Department of Energy
Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
Route 2, Highway 94 South
St. Charles, Missouri 63303

June 8, 1989

Administrative Record
MK-Ferguson Company
7295 Highway 94 South
St. Charles, MO 63303

To Whom It May Concern:

Enclosed is the final transcript of the public meeting held by the Department of Energy on December 6, 1988 at Lindenwood College in St. Charles, Missouri. The purpose of this meeting conducted in cooperation with the U.S. Environmental Protection Agency was to solicit public comment on the RI/FS-EIS Work Plan prepared as part of cleanup work at the Weldon Spring Site Remedial Action Project.

This copy of the final transcript has been transmitted for your records. Copies of the transcripts will be placed in the site Administrative Record file and in designated public repositories in St. Charles County.

If you have any questions concerning these transcripts or require additional copies, please contact the Community Relations Department at the Weldon Spring site.

Sincerely,

Rod Nelson

Rod Nelson
Project Manager
Weldon Spring Site
Remedial Action Project

Enclosure:
As stated

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TRANSCRIPT OF: THE DECEMBER 6, 1988 PUBLIC MEETING LINDENWOOD COLLEGE ST. CHARLES, MISSOURI

For The :
Weldon Spring Site Remedial Action Project
Weldon Spring, Missouri

Prepared By MK-Ferguson Company
JUNE, 1989

U.S. Department Of Energy
Oak Ridge Operations Office
Weldon Spring Site Remedial Action Project

Transcript of:

the December 6, 1988 Public Meeting
Lindenwood College
St. Charles, Missouri

Co-sponsored by:

the United States Department of Energy
and the United States Environmental Protection Agency

Purpose:

Public Comment on the RI/FS-EIS Work Plan
and Project Update on Interim Response Actions
for the Weldon Spring Site Remedial Action Project

Transcription Prepared by:

Community Relations Department
Weldon Spring Remedial Action Project
7295 Highway 94 South
St. Charles, Missouri 63303

March 1989

INTRODUCTION

MODERATOR: JIM SWIFT:

Let me welcome you to the public meeting for comment on the Work Plan for the clean-up of Weldon Spring convened by the Department of Energy. I'm Jim Swift, your host from Lindenwood College, and I've been asked to moderate tonight's meeting.

We have a lot of information to cover and to comment upon this evening. The meeting's agenda is now on the screen, and in order of their presentations, we will hear during the first session of the meeting from Rod Nelson who is Department of Energy Project Manager at the Weldon Spring Site. Next, Steve McCracken who is the Department Deputy Project Manager at Weldon Spring. And then Bob Hlavacek who's Project Director for management contracts will speak next and will be assisted or will share with two of his colleagues. Following the formal presentation from the Department of Energy, we will have a presentation from Dr. Michael Garvey who is President of the St. Charles Citizens Against Hazardous Waste.

We also have additional persons with us tonight from several Federal and State agencies and offices who will be available to answer questions and to enter in with the discussion during our second session. Foregoing title and position, we have Bob Morby from the Region VII EPA, Dave Bedan from the Department of

Natural Resources, Daryl Roberts from the Missouri Department of Health, and we have Colonel Fred Reynolds from the Army Corps of Engineers. Colonel Reynolds, while not making a formal presentation this evening, is here to answer questions that you may have regarding the clean-up next door to the Weldon Spring Site.

We are also pleased to have in attendance this evening several elected officials and/or their representatives. The list that was given me includes Lee Viorel who is the Field Representative for Congressman Volkmer, Eastern District Commissioner Nancy Becker, State Representative-Elect Ted House and City Engineer Joe Nichols. Are there any others that I have failed to introduce?

Then to repeat, as you can see from the schedule, we will have our series of presentations first, followed by a 10 to 15 minute break. I request that you hold all questions until after the break. Now, as you came in and registered, you were given a 3" X 5" card. I ask that you use this card to write down any questions that you may have. These cards will then be collected before the break and answered following the break by our presenters. When all written questions have been answered in the second session, I will accept questions from the floor. And of course, you may address these questions by going to the microphone in the aisle.

Without any further comment from me then, I want to ask Rod Nelson to begin our program, Project Manager for the Department of Energy on site, to begin with the project update. Rod.

ROD NELSON:

Thank you, Dr. Swift, and good evening. I'd like to welcome everyone to this evening's meeting. I'd like to say just a few words about two topics, if I might, before we get started. And those two topics are public involvement in the project and secondly, health and safety.

The public involvement in the Weldon Spring Project is very important for many reasons. It's particularly important to us because we're interested in your comments and the concerns that you have about our project. Those comments that you folks make in meetings like this have been incorporated into the way we do business at the site.

A couple of very recent things that we have done at a meeting just like this, it was asked of us that we put a repository in the Francis Howell High School, so that folks could go there and review documents on the project. We have done that. We will also this evening be placing the transcript from this meeting and the slides that we'll be using here in that repository so they're available for folks to go and look at.

We also in April of this year hosted a meeting of all State and Federal agencies who are involved in this project, along with the St. Charles Countians Against Hazardous Waste, to discuss our monitoring program down in the quarry area. And as a result of that meeting, the input, the dialogue that was discussed there, we made a number of changes to our monitoring program down in the quarry.

As we prepare our engineering evaluation/cost analysis for the water treatment down in the quarry, we are putting in that document a number of changes or a number of suggestions that Dr. Garvey and folks for the St. Charles Countians have given to us. And as we go through and at meetings like this, if you folks give us comments, we're going to continue to incorporate those in the documents or in our operations at the site.

The last topic that I want to talk about a little bit is an editorial that was in a local newspaper which read, and I quote, "Safety comes second at Weldon Spring." As far as I am concerned, there's nothing that can be farther from the truth. Safety is our prime consideration at Weldon Spring.

We have two missions. The first mission is to clean up the site. And that is, that we're going to stop the contamination from running into Busch Wildlife Refuge, we're going to clean up the contamination, stop the contamination of the groundwater and ultimately we're going to contain the wastes in a safe manner.

While accomplishing that primary mission, or those primary missions, we are going to ensure the health and safety of the public. We have no other mission at Weldon Spring other than the remediation of that site.

In the regard to the Francis Howell High School, I have been asked many times, "Are you going to do monitoring during the cleanup?", "Will you take mitigating measures if the readings start to elevate?," and "Will you stop work if it's necessary?" The answer is a very emphatic, "yes." And as a matter of fact, we're going to make our readings from our monitoring available to the public, and we very much encourage an independent overview of our sampling at the site. And we'll cooperate fully in that regard.

To further illustrate our concern for public health and safety, during this summer's drought, we increased our monitoring down in the quarry area, and also took weekly water level measurements down in that quarry area.

During this evening's program, a number of members of the staff from the site will talk further about our health and safety program at the site. I want to thank you now for your attendance at this evening's meeting. Thank you.

MODERATOR:

Next, I'll call upon Steve McCracken, who is the Department of Energy Deputy Manager at the site. He'll give us an overview of the Work Plan. Steve.

STEVE McCRACKEN:

Thank you, Dr. Swift. About a year ago, there was a great deal of confusion about the direction that the Weldon Spring site should take in order to make clean-up decisions. The Draft Environmental Impact Statement had been determined to be deficient. We had discovered additional groundwater contamination at the site.

The form and format of the Superfund Amendments and Reauthorization Act was fully enforced. Certainly, there was a recognition by those of us that have some responsibility for the site, and I mean by that both the DOE, the Department of Natural Resources, and the Environmental Protection Agency. But there was a responsibility on our site and an understanding on our site that lack of direction would stall the project.

All of this meant that the environmental plan that we had, needed to be developed further; it needed to be changed. I think that fortunately at this time when some new direction and when some new objective thinking was required, that the DOE and

the EPA and the State of Missouri worked quite well together to get things moving. The Work Plan that I'm going to talk about reflects that effort that we've undertaken in the last year to come up with a new environmental decision-making process plan.

It's important to note that the plan that I'm going to talk about is just a plan; it's a road map on how we plan to carry out the decision-making process to clean-up the site at Weldon Springs. It's not a plan for how the clean-up will be done. It reflects how we plan to carry out those steps that are necessary in order to reach clean-up decisions.

In developing the Work Plan, two objectives became very clear to us as we went along. First of all, and of course on top of the list, is environmental compliance. Environmental compliance is that decision-making process that is required by law in order to undertake any clean-up activities at the Weldon Spring Site. It is our objective that we would carry out this environmental compliance process and reach a waste disposal decision in April of 1991.

