the PNL facilities, get their drinking water from springs, so I'm told.

I'd just like to make a couple of closing statements and then we can get on to the question and answer period. The IU-1 is being included as part of the accelerated cleanup for the Arid Lands Ecology and we view that as good news. The soils for the other areas that we talked about tonight, the goal is to clean them up to unrestricted use with the exception of the Horn Rapids Landfill. The current recommended plan would require some institutional controls to maintain the integrity of the cap, probably something like fencing, as well. For groundwater, let me recap that the reason for giving EM-1 its high priority was the concern that there might be some impacts to the Richland well field. As we saw, there is a contaminant plume associated up near the Horn Rapids Landfill, if I can quickly pull out one of these other slides again. Roughly the

distance from the Horn Rapids landfill down to the well field is about two miles, it's about a mile and a half out to the Columbia River, and as we saw from the flow diagrams, this groundwater's flowing at a direction away from the well field, so there's really no reason to believe that there would be, or is, a threat from that TCE to the drinking water supplies. Establishing a point of compliance to monitor this will ensure that that's the case.

As I stated earlier, the recommended plans really represent the combined efforts of a lot of people. The Corps and Westinghouse have both worked with DOE for a number of years on this project, and together we've worked with Ecology and EPA to come to what everybody believes is a reasonable and expedient and efficient use of resources to address the problems that are here. That's the end of my presentation and I'd like to open it up to questions at this point. Thank you.

SIDE B

MM: [Mike Mitchell] Is this money for the cleanup activity going to be coming out of the Superfund budget or is it coming out of DOE's budget?

WP: That comes out of the DOE budget.

MM: So DOE will be the contracting agency for the cleanup work on these activities. OK. My next question: has the DOE determined whether or not this cleanup activity's going to be covered under the Davis-Bacon Act?

WP: Not yet. Until we can determine which way we're going with the cleanup and method, it's hard to forecast what type of contract we can use; there's been no determination of that yet.

MM: I know across the country that all of these cleanup sites for the EPA Superfund, even some of the Army Corps of Engineers cleanup activities, all those sites have been covered under the Davis-Bacon Act and we've had several problems with the Department of Energy to recognize the

Department of Labor's ruling on that. In 1990, the Department of Labor issued memorandum, it's an All-Agency Memorandum 155, that spells out that cleanup activity is covered under the Davis-Bacon Act. The Department of Labor, the Secretary of Labor has that authority because of reorganization plan number 14 in 1950 that Harry Truman wrote to solidify the Secretary of Labor's authority over all the agencies, and I just want to make it part of the record that I believe that it should be covered under the Davis-Bacon Act.

WP: OK. One thing that would happen is that once we determine which way we're going with the cleanup, the Corps of Engineers would get involved into the design, the remedial design phase. At that point in time, they'll put together a package that would go through the Labor Standards Board here at DOE and they will take a look at it and see whether Davis-Bacon or Service Act fits.

MM: That's where we have run into problems. They've consistently ignored the Department of Labor's ruling on this, and they're the only agency on record that has done this, and I think they should comply with the law that the Congress intent was that all agencies comply with that law. DOE shouldn't be out there alone making their own rules and regulations as far as the Davis-Bacon Act and who it should apply it to.

WP: I believe DOE's intent is to follow all the regulations, rules, and all the federal acquisition regulations that exist for the contracting methods. I don't see any reason why it would be any different right now.

MM: Well, I know for a fact that we've had problems with a lot of this cleanup not being under Davis-Bacon, when in fact it should be, and my basis for my argument is Memorandum 155 and the Reorganization Plan #14 of 1950.

WP: We'll take your comments and we'll look into it and make sure we do follow those statutes.

TP: Mr. Mitchell, what was the number of the 1950...

MM: Reorganization Plan #14.

KO: Other questions? Please. Would you mind stepping up to the mike?

JN: My name is Jim Nabor. Just a couple of questions--schedule, you had duration, but what's the schedule in terms of time from now? I've read those things as being durations to do it, not time or when it's going to happen. So schedule, does this fit into the Tri-Party Agreement? Is it meeting it, is it not meeting it? And I guess I just wanted to clarify groundwater: in all situations, you're going to do nothing. Is that true or did I miss that? It sounded like you're going to monitor but that's all and in some areas, you haven't started to monitor yet.