Secondly, we have all agreed, and it's a very important project objective, that we will carry out clean-up activities that will improve the safety of the site, that would reduce off-site release of contaminants, and that would improve the overall general environmental setting at the site. Jack Hammond is going to talk in just a few minutes about these clean-up

activities and what I'm going to concentrate on is the Work Plan that lays out that environmental compliance process.

The Work Plan, it is the foundation of the decision-making process required to clean up any site such as Weldon Spring. It provides the overall picture of the work that has to be done and it ties together the various pieces of work that we have to do in order to finally clean up the site.

I thought that a good way to present the information in the Work Plan was to talk some about the purposes of the Work Plan. First of all, it summarizes the site. That's really quite self-explanatory. That's a site description. It talks about the quarry, the raffinate pits, the chemical plant area. It's a site history that talks about the Army Ordnance Works Operations that were carried out in the early 1940's. It talks about work by the Atomic Energy Commission in the uranium feed materials production process that was carried out in the 50's and 60's. Environmental setting. That talks about the ecology, the geology, the climate, local land use and a number of other things about the site. Characterization to date. That talks about what the contaminants are at the site and what we know about those.

Secondly, the Work Plan provides us an initial evaluation. An initial evaluation looks at the environmental regulations that could control the work that we'll do at the site. It looks at

conceptual exposure model. That's the type of analysis that we'll carry out in order to determine risk. In order to carry out that analysis, we have to understand what the contaminants of concern are. Of course, that's radiological and chemical. We take those chemicals or those contaminants of concern and we look at potential health effects. What could those contaminants, what effect could those have on humans? We look at the fate of the contaminants. What happens to the contaminants in the environment? Does the environment actually solve the contamination problem by destroying the contaminant, or is it very persistent in the environment and therefore a concern to us? It looks at the pathways and receptors. Once we understand what the fate of contaminants is, we can look at pathways. Those are the air, surface water, groundwater; the ways that those contaminants can expose receptors or individuals. It looks at data gaps. And of course, data gaps are those things that we don't know about the site that we need to know about the site in order to reach clean up decisions. It talks about clean-up objectives and potential alternatives. Of course, the clean-up objective is simply to clean-up the site, to protect human health and environment. And we'll look at a number of alternatives in deciding how to carry out the clean up activities.

The purposes of the Work Plan also looks at, and its really the heart of the Work Plan, and that is the approach to environmental compliance. Environmental compliance, or

environmental decision-making, is not really a very complicated process, at least conceptually. The analysis is simply one of characterizing the site and will produce plans that talk about the contaminants that exist at the site. It's an analysis of alternatives, and we will produce plans that look at a number of alternatives, on how to clean up the site. And finally, it's a decision-making process that we will prepare that will determine which one of those alternatives or which group of those alternatives should be used to clean up the site.

So we often ask ourselves then, why is the environmental compliance process so complicated? Well, you can begin to understand that when you understand the physical aspects of the site. We have buildings. We have equipment. We have soils, sludges. We have buried wastes. We have contaminated surface water, contaminated groundwater. There are a number of physical conditions at the site that have to be looked at both individually and as a group in order to reach clean-up decisions and, of course, that complicates the process.

We recognize that many of the issues that we will deal with could be controversial. Therefore, there's the need for a good, a very deliberate, a very time-consuming communication process, in order for us to do everything that we can to provide you the understanding that you should have in order to input to the process that we're carrying out.

Finally, I mentioned in the objectives that I talked about earlier that, in addition to environmental decision making, we also propose to carry out a number of clean-up activities that would improve the site during the time that we're moving through that decision-making process for waste disposal. In order to carry out any clean-up activity at the Weldon Spring Site, we must go through a decision-making process that allows us to fully look at the problem. It allows the EPA and the DNR to be involved in what we're doing. And it allows the public an opportunity to input to the decision that we would make concerning any clean-up activities.

So, we are not carrying out a single environmental compliance process. In fact, we are carrying out a number of environmental compliance processes at the same time, in order to meet the objectives that I talked about. Certainly our ability, as managers and coordinators, is complicated by this. It makes it very difficult for us to manage all of these activities at the same time. We believe that the benefit that can be gained by doing the work this way though makes it worth it. It makes it worth our effort to try to coordinate and manage all of this work.

Let me set the background a little bit for talking, for describing some of the environmental compliance approach. First of all there are two, we have a single project, but there are two very distinct areas. There's the chemical plant area that

you see up in the top right-hand corner. In the lower left-hand corner, there's the quarry that's about four miles south of the chemical plant. These are in two very distinct geographical regions. The threat of contaminants from these areas is quite different. If you look at two areas, you can break those down into a number of subelements. Finally, you can group those subelements in such a way that the environmental approach that we are proposing becomes clear.

If you look at the top, the raffinate pits and the chemical plant area, we've broken it down into three subelements, that being: contaminated onsite area, (that's the buildings, the ponds and so on), contaminated groundwater and contaminated vicinity properties. We propose that this should be a single environmental decision-making process that would look at the clean-up method for those subelements. And it would also look at the waste disposal decision that would include, not only those elements under raffinate pits and chemical plant, but would also include any wastes that's generated at the quarry.

Talking about the quarry, we believe that there are two environmental decision-making processes that we should carry out. Let me explain that a little bit. First of all there's the bulk waste. We believe that it is very necessary and a very good thing to do that we should remove the bulk waste from the quarry as early and as soon as possible. And we've reached that conclusion based on two very, two most important reasons, but

there are other reasons.

First of all, the bulk waste is a threat to the St. Charles County Well Field. We don't all disagree on when that threat would actually affect the well field. We don't think that it's, certainly, it's certainly not happening now; we think that there's a consensus on that. But there's the potential that it could happen. We think that at the quarry itself, what we can do is we can monitor the bulk waste, but we cannot control the offsite migration of contaminants. We think that it would be very good idea to go ahead and remove that bulk waste back to the chemical plant area where we can, not only monitor it, but we can also control it. In other words, we can eliminate that bulk waste as a continuing threat for release of contamination into the environment.

In addition to that, there is, if you look at the right-hand side of the quarry, subelements. You see residual materials. Those are the materials that are down in the cracks and fissures of the quarry and we cannot make any decision on whether or not there is enough material in those cracks and fissures that requires clean-up until such time as we first remove the bulk waste. So what we're proposing is that that's another very good reason, a real reason, to remove that bulk waste, so that we can go back in and look at residual materials and reach a decision on all those other subelements at the quarry.

So that gives you three environmental compliance processes that we propose to carry out between now and 1991. In addition, I mentioned there are a number of small clean-up activities that we think will improve the site. These are included in all of the three subelements under the raffinate pits and chemical plant area. That means that we are up to around 20 environmental compliance processes that we propose to carry out over the next 2 1/2 to 3 years.

So that allows us to summarize our approach to environmental compliance and that is to carry out separate processes for bulk waste removal. We would then go back in and determine the extent of clean-up required to complete the work at the quarry, while we're carrying out the early removal of the bulk waste. We would also carry out clean-up activities that would improve the site setting. Finally, there's the bigger decision and that is the decision that would tell us what the final clean-up should be and what the waste disposal should be. So, I hope that that gives you some idea of the approach to environmental decision-making that we've laid out in the Work Plan.

There are several other very important purposes of the Work Plan. It defines the EPA, the State of Missouri and the DOE roles and responsibilities. During the last year, the public has frequently expressed a concern that there should be an oversight of the activities that the DOE is carrying out. This Work Plan describes for you what that oversight role of the

Environmental Protection Agency and of the Department of Natural Resources will be for the project and for this decision-making process.

It informs the public. We know that there has to be a very meaningful input from the public. We know that we have to, we cannot wait until the end of this decision-making process, to inform the public of what we plan to do and to receive your feedback. We think that there must be a very good effort at communicating throughout the decision-making process over the next several years and beyond that. So, really, the Work Plan is that first step in informing you of what we plan to do.

And certainly it gives you an opportunity to comment on your plans, so that we can evaluate your comments and we can incorporate those into the ongoing work that we would perform at this site. In response to comment from the public, this is a rather unique aspect of the Work Plan.

As many of you may recall, when the Draft Environmental Impact Statement was issued more than a year ago, there was a public hearing. At that public hearing, there were between two and three thousand comments received from the Department of Natural Resources, from the EPA, and from the public. Those comments are reflected some in the Work Plan that we have prepared. We thought, therefore, that it would be very appropriate that the Work Plan should be the place that we would respond to the

comments that we received from that public hearing, and in writing, following the public hearing. So, it's not an unimportant thing. It's not an important part of the document physically. Our response to your comments are located at the back of the document. We would not want that to imply that they are unimportant. In fact, it's very important. We would strongly suggest that you review that.

I guess in closing, I would encourage you to read the Work Plan. I know it's a long document, but there is a lot of information in there that we think is important. If you have any questions at all, we encourage you to call us. We would be happy to meet with you and discuss any questions you might have. If you want to meet with us about the Work Plan or anything else at the site, we would be more than willing to accommodate that. We have issued the Work Plan and sent it out to, I think, more than 300 individuals and organizations. I think that tonight we have a few of the Work Plans out there. If you were not able to get one of those, we would certainly be happy to provide you a copy of that Work Plan at your request. And if you want to leave us your name and address tonight, we would have one in the mail to you in the next day or two.

I guess with that, I'll turn it back over to Dr. Swift.

MODERATOR:

We have two additional elected officials or their representatives in the audience tonight. One is Lois Dorn, who is Field Representative for Senator Christopher Bond, and State Representative Joe Ortworth.

Next, on our formal agenda is Bob Hlavacek who's Project Director for management contracts for the Department of Energy. And Bob and two of his colleagues, Jack Hammond and Roger Nelson, will update us on site activity. Bob.

BOB HLAVACEK:

Thanks, Jim. We have just reviewed the RI/FS EIS Work Plan. What we would like to do now is to update you on our site activities. Jack Hammond, our Project Manager, will review with you the interim response actions, or IRAs, that we completed last year; the IRAs that we have under activity right now; and the ones we have proposed for the near future. After Jack, Roger Nelson, our Environmental, Safety and Health Department Manager, will describe to you in detail our health and safety program.

This program is detailed in a number of procedures that have been prepared specifically for our site. This program is described to all employees that work on the site, and it is

monitored through an ongoing surveillance and audit program. I am the Chairman of the Executive Safety Committee on the site. I participate regularly in on-site safety reviews. I am committed to an environmentally safe and sound site. Ultimately, it's my responsibility to ensure that our health and safety program is implemented, and I take that responsibility very seriously.

With that, I'll turn it over to Jack and he can update you on the IRAs.

JACK HAMMOND:

Thank you, Bob. One of the things that Steve talked about was the RI/FS Work Plan and that document lays out a series of activities that are going to reach some very major decisions on the site. But, in the meantime, there is the need to conduct some actions to reduce the risk and the potential for exposure not only to on-site workers at the site, but also to the general public.

Approximately two years ago, or a little more than two years ago, when we began mobilizing for this project, it was very obvious when we got to the site, that there were a number of things at the site that were going on that were causing additional releases from the site, or that added some potential for other releases downstream. We begin to lay out a plan.

There were a couple of immediate actions that we conducted. And about a year ago, we took a number of those actions, put them into documents that we called interim response actions to get public input and public awareness of those activities. Those activities then, we took the comments, we began to implement them, to take action again to reduce the activities on site.

What I'm going to talk about tonight really is give you a little bit of update on the actions that we have completed during the last year, and those that are in progress right now. All of these were the same set that were sent out approximately a year ago for public review and comments. And the other thing I'm going to do is talk about the ones that we're going to be issuing in the near future, again to get public review and comment. These documents, if you will, are shortened versions of the environmental documentation process that Steve was talking about for the major decisions. They are important. They do describe the activities. They describe the problems. And they describe what we intend to do about them.

The actions that we completed include three: the Army Property No. 7; removal of electrical pole and lines on site; and removal of the electrical transformers and PCBs. The Army Property No. 7 was a relatively small activity. It was a piece of contaminated property on the Army Training Center adjacent to a road that they needed some access for some other work. It constituted about a yard and a half of material that was

primarily contaminated with low levels of thorium and radium. That material was picked up; it was drummed up. We went in, took verification samples. An independent verification contractor came in by the name of Oak Ridge Associated Universities and verified that, in fact, the clean-up was completed. That material was taken to the site and is stored in one of the buildings now for future disposition.

If you remember the pictures from a year ago, this very graphic area depicts the kind of problem that we had with electrical poles and lines. They were falling down. They were rotted at the bases. It constituted a very significant risk to the people that we had running around the site, trying to do characterization. We did award a contract. The poles and lines were removed. There were approximately 244 poles removed and about 120,000 feet of line. And if you go by the site now, you'll see that these are removed and no longer constitute a risk to the people that we have out there.

Another activity that we discussed, I think that we showed some very graphic pictures a year ago that showed some approximately 40 transformers around the site, some of them labeled PCBs. We had very little data that indicated whether they were or not. We proposed ... some of those transformers, by the way, showed evidence that they were leaking. They were inactive, no longer in service. So the program was to go through, drain those PCB oils. We did in fact find that about half of the oils were PCB

oils. Those were taken to a permitted facility and disposed of. The transformers themselves were flushed, and those that were PCB-contaminated were also taken to a permitted disposal facility. Those that were not PCB-contaminated and were suitable for recycle were taken to a recycle center for reuse. This shows a removal of some of the transformers. It was a big operation. Some of them weighed in excess of 15 tons. It took some very large equipment to move those out.

We have about five actions in process right now. These include: the overhead piping and asbestos removal; the containerized chemicals; the dismantling of Building 409 and 401, and the ash pond diversion. The first step, and the step that's in process right now on the overhead piping and asbestos removal, is to go and wrap all of those exterior lines in plastic to control and contain the asbestos. That is the first step in the process. Once that is completed, they will be bagging the areas that they will choose to cut those lines. The lines will be cut and removed in sections to a controlled area. And Roger will talk a little bit later on about how that work is done to ensure that there is no release of asbestos into the atmosphere. Precautions that the people are taking up there ... you can't really see it in this slide, but Roger will show it. They are in full suits and they are wearing respirators to ensure that they don't get any accidental exposure, while they are wrapping it up.

The next important activity is containerized chemicals. And those of you that were at the public meeting a year ago and read the IRA on that activity, we had some 4,000 containers with approximately 300 different kinds of constituents in it identified at the site. All of these included things like this: fire extinguishers that were no longer used, some of them in various states of deterioration. This is a very graphic illustration of some of the things that we found in the buildings. Containers of chemicals. The containers were deteriorating, increasing the risk that those chemicals could be released. You see everything there from drummed materials to bagged materials in the background.

The contract is in process right now to go through, repackage those materials, and put them in a safe condition. And while that repacking is being done, they're being consolidated, wherever they're compatible, and being sampled to determine exactly what they are, and how they can be disposed of, and where they will be disposed of. This operation here shows one of the vehicles moving a bag of dry material out. The chemicals were either put into drums and identified with a unique sampling indicator or bagged up. And these materials right now are stored in buildings on site. In fact, we're continuing to package materials, and as we get the samples back, a determination will be made as to where they have to be shipped, whether they can be recycled, or whether they will have to be disposed of. And that action will continue.

The next activity is the dismantling of Building 409. If you remember from the IRA, we had identified that this building had some serious problems with the roof. The roof is caving in. I think Roger's got some pictures later on that will show you graphically some of the problems that occur. But what it does, is it creates more of a mess inside the buildings to clean them up. This particular building, we had detected some light amounts of radioactive uranium contamination on the roof, and we had detected PCB contamination on the floor tile. The first step ... That contract is awarded. The Contractor has written a Work Plan. The first step that he is going to undertake is to remove all the floor tile with the PCB contamination, drum it up, and ship it off to an incinerator to dispose of that material. The next step then will be to go on to the roof, remove the uranium-contaminated roofing material, and that will leave the rest of the building then for a dismantling operation. The intent, I might add on that, is that the debris from that building will go to a permitted landfill.

This is Building 401. It's the old steam plant. Again, another activity that we identified a year ago. The building itself is a structural steel building. Since it is a utility plant, it's full of boilers, it's full of water piping, and steam piping, considerable amount of asbestos on the interior of the building. The siding on the building is a transite asbestos siding and the duct work going to the stacks outside the building are covered with an asbestos grout. All of that

material is in various stages of deterioration, and the risk to the people around the site was significant enough that we proposed removing that material.

The contract is awarded on this. The first stage of the operation will be to begin in the building, isolating areas to begin removing the asbestos. They'll set up controlled environments and that asbestos then will be bagged up. It will be retained on site. Any of the structural steel that can be released from the site will be given to the subcontractor for salvage. Any of the miscellaneous debris that is releasable will go to a permitted landfill in the area.