KO: I'll address the groundwater ones and I'd ask Dave to address the TPA ones. For groundwater in that contaminant plume that we showed you, the recommended plan is to continue to monitor that to establish a point of compliance to ensure levels are continuing to degrade. If it shows that that's not occurring, then at that point a determination will be made whether or not active remediation should proceed. And at that point you'd go back and look at the technologies that have already been developed and evaluated and say should one of those be implemented.

In terms of the other areas, yes, your statement is accurate that at this point, it's primarily in a monitoring stage. There is a need to gather additional information, to make a determination if there are contaminations, and if there are, do they exceed cleanup standards.

DE: With regard to schedule, it is, of course, TPA work. There's a requirement in CERCLA that, basically, the work has to be started within 15 months--a year and a quarter--of the signing of the decision document. We're looking at signing that decision document probably September. It's to DOE's and everyone's best interest to get started on the actual cleanup work and get it done just as soon as possible.

JN: There's no present milestones in the TPA to address that?

DE: No, there aren't any in there right now, but that will actually be part of it is to include those milestones.

JN: And renegotiation?

DE: Probably not in this renegotiation that we're going through right now, but after we get the remedial design, after the Corps does that, then we actually will set the milestones on getting the cleanup done. It will be part of the... there's a milestone in the agreement, number 16, that is held for the remedial actions.

KO: I'd like to add to that too. We're putting together the preliminary information to get that design started and have contracts in place as soon as possible.

JN: There's one thing you haven't answered yet. If you started in September, is it 10 years from now? You start with EM-1, what about EM-2, EM-3, IU-1? How long are you talking about?

DE: It's more of a guess than anything else. Starting in September, I think there will be part of it done within a year, by the following October and probably, I would guess, within two years after that, at tops.

JN: So two years and two months.

DE: Yes.

WP: Like Mr. Oates mentioned earlier about the IU-1 site, it is one of the units that has to be cleaned up by October 1994, so there'll be, more or less, an expedited action to get that one operable unit, the IU-1 site, under cleanup.

KO: Does that answer your questions?

JN: Yes.

KO: Any other questions, comments, votes of support?

MM: When is the construction activity going to start, as far as the excavation... and that activity?

KO: I think that's really related to the question that Mr. Nabors just asked. We're trying to do some of the preliminary work so that once the Record of Decision is signed, that that's an activity that, hopefully, will be accomplished soon, a year to two, after the ROD being signed.

MM: So, you'll be starting on it right away, probably.

KO: In some areas, as Walt mentioned, the IU-1 is part of this agreement in principal for doing an accelerated cleanup at the North Slope and, in this particular case, at the ALE to enable that property to be excessed. We're looking at a deadline of October '94 for that particular operable unit.

NV: Have the details on lugging the stuff off-site, you talked about incineration off-site; those details have all been taken care of? It's possible to do that? There's no regulatory things with other states, there's no incineration plants available, and this is all just...[inaudible]

KO: That's the information that we had to evaluate, that's where we really didn't get to a lot of detail what was looked at, but in order to basically recommend an alternative for offsite incineration, you have to identify facilities that are permanent and in compliance that have capacity, you have to look at all the State and Federal DOT regs for transporting it. Actually if you'd like, we've got complete sets over in the box there if you'd like to take them home. Other questions or comments? Yes.

LA: My name is Larry Alleman. I find that this risk factor you talk about a rather uncertain quantity. To me, I've been thinking about it, it can mean all kinds of things and I don't know what it means. I know what you

told me, I understand that, but first of all, what's your uncertainty? Is it good to 10%, good to one order of magnitude? Second, how many people are going to be involved? Third, over how many years does that risk factor apply?

KO: These are all good probing questions and I'd like to toss them to our risk assessment person, Aldon Foote.

AF: There's a great deal of uncertainty based in all the risk assessments and it's elaborated within the RI/FS, there's not a percentage quantity if you're looking for a 10%, 20% that's in there, it's qualitatively done as far as what the uncertainty is and the effects. However, for the second question, which dealt with the number of people, that is to, if a given population was exposed to it, you would have that many additional incremental cancer risks out there. So if you had a million people out there and it was 10^{-6}, one additional cancer risk would occur, or incident of cancer would occur for those million people exposed.

LA: Have a million people used this area?

AF: That's just a number that's used; it's not the number you anticipate being out there, it's just used to compare sites and to compare cancer risks in a given population as if they were exposed to that contaminant or to a particular risk.