This is the ash pond diversion. And if you'll recall some of the pictures we showed a year ago, where you have really three runoffs, storm water runoff areas on the site. This one shows a picture through the ash pond area and the ash pond area right adjacent to it, there was an area that was used as a dumping area. It does contain a significant amount of uranium contamination. In measurements on the storm water runoff, it was determined that this runoff point had the most significant release of uranium concentrations in it. After looking at it, it became apparent that a fairly easy solution would be to divert storm water around this dump area, so that we bypassed it and released it off site without picking up that uranium contamination. That work is in process right now. The diversion system is going in so that, as we get more rainfall

later on this winter and next spring, that it will be in place, and we hopefully will have significantly reduced the uranium flow off the site and into the Busch Wildlife Area.

Where are we going from here? We have another series of IRAs that we're looking at. All of these IRAs will be put together in what are being called the engineering evaluation and cost analysis documents. All of these documents, as before, will be issued for public review and comment, and we're looking for your input. Three very important ones right off the top include quarry water treatment, the site water treatment, and then we'll get into a series of activities associated with support facilities and buildings on the site that are in various stages of deterioration.

This should be a familiar picture. A picture of the quarry. The important aspect of this is that there's about three million gallons of standing water in that quarry right now. I don't think there's much argument that in fact that water is leaching into the groundwater system. What we propose to do is put in a water treatment plant to remove that water, treat it so that it can be released safely. This would preclude the source and stop any further migration into the groundwater system.

Likewise, we've got the raffinate pits at the site. The raffinate pits contain about 57 million gallons of standing water and likewise we've determined that there is some leakage

of that water into the groundwater system below the site. We also propose to put a water treatment plant at the site to remove the water and process it, clean it up, so that it could be safely released as well. That should preclude any further release into the groundwater system.

The follow-on activities, in fact we have a characterization program in place right now that is evaluating a number of the buildings on site. What we're looking at, if you can follow the pointer here, are a number of the smaller support facilities around the site here and back on the back side. A lot of these were chemical make up areas, they were small support structures, cooling towers, things of that nature, that are deteriorating. Some of them are pits that constitute safety hazards to people walking around the site. We've got most of them barricaded now but we intend to try to do something with them.

The other major activity is a number of these buildings here, support buildings. This is an old warehouse. This is a security area and change area. We've got a laboratory. We would propose to remove those facilities as well. As you can see a number of those have flat roofs. And the flat roofs are in various stages of disrepair. A lot of them are caving in and do create a safety hazard to the people that are out there.

As Bob mentioned before, and Rod ahead of him, safety is one of the very important aspects of the job that we're doing out

there. The whole idea of this project really is to clean up the site and do it safely. With that, what I want to do is just turn it over to Roger, and Roger's going to walk you through a little bit of the detail about how we're doing this work and the safety precautions and controls that are placed on it.

ROGER NELSON:

With all of the graphic pictures that Jack just showed you, all of the operations and the activities and the material being disturbed that you see there, your first question should be, "Why are all of those things being done?" and "What are the impact of all those activities on me?" "What are the impact of those activities on the project workers?"

And that's exactly what I'm going to try and talk about tonight. I'm trying to explain to you the operational program for protecting worker health and safety, as well as the general public. Worker protection and public safety and health go hand in hand. They're inseparable. By taking steps to protect employees and subcontractor workers, you've taken a lot of progress towards protecting the general public as well. I'll speak about the similarities between these two programs as the presentation proceeds. What I'd like to do is concentrate on the worker safety program at first.

There are four major components of any successful worker safety

program: characterization training; use of personnel protective equipment, or PPE for short; personnel monitoring; and then the use of engineering controls. And the last is probably the most important. First, worker/public protection requires, worker and public protection requires a good fundamental knowledge of what the materials they're working with are. The very first thing that the site did when they got involved with this project is to implement a very detailed characterization program to identify the physical and radiological and chemical hazards that were present on the site. We performed that over the last year or so, and we now believe that we have a very good handle on what materials are present where, and what the paths of exposure are. In addition, we require comprehensive training of all of the workers whose activities involve working with hazardous materials.

Many physical hazards exist at the project site due to the state of disrepair, as Jack was explaining. This slide is a picture of, taken last week when everybody thought we had winter come early, and its an area where a piece of the roof has fallen in due to small snow loading. It represents a very common physical hazard on site. The physical hazard protection generally requires the use of typical types of protective equipment, like construction hard hats and boots and sturdy work shoes and boot covers and scaffolding and safety lines, things of that nature.

The project is continuing to identify as many of these physical hazards as we can, and continues to remove them.

PPE for chemical and radiological activities exposures is very similar. Outer protective clothing and apparel, boots, Tyvek coveralls, things of that nature, work effectively to keep contaminants from adhering to the personal clothing underneath. Here's a picture of a PPE worn during sampling of an unknown chemical container. It was suspected that the tank contained unknown, or contained uranium and solution; it was found to be empty. This slide shows PPE, a very similar set-up for entry into an area of unknown chemical origin. This is one of the structures inside the buildings. A monitoring instrument being used indicated that full respiratory protection, which is being worn here in this picture, wasn't necessary for this activity. But our safety program requires that we understand and go in overprotected, just in case.

So how do we implement an effective PPE training or PPE program? Well certainly, training is very important. Training in the proper use of PPE is provided to all of the workers who routinely work, or even very atypically work, with hazardous materials. We've established a comprehensive list of all of the PPE requirements for every activity across the entire site, and have published that as part of what we call our PPERM, Personnel Equipment Requirements Manual. That document, I have a copy along with me tonight. And if anybody's interested, I'll be

more than happy to let you browse through it or discuss it with you after the presentation.

We employ an access control point which monitors ingress and egress from restricted areas on the site. This is a picture of a worker scanning for detectable levels of contamination, radiological contamination, upon leaving a controlled area.

Job safety analyses ... we're on the previous slide and this machine doesn't back up, so we won't go back to the previous slide ...yeah, we will. Job safety analyses are prepared ... Job safety analyses (or JSAs) are task-specific revisitations of the requirements of a specific subcontractor work package, where we re-evaluate exactly what safety requirements are necessary to perform that work activity.

Finally, the contractor, the PMC, the individuals that I work with, are in a oversight role. Most of the work is done by subcontractors to our organization. And in that subcontractor role, we oversee each subcontractor on a daily basis. We audit, we surveil, we inspect, and we give them advice on how to improve their operation. Not only to ensure that the work is being performed to our specification, but that the work is being done safely and in an environmentally sound manner. All personnel within the controlled area must sign in and out and we account for everyone. We know where everyone is all of the time whenever they're inside the restricted areas.

Another important component of a workers' safety and health program is the monitoring that is performed on those workers. Personnel monitoring is performed during operations involving even the potential for handling hazardous materials. They're usually split into three different arenas: health physics monitoring (health physics is the monitoring of exposure to radiological agents); industrial hygiene monitoring, which is the exposure to chemical agents; and then construction safety, which is associated with physical hazards, identification of physical hazards and the removal of those.

The personnel monitoring that's performed from a radiological and an industrial hygiene standpoint is remarkably similar. This slide shows an individual wearing a portable air sampling pump on his belt, with a line that brings air through a filter (mounted on his lapel) in the individual's breathing zone. Analysis after the sample is collected can be performed for the radiological particulates or for asbestos fiber concentrations, depending upon the work activity. In this particular case, he was being monitored for air particulates.

The final component, and I believe the most important, is the engineering controls that are placed on workers' safety and health programs. It's the use of the engineering controls to prevent exposure to hazardous materials in the first place. If one can preclude that generation of hazardous materials, then the worker protection and the public protection need not be as

difficult.

Here's a partial list of some of the engineering controls that we believe will be used throughout the life of the project, although not all of them are being used at this point in time. The temporary covers, I have an example of that. This example is shown on the slide where workers are wrapping the asbestos sheathing. I think Jack had a similar slide. This insulated piping will be brought down after wrapping with the temporary cover. Sections of pipe will be cut out, and then that pipe will be transported on site to a specially constructed negative air enclosure, where the asbestos will be removed from the pipe itself.

That pretty well sums up the worker safety program. But that just phases into what the real important portion of the presentation is, and that's one associated with the public safety and health. They go hand in hand, and they are inseparable. So, the next topic I'd like to focus on is the protection of the public health and safety.

Similar to the program to protect the workers, the public safety and health program relies on a very good foundation of knowledge of what the contamination and physical hazards are. By knowing the characterization and knowing what is present, one can take steps to mitigate the problems. Characterization activities this last year have resulted in a very good understanding of the

nature and extent of contamination materials at the site. This has allowed us to design and plan methods to, in effect, preclude any public exposure.