LA: Yes, but if you're going to spend all of this money for cleanup, it seems to me there ought to be a good reason for doing it, and it sounds like you're planning on doing it already, but I haven't heard a good reason to do it yet. And if this risk factor isn't meaningful, then I'm not sure what any of this means. I haven't been convinced yet that the risk factor is meaningful. And how many years are we talking about? Over 100 years?

AF: You're talking... Depending on the contaminant, whether it's a toxic contaminant or carcinogenic. A toxic contaminant, you're looking at an exposure of 20 years to 30 years depending on the scenario. For a

cancer, it ends up being 70 years for the lifetime of an individual. It's the same thing when you look at smoking risks like that, it's based on the number of people that happen to be there. It's not to say everybody smokes or everybody drives down the street, but it's the number of people out there where it could occur.

LA: How many people are you anticipating are going to be exposed to this whole thing?

AF: Depending on whether it's open to the public to run around, that would depend how many people you have. It could be a million in time, but I wouldn't expect it within each year to occur.

JE: [Julie Erickson] It depends on the future land use of the area.

AF: That's correct. You've got to remember the risk assessment numbers are just based on probabilities, not people who are getting exposed to it, and they have to relate it to a certain number, and that's been the convention to use a population of a million or something like that because people sometimes relate to that as 1 in a million or 1 in 10,000 as incremental cancer risks. It doesn't really relate to the number of people you have running out there, it's just the risk as if you did have a million people running out there, or 100 people or 1,000 people.

LA: What I'm saying is simply this: you say there's 4×10^{-5} for the groundwater now and it's going to be 2×10^{-6} after it's cleaned up, but if you're uncertainty is so great that, in fact, those two numbers mean the same thing, then your cleanup may not accomplish anything other than spend money.

AF: As we proposed in the plan, though, we will not be spending money only to monitor, so there's not going to be an active use of money to do cleanup, per se.

LA: The argument is the same no matter what we're talking about; whether it's PCB's or something else.

MJ: [Mat Johansen] Does the risk tie into the stautory requirements of the law?

AF: That's essentially what it goes back to is what the trigger is to, as far as the law to clean it up, and as Kevin said, it's from 10^{-4}, 10^{-6} that you look at and it's based on EPA and Ecology and other regulations of whether it's cleaned up or not. Normal drinking water standards are based on the same thing.

KO: I think... I'm not sure we can adequately answer your question tonight because there's a tremendous amount of information regarding toxicology, testing of animals, extrapolation to human populations, that go into developing the entire risk assessment science and how that science gets turned into policy. I realize I'm giving you, what probably sounds like a bureaucratic answer and I think it is a bureaucratic answer, but to really get into the nuts and bolts of risk assessment methodology and how it's developed and how it becomes policy and statute, would take a considerable amount of time, but we'd be happy to sit down and talk with you about it; I think we need to set aside a couple hours to do it--I willing to offer you that. I'll ask one more time if folks have questions or comments.

NV: The stuff you're picking up and moving off site...what are you filling in with? Is that in the plan also?

KO: Yes, we looked at borrow-source areas.

NV: Do you have places where you're going to get that from?

KO: Yeah, and again we are talking very small volumes, so it should not be a problem. Any other thoughts or questions, comments?

RK: [Reed Kaldor] Is it feasible to consider taking the soils that you remove and place them in the 200 Area, and, given that the Future Site Uses Working Group also indicated that likely use of the 200 Area as long-term waste management and storage, that it is possible that you just took

those soils, moved to the 200 Areas, stored them there for a period of time, that the incremental risk generated from those soils is probably lost in the risk already associated with the 200 Areas, but it seems like the cost savings could be significant? I think there are probably some regulatory constraints on that, but I think what this gentleman is kind of saying too is that maybe it is time to start looking past some of those, look at some the regulations and finding more cost-effective ways to deal with some of these cleanup actions.

KO: That's a possibility. I have to agree with you, I think there is some regulatory hurdles that would have to be met. Part of the recommendations that were made too were trying to get to a bias-for-action for being done with these sites. That is part of the reason why the preferred alternatives that were put up were, are ones that are more of taking the material and taking it to an existing, permitted facility for disposal. The 200 Area as a disposal area for this material seems to be a little bit ways off in the future yet, and what you would have to look at is what regulatory hurdles you would have to meet and what the costs would be for storing and maintaining that material until the disposal facility was ready. I agree with you though, as a concept it is something that Site-wide, maybe should be looked at. Is that it? Okay, well, thank you all for coming.

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