There are four possibilities, however: asbestos, radiological particulates, radon gas, and the fourth is one that some people don't think about every time, but that's the potential for a hazardous spill, hazardous material spill, during transport off site of hazardous materials. [Referring to slide]: Obvious asbestos potential. I can't show you a picture of radiological particulates, but I can show you a picture of the device that is used to make measurements of them. I'd like to say that in over two years of monitoring virtually continuously at the site perimeter and at receptors off site, we've not seen any radiological particulates above background. I also can't show you a picture of radon gas, but I can show you the instrument that is used to make measurements of them. And at the same time, I can say that we've got measurements that show indistinguishable levels above background at the chemical raffinate pits' site perimeter for radon as well.

The project recognizes that there is a small chance that a spill of hazardous material, as its transported off site, could occur. Virtually every shipment which will be made from the Weldon Spring site to off-site disposal facilities will have to go in front of, or past, the Francis Howell High School. Last summer, when we removed the PCB transformers and the oils, the

school was notified in advance that the shipments would be made prior to the material being released from the site, and we will continue this policy.

There are three zones that are monitored as part of a public work safety and health program. Area monitoring is performed right at the source itself. Monitoring done at the site perimeter is usually several hundred yards away. And then, there's the monitoring that is performed at sensitive receptors, or locations where there is a special or particular concern about the levels. Sometimes, area monitoring can be substituted by the personnel monitoring. After all, the area monitoring is the area in which the work is being performed. Measurements made right in the work area itself allow one to judge the effectiveness of the engineering controls that are being used. Measurements made at the site perimeter have always indicated background levels, as I've said before, for both particulates and asbestos fiber concentrations. And this is even when on-site levels of these materials have been generated and/or detected in the work place. Only background levels have been measured at the school as well, in the same fashion. This slide shows the radiological particulate monitor and asbestos sampling equipment in operation at the school.

There's actually a fourth monitoring program which is generally thought of as an on-site monitoring program, but it's for the protection of the public safety and health. At the access

control point, personnel, vehicles, and equipment are all monitored for above background levels of contamination. This prevents any unintentional release of material from the site. The picture shown here is a technician collecting mud from a wheel well, from a vehicle that had been in operation on the site and was being released for unrestricted use, for off-site use.

I'd like to remind you that the project's health and safety program emphasizes two primary components: worker safety and health, and public safety and health. And again, these two are not inseparable. Indeed, they go hand in hand. Indeed, by protecting the workers' safety and health, you've taken a major step toward the protection of the public safety and health.

The project is committed to performing this construction activity in a safe and environmentally sound fashion. We would welcome any suggestions you might have on the improvement of our program, either from a worker or a public health and safety standpoint. We stand ready to be accountable for the clean-up work that we're doing, and we'd like to get a little credit for a job well done, when we're finished. With that, I'll turn the mike over to Dr. Swift.

MODERATOR:

Now, I'd like to call upon Dr. Michael Garvey who's President of

the St. Charles Citizens Against Hazardous Waste. Michael.

DR. MICHAEL GARVEY:

Thank you, Jim. As was mentioned, I'm the President of the citizens group that's monitoring the clean-up activities at Weldon Spring. We appreciate the opportunity to be part of the presentation here tonight. We really do. Due to lack of available funds, unfortunately, we weren't able to hire a consultant to evaluate the Work Plan. But hopefully, in the future, we'll be able to do these things.

In general, though, we find the Work Plan very organized and easy to read. I'm going to first discuss the quarry site and alluvium, then the removal of bulk quarry wastes, and finally discuss the other site, ending with the final Record of Decision. Again, I appreciate being able to talk. And I'm not sure after they review the long list of uneasy questions, I will be asked to return. As Rod mentioned earlier, we see an improvement in the communication between our group, our consultants, and the Department of Energy. We appreciate that very much.

St. Charles Countians Against Hazardous Wastes agrees with Steve McCracken, as he mentioned earlier, that actually we're looking at two separate sites: specifically, the chemical plant and raffinate pit; and the quarry and the alluvium, or the well

field. They are geographically separate with very distinct physical characteristics.

Our chief concern, something that maybe could be addressed later this evening, is that in trying to consider them as one site for NEPA and CERCLA compliance, will the environmental concerns specifically of the contamination in the well field alluvium be adequately addressed? Who will determine if the alluvium contamination will pose an unacceptable risk to the public health and the environment? How will bulk quarry wastes removal affect the dynamics of contaminant plume migration of off-site deposits in the alluvium and the Femme Osage Slough, especially with the increasing needs for pumping to supply quality water to our growing community? How will results of environmental investigations at the quarry, following bulk waste removal, affect these wastes present, other than by source reduction? Will this investigation receive public comment?

In regards to the alluvium, how can the DOE consistently say that there are no elevated uranium activities observed in monitoring wells south of the slough? What about RMW-2, OBS-12 and 16? How often has the DOE evaluated uranium readings of the RMW and public drinking wells? Will a cluster well with different screened intervals near RMW-2 give better characterization? As we mentioned, as was mentioned in the EPA specific comments on the Draft EIS on May 5, 1987 in the drinking water overview, I quote, "It is unclear to us whether

planned groundwater monitoring at the site for radionuclides and other contaminants will be directed to detection of movement toward the wells," meaning public wells. Will the DOE, in the future, pump the county monitoring wells and aid, in easy, in ease of proper procedure for our county consultants? Will the new annual reports give quarterly data tables or will they continue to produce only annual averages from all monitoring activities at both sites? If so, how can seasonal trends be evaluated with annual averages? Is the monitoring of the raw or finished water at the water treatment plant or individual public wells in the well field detecting any contamination shown above maximum concentration levels? If so, was error involved? If the contaminated groundwater has not migrated south of the Femme Osage Slough, how do we describe the readings of RMW-2, OBS-12 and 16? How can one side of the slough be hydraulically different from the other? What about the entire upper and lower slough interface? When will the old quarterly data tables, since 1987 from the quarry, be available to the public? How often is the slough water released to the river? A comment, I've got a million questions here tonight, but I would like both someone from the DOE and the EPA to make a comment in regard to this question: Do you feel that the well field will continue to be a reasonable source of quality drinking water in the future? Who is the responsible party should the well field need relocation? Will the DOE in testing drinking water determine compliance with 141.15a: "The detection limit shall not exceed

1 picocuries per liter," and 141.15b: "The detection limit shall not exceed 3 picocuries per liter?"

What are the results of groundwater monitoring of the gun club in a similar alluvium upstream from the Weldon Spring well field? What are the results? Has the USGS determined what are appropriate background/baseline levels of the well field for contaminants found in the quarry? When will this data be available? Should the DOE be using 4 picocuries per liter as a background for the alluvium of the well field or is it actually an elevated baseline reading? Is there a dilutional effect inherent in the design of the county monitoring wells with the long screened interval? Is the design of the monitoring wells compatible with the testing being required, by the county, of the DNR, of the county monitoring wells? Exciting stuff, huh?

Now I'm going to discuss a little bit about water treatment/bulk waste removal. We agree very strongly that water treatment and bulk waste removal is going to improve the source contamination, but we're not convinced that enough material is presented to evaluate the proposed interim storage at the second site. Has the DOE or the EPA realistically considered an alternative site for long-term storage of the bulk waste of the quarry? Will bulk waste removal and later reorganization in interim storage at the second site improve the total situation or rather further complicate the environmental engineering assessment of the DOE's proposed alternative of long-term storage on site? When will

the engineering evaluation of the design and location of the interim storage facility be presented, and will there be an opportunity for public comment?

If methods for controlling surface runoff from the site during construction is not a primary issue, how can citizens of St. Charles County be assured of adherence to discharge permit levels? On page 171, I'd like to ask what are we actually constructing here? Will surface runoff levels be monitored during excessive rainfall? Why is the effect of natural events, such as intense rain, not considered a primary issue? Will the treated water from the quarry and raffinate pits be piped directly to the Missouri River to avoid the fragile watersheds in St. Charles County which have been at risk for far too long? Will both actions have public comment? Are new surface soils being used in construction of the southeast drainage dike? Will this create a new discharge area?

What safeguards will be made to traffic on Highway 94 in the quarry remediation and transportation? How will the remediation at the chemical plant avoid water lines in Missouri's Cities' Water?

There's a contradiction in placing the Francis Howell students and staff as a primary issue, and not attempting to monitor their health. Will the same posture be continued should monitoring during cleanup show exposure at measurable levels of

airborne particulates and gases? Will the DOE follow the recent suggestion of the Missouri Department of Health and provide the Francis Howell School District with the funds required to hire impartial experts to conduct monitoring for radiation? Our group would like to work with the Missouri Department of Health and the school district in cross-checking the present leukemia, childhood leukemia patients in the State registry to the population of the alumni from the Francis Howell School District to see if there's a statistical causal relationship to the Weldon Spring Site. To my knowledge, the leukemia study was not set up to make a causal association between Francis Howell and the Weldon Spring Site.

I would like now to discuss the issue of long-term storage on site. I'm glad we're now calling it long-term instead of permanent, which is still the preferred alternative by the DOE. I would really like to see the Federal government make a commitment to assume responsibility for ownership, maintenance, and monitoring during the time the wastes are likely to be hazardous, wherever the storage site is to be located. I don't understand the logic of a time frame of 200 to 1,000 years. To me, it's too large a range of years, I don't understand how relocation to a "generic site" can be realistically evaluated with a cost feasibility study. Perhaps, relocation to Callaway should be considered realistically. I would like the DOE to give some examples of situations which would render on-site disposal infeasible. We would like the DOE and EPA to discuss

comment Issue No. 14 with more detail. How can an impermeable cap limit osmosis and lateral recharge without an impermeable bottom to the disposal cell? How will the design be made, how will the decision be made, regarding groundwater remediation of the raffinate pit area? Please discuss Issue 18 with more detail and make a better case for long term storage in an area with groundwater contamination. Lastly, please define the term, "large void" in Issue No.21.

Thanks again for allowing me to ask these many questions and make statements regarding the Work Plan.

MODERATOR:

We are now going to have a ten to fifteen minute break. Many of you may have questions which you have already written on your 3" by 5" cards. If you have a question and not done so, do so now. There will be several people in the aisle to pick those up as you leave. Across the hall in the lounge, a television monitor has been set up for those of you that may be interested in viewing the Weldon Spring Site videotape. The tape briefly summarizes the site, its history, and the activities being conducted there. There's also coffee and cookies across the hall for those who want to partake of those. As you go out on your right, down the hall, are the restrooms. And finally, don't wander too far, because we're going to reconvene promptly in ten to fifteen minutes.

(Meeting Reconvenes)

MONITOR:

Before the answering of the written questions, (which as those of you who have observed can see, has been sorted and assigned vigorously for fifteen minutes), we want or are asking Dr. McDaniel, the principal of the Francis Howell High School, to come forward and make some comments.

DR. McDANIEL:

Good evening. I'm Wanda McDaniel, Superintendent of Schools in the Francis Howell School District, R-III. As you know from the Work Plan, the Francis Howell School District surrounds the Weldon Spring Site. Our largest facility, Francis Howell High School, is located within one mile of the raffinate pits, the quarry, and the chemical plant.

As Superintendent of Schools, I am concerned for the health and safety of our students and faculty. As noted in the Work Plan, our closest facility, the high school, houses approximately 2,300 students, faculty and staff members each weekday.

This is the third position statement or public comment provided by the Francis Howell School District. My predecessor, Dr. William Rebory, participated in the public meeting held in the

Francis Howell High School gymnasium on March 20, 1984. The district also provided public comment at a meeting held in Harvester, Missouri on April 10, 1987. We appreciate the opportunity to be heard. I believe anyone present here tonight would agree that the health and safety of our youths should receive the utmost attention.

Unfortunately, the Work Plan presented by the Department of Energy does not contain sufficient safeguards for the students, faculty and staff at the Francis Howell School District. Therefore, I'm compelled to comment further on behalf of the District.

I would like to begin by directing your attention to Appendix A of the Work Plan and specifically to page 172, item 8.5, paragraph 3. There, DOE states that it would exclude from the Remedial Investigation/Feasibility Study Environmental Impact Statement any monitoring of the health of students and staff of Francis Howell High School. The DOE's decision in that regard is inconsistent with various other provisions in the Work Plan, and, to be quite blunt, unacceptable to the District.

I respectfully request this evening that DOE commit to monitor the health of students, faculty and staff at the high school complex simultaneously with the removal activity identified in the Work Plan. Such monitoring will enable the District, the Missouri Department of Health and the DOE to detect illness and

treat it early.

Just as important -- perhaps even more important -- than health monitoring is measuring the air. Air monitoring will detect radiation and other hazardous substance before serious illness occurs. It is an indispensable detection measure given the highest stakes that we face at the high school complex. Therefore, I also request that monitoring of the air be conducted at and near the high school by a consulting firm which is independent of DOE. The independent firm would either verify DOE's test data, which would be fine, or it will show other results which would be cause for immediate action. I further request that the consulting firm be retained through the School District with the District to pass all expense vouchers to the DOE. The district's budget will not permit such monitoring this year or even in the near future.

The air monitoring and health monitoring is needed soon, due to the interim response actions or the IRAs. The IRAs will result in the disturbance of radioactive materials and other hazardous substances which could increase the risk of exposure to individuals at the high school and beyond. For these interim response actions, the Department should not merely rely on the environmental monitoring that's currently in place.

One of the IRAs, for example, calls for the disposal of 4,000 drums of chemicals and other hazardous solids. Some of these

drums have corroded, according to the Work Plan. In addition, the Administration Building at the complex will be dismantled. The roof of that building contains radioactive contaminants. Another building, the steam plant, will also be dismantled. It also is contaminated with radioactive materials. The IRAs will unquestionably cause the escape of airborne hazardous substance which could be harmful to the high school students and faculty located only one mile away.

The interim response actions call for more than the demolition of radioactive structures. The IRAs will also include removal of asbestos-containing materials from the chemical plant area.

The IRAs of greatest concern is the removal of the bulk waste from the quarry and the chemical plant area. This would appear to have significant potential for the release of hazardous substance. In the Work Plan, DOE admits in Section 3.11.2.2 that there are significant data gaps which preclude preparing a comprehensive risk assessment for the removal of these bulk wastes. Without a comprehensive risk assessment, that bulk waste removal project will be conducted with a blind spot, in that potential pathways for release, and the amount of potential releases, are unknown. Quite simply, DOE is not sure whether the IRA for the quarry will cause a release that will reach the high school area or beyond. The students and faculty of the Francis Howell School District, as well as the community at large, deserves greater certainty.

Now, I'm not proposing that the quarry IRA, or any other IRA plan, be abandoned. To the contrary, I respect the policy considerations that support interim response actions. However, the study of potential radiological impacts conducted to date are insufficient to proceed with the IRAs. DOE only knows of the spread of hazardous substance at the current time. Some measures should be taken to monitor human health during the interim response action project period.

To monitor and protect human health at and near the high school, we recommend the following action. DOE should contract with the Agency for Toxic Substances and Disease Registry, or some other qualified entity, to perform a health assessment at the high school. The health assessment would include, at a minimum, medical monitoring of the students, faculty, and staff at the high school. Such monitoring would identify initial symptoms of illness and disease, if any, and when the IRAs are being carried out, not later, when it would be too late. DOE has already committed to involve the Agency for Toxic Substances and Disease Registry (see Issue 53 on page 204). We are merely requesting that the scope of the work for ATSDR be expanded from a mere public health assessment to an actual study of health at the high school. In addition, environmental monitoring should be conducted on high school property to determine the level and types of hazardous substance, if any. Such environmental monitoring should not be a substitute for actual health monitoring, but should be a supplemental measure for which

medical testing can be more accurately utilized.

Finally, I want to comment briefly on the proposed means for temporary storage measures connected with the IRAs. The Work Plan identified three alternative measures for covering excavated materials: a synthetic membrane, placement in an existing building, and placement in a newly constructed building. In Section 3.8.2.2 of the Work Plan, the topic of migrant control response actions is addressed. There is practically no explanation of the containment measures under consideration to reduce migration. I understand that more details will be provided in the final RI/FS EIS, but the final document may not be available until the IRAs are underway.

I request that greater detail be provided on containment and treatment alternatives to the School District, so the School District can adequately consider these alternatives and provide appropriate public comment to the Department.

The Francis Howell School District is concerned regarding air migration from the IRAs and believes that the migration control response actions set out in Section 3.8.2.2 have not been sufficiently studied.

To summarize, the Francis Howell School District believes that the Work Plan is deficient because the Department of Energy has declined to monitor the health of high school students, faculty,

and staff. The Work Plan also should be strengthened by arranging for an independent consulting firm to monitor air at the campus to verify DOE's current and future monitoring results. We believe that such monitoring is necessary immediately, before interim response action is taken. Like the other concerned citizens at this meeting, I consider the Weldon Spring Site to be a significant hazard to our community. No one in this community, especially its youth, should be short-changed on the issue of health.

Thank you for granting me the opportunity to speak to you this evening.

MODERATOR:

Well, Rod and members of his group have done quite a job. I'm sure that in addition to responding to your specific questions which you handed in, they will make response to both the concerns of Dr. Garvey and of Dr. McDaniel. And so I'm turning the meeting over to Rod to orchestrate the handling of the written responses and these concerns.

ROBERT MORBY:

I'm not Rod Nelson. I'm Robert Morby. I'm Chief of the Superfund Branch for EPA in Kansas City. I had the opportunity to be here on several occasions and meet with the people in

this community about this site and the Agency's involvement in that regard.

I'd like to begin by a comment regarding Dr. Garvey. He was at another hazardous waste meeting last night where there was not nearly as many people, but I'm pleased to tell you that he had spent the time and effort to ask some of the appropriate questions that should have been asked, and I guess I'd just like to tip my hat to him personally for taking that kind of time and energy to come and understand those things that are going on in his community and to ask the tough questions to us as the regulators and those parties that are responsible for these kinds of clean ups. I talked to him a little bit about the litany of questions that he gave here as a part of his presentation, and I think the concern that we at EPA, and I think the Department of Energy as well, have is that those are very good questions, and if they are to be answered meaningfully, we're not going to do it all here this evening. Having said that to him, he suggested that there was three or four of those questions that he would like to be honed in on. He's given those to us.

I'm going to try to take the one that I believe belongs most appropriately to the Environmental Protection Agency. That question dealt with how do we view the quarry and the chemical plant as a single site. I would take it a step further. I think that we believe at the Agency that there is another site

in proximity, that being the Department of Defense, the Ordnance Facility, has to be concerned and be dealt with as well. We acknowledge that each of those facilities and those sites have different problems, but we think that you have to look at all of those as a whole. Because if you try to start dealing with them piecemeal, you're not going to get the issue of the groundwater, the surface, the air all dealt with and complied with in a manner that we think is appropriate.

One of the things that we did do at the EPA was to encourage the Department of Energy to look at the Interim Response Actions, because we think that those are a way that you can proceed to do some of the activities that should be done rather than waiting for months and years before you commence any kind of action. If you only wait, the hazard and the risk continues to increase and so we have prodded to some degree the Department of Energy to move forth. They have taken that prodding well and have begun to do that.

I think as far as the questions that Dr. McDaniel had regarding the opportunity for comment on any kind of interim response action, it is our expectation on behalf of the Environmental Protection Agency that all those Engineering Evaluations and Cost Analyses will be presented here in front of you before any of that work commences. We'll have the opportunity to have your comments, before any kind of approval action for those activities would be granted to allow them to go forth. So I

think that I'd like to make sure that there is that understanding that these are, the purposes of these kinds of meetings is to come here and sit down with you and explain to you what the intent is, what's going to be contemplated in advance of any kind of approval action going forth.

There's another concept that I think that Mr. McCracken may have not highlighted sufficiently for your awareness. There is, in this work plan, discussion on a Record of Decision. That's an Agency, the Environmental Protection Agency, has the authority to make that decision, but there are several of those things when we deal with what's called operable units. And some of those would be broken out in advance of the final decision as to whether the site is completely done and dealt with in that manner. And so I think you will have many, many more opportunities to sit and understand what's being contemplated before any kind of final actions would be done here. And that's the assurance I guess I'd like to bring to you on behalf of the Environmental Protection Agency.

One other thing before I sit down, I'd like to express my appreciation for the comments that Dr. Garvey gave about the openness of this process. I think that's something that we have worked hard to do here, as this program is to come to you and lay before you the things that are being contemplated, and let you have a chance to have your voice heard, and let you know the way we are going to react to those comments.

In looking at the litany that Dr. Garvey provided here in his presentation this evening, the commitment that the Department of Energy and the Environmental Protection Agency have co-made is, in advance of the next session, there will be a written response that would be available to each of you that would have the questions and the answer, to the degree and extent that we can respond at this point in time, to let you look at those, rather than to consume this evening in trying to do that. Rodney.

ROD NELSON:

Thank you, Bob. I'd like to comment just very briefly on Dr. McDaniel comments and then also on some of the cards that we got in regards to the same topic. We share Dr. McDaniel concerns about the students at the Francis Howell High School. I don't know how many of you are aware of how many folks we have at the site, but we have close to a hundred folks at the present time. Nearly all of those folks are either residents of this area or have moved here. A great majority of them have children in the Francis Howell High School. Obviously, we are not going to endanger our own children, nor or we going to endanger anyone else's children. So again, we share the concern that Dr. McDaniel has stressed.

I'm not going to cover all the topics, just make some comments about a couple of things she talked about. We have gone on record as saying that we do not favor physicals for the children

at the school because physicals do not protect the children, nor do they protect anyone else. Good work practices, good engineering barriers, job safety analysis, those sort of things protect people. Physicals do not protect folks.

Dr. McDaniel talked about monitoring. Again, we said it time and time again, we have two years of baseline data. The public is welcome to that data. I've just sent to Meredith a couple of weeks ago over a hundred pages, I think, of data that we've taken from that school. The data has also been given to the State. Again, if anyone wants to do overview monitoring, that's great. We will be more than happy to cooperate with them. Again, work will be done and is being done in accordance with very strict standards and work practices. In the past week, we've probably had three or four audits of the work practices on our site by independent agencies. We've had the State Department of Health. We've had the State Department of Natural Resources. We brought in an independent auditor from Atlanta, Georgia, who wrote the standards and the policy for the United States Air Force, came in and audited what we are doing on our asbestos work on site. We've gotten very high marks from all of those folks and praise for the standards that we are setting on the site.

Some of the things that Dr. McDaniel talked about, the removal of the bulk waste, the temporary storage facility on site, those will be forthcoming in feasibility studies or in EE/CAs and

again those will be put in public repositories. They will be given to the public to have an opportunity to review and to comment on, as we have done on the past IRAs.

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"You say the high school students from Francis Howell will be moved if the radiation rises above an acceptable rates. Well what exactly is an acceptable rate when someone contacts cancer?"

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consumed. However, I mean, the comment is right and what we've got to do is determine whether or not that groundwater must be cleaned up and to do that before anybody would consume it. And we need to carry out our activities in a way, and that's another question that Mike raised, we need to be sure that the work we're going to do in the quarry will not make the problem worse. That's something that we're going to have to study and we're going to have to develop plans around that. So, I agree with the comment.

It says: "What about contamination in our groundwater supply?"

There is contamination in the groundwater supply. There is contamination under the site, primarily nitrates. In one area, there's elevated levels of dinitrotoluene (DNT) from the Army Ordnance Works operations in the past. At the quarry, we've said before, that the water in the sump of the quarry is leaking into the groundwater. So, yes there is contamination in the groundwater supply. It is currently not, it is not though causing the water that is consumed to be a threat. The water that, I think that people agree, that the water that the people of St. Charles County are consuming from the well field is safe to drink.

"What effect do these contaminants have on the animal life in the Busch Wildlife Area?"

I'm gonna try this and if I don't get it all the way, I think that Roger over here can help me. We have done a bio-uptake study that looks at the edible food -- fish, rabbits, squirrels, and those kind of things -- that are both on site and off site. We have not found in those animals any elevated levels of contamination. The work that we're going to do in the feasibility study that will lead to a clean-up decision will assess what the impact to animals would be that we have not already studied in our bio-uptake study. So I guess that pretty well answers it. That bio-uptake study should be available very soon for public review, and it would be in our repositories, if it isn't already. But that should be available very soon for anybody that wants to see it.

That's all of my questions, so I'll turn it over to the next person.

JACK HAMMOND:

I'm Jack Hammond, again, the Project Manager responsible for a lot of the engineering and remediation activities. The first card that I have was just a request for somebody to be put on the IRA distribution list. And if, in fact, you feel that you need your own copies of those, please send us a request and we will see that you do get copies of those.

The first question I have is, "Will you people allow the successful demolition contractor to haul the broken concrete, asphalt and rock to my industrial storage yard located"... and it give the address..."off North Highway 94?"

In talking with the people up here, any of the material that can go off site, such as concrete, asphalt and rock, if it can be placed into any kind of a landfill operation, in accordance with state regulations, it would not be any problem with doing that. The next question is: "How many shipments will pass by the school? Are they expected to evacuate each time in preparation for a possible spill?"

And I'm going to address this, primarily as it relates to the hazardous and toxic materials. Probably the best condition that we are looking at is the containerized chemical situation. Typically, these shipments will not exceed one to two truck loads per day. The loading operation, the manifesting, is a very meticulous process. There are coordination problems that you have to deal with to make sure that the receiving facilities are ready to receive it, the transporters are ready to leave, and typically the shipments that we have sent off site are late in the day when there are very few people around the school itself. The answer to the second part of it is whether we plan to evacuate. One of the things that we have done and that we will continue to do with the school is make sure that they are aware when those shipments are going to be leaving the site and

that they are done in a low traffic time, and that right now, we don't expect to evacuate the schools. Depending on the nature of the shipments, any other special precautions might be considered.

I've got two other questions here, both of them relate to water in the quarry and raffinate pits. First of all, the water in the quarry and raffinate pits, "How can water in the quarry and raffinate pits be cleaned of water soluble radioactivity?" And then they make a comment: "not possible to adequately clean water for release."

Water soluble radioactivity is one of the easier ones to remove. There are a lot of available technologies. And I think that you ought to look forward to the EE/CA studies that are being sent out in the near future, both for the quarry and the raffinate pits. These two studies will go through an evaluation of the available technologies that can be used to, in fact, remove the material from the water and make that water suitable for use or release.

The next one is, "Please explain how you can filter out contamination in standing water? Is it not virtually impossible to remove all the contaminants that are at this very moment ruining our groundwater?"

I'm going to try to address two parts of the question, there are a couple of things you could read into it. Number one, the standing water is exactly what we plan to treat with these first interim response actions, both at quarry and at the site. As I mentioned, there are a lot of different types of technologies that include everything from flocculation, ultrafiltration, distillation, ion exchange and a number of other technologies that are available for removing contaminants from that water, depending upon the mix, the types of contaminants and the concentrations that you're using. So, in fact, it is possible. It's a matter of selecting the technology that it is going to give us the releasable levels that we need to get to. And the other end of it, this will remove the source of continued contamination of the groundwater system. Then that raises the other end of the question about the contamination in the groundwater, as it exists right now. And I think Steve did a pretty good job of addressing the evaluation that we're going to have to go through as to what risk that groundwater constitutes, what the consequences of it are, and make a determination if, in fact, it has to be cleaned up, and what kind of technology would be used to do that clean up. Thank you.

DAVID BEDAN:

I'm David Bedan with the Missouri Department of Natural Resources. And I'd like to make a few kind of general remarks at first. Missouri DNR has been interested in this project for

many years. I think just about, it was in the late 70's, that several people in our Department began to discuss with the Congressional delegation and Department of Energy about what to do about the site. And I think, it's safe to say, we intend to continue that strong interest in the site.

We have at least two kinds of roles at the site. One is our regulatory role in those instances where there is a State environmental law or environmental regulation. We are making sure that any activities at the site conform to those laws or regulations. For example, there was, several people mentioned concern about the chemical hazardous waste. Any handling or disposal of chemical hazardous waste at the site must be done under the Federal and State hazardous waste laws. This is one of literally hundreds of projects around the state that we're involved in. There's nothing particularly unusual about the hazardous waste activities here. There is a very well defined, very strict system for handling hazardous waste. Solid waste, we'll also be overseeing that. Any material that goes off site certainly to any Missouri permitted landfill will have to meet the requirements for solid waste disposal. We have reviewed the procedures that DOE is using to determine what is suitable for landfilling off site and what must stay on site as being contaminated. Drinking water area, we have been concerned for years about the situation in the well field. There are at least four different independent groups monitoring the well field now. We feel very confident in saying the well field water is

excellent water. On the other hand, we would like to get the waste out of the quarry and get the quarry cleaned up to eliminate any potential threat to the well field. There is also, the State Health Department is monitoring almost 50 private wells in the area and they may want to comment on that later. I think between our monitoring and the State Health Department's monitoring, the county's monitoring, DOE's monitoring, and monitoring by the St. Charles Countians Against Hazardous Waste, we can say we have not yet found anybody's drinking water contaminated by the site. The groundwater that is contaminated is either on the site or in the Busch Wildlife Area.

Beyond this strictly regulatory role, though, we're performing what I call an oversight role. We're interested in all phases of the project. We're reviewing every document the DOE puts out. We have made voluminous comments on these documents, some of it in writing, some of it informally. We found that DOE to generally be very responsive to our comments. As far as air monitoring has come up several times, we are in the process of reviewing the air monitoring system around the site including the monitors at the high school. We haven't completed that, although particularly with respect to the asbestos monitoring, this monitoring goes far, far beyond what is normally done in asbestos removal projects. You don't find ambient air monitoring around asbestos removal projects normally. This is a far, far superior system. I wish we had this kind of system at

every asbestos project in the State. This goes way beyond the rules as far as asbestos air monitoring.

The gentleman who asked the question about the concrete rubble and whether it could be disposed of, I take it he has a construction site or something he's filling. The general rule of thumb on that is clean fill does not need a permit. If it's just concrete rubble or asphalt and has no metals or no organic matter, like wood, you don't need a permit. However, if you get mixed rubble that contains metals that might leach out into the groundwater or organic matter that might decay, cause a leachate, then that needs to go to a permitted sanitary landfill. So, whoever that is, you might want to get with me or with Don Maddox from our regional office and talk about that after the meeting to see if we can determine whether you need, or whether you can send that to, or bring it.

That, I got, I'm not sure I can answer this. "How do you explain the yellow mud in the creek down the hill from the plant, a yellow water with a oily film on it?" And it goes on to mention a person saw some dead animals near the creek.

I'm not sure what creek that is. It may be one of the creeks, there are several contaminated creeks in the Busch Wildlife Area and in Weldon Spring Wildlife Area and I guess some on the Army Reserve Area. All of those are being studied as part of the vicinity properties studies. And if you know of some creek that

is not one of these that is being studied, I think we would like to know about it. So, maybe again the person can come up after the meeting. Maybe we can figure out specifically which creek that is. Thank you.

JOHN CRELLEN:

Hello, I'm John Crellen from the Missouri Department of Health. I'd like to make just a few comments concerning monitoring around Francis Howell School versus doing health exams or I think, more properly medical exams. The Department of Health feels or believes that careful monitoring of air around Francis Howell High is really about the only way to ensure that students and staff are not exposed to harmful amounts of radiation. Medical exams will not protect the students, you know, from harm. They will not ensure that illness does not occur due to an accidental release. In the best of situations, medical exams in this kind of situation would only permit early detection of illness, not prevention.

Radiation-related illnesses usually occur many years, like 10 or 15 years after the actual exposure. Therefore, it would be extremely difficult to detect a single illness due solely to radiation exposure. Also, to be effective, exams, any chance of exams being of any use, would have to be done well after graduation had occurred for the students. We feel again that it would be much better to detect exposure as it occurs. And in a

case of radiation, low-level exposure can be detected. And if it does occur, then the students, whoever's being exposed, can be removed from that situation. This is the way you prevent illness, and our job in the Department of Health is to see that illness is prevented. And I think that's what everyone in this situation would like to see happening.

Also, in the case of medical exams, and especially in the case of when you're looking for cancers, in most types of cancer, unfortunately, early detection does not change the course of the disease. There's a few well known ones -- breast cancer and colon rectal cancer -- where it does help, but with many others, it does not. Especially I can ... in the case of lung cancer, there have been extensive studies done on it, and in the case of lung cancers, all you do is you know that you have lung cancer early. It doesn't change the actual course of the disease.

The Department of Health does believe that the chance of Francis Howell students or staff being exposed to radiation from the site is extremely small or non-existent, if the remediation is done correctly. And I think public meetings like this create a process, that helps this occur. It's through public involvement that you can all be assured that the remediation is being done properly. We have suggested that the Department of Energy provide Francis Howell High School with funds required so the District can hire impartial experts. That is not a new suggestion. It was made originally by myself back in '86 or '87

to Dr. McDaniel's predecessor. Actually, any other alternative that would protect the students from expousre or any kind of monitoring plan that would be mutually agreeable by DOE or the School District would be perfectly fine with us and we 'd be very supportive of it.

I would now like to introduce another person from the Department of Health, Gale Carlson, who just briefly mentioned what Dave Bedan talked about, the monitoring that the Department of Health has done and Gale's the person that's been doing this. And he'll update you on what we know about our monitoring around the site.

GALE CARLSON:

Thank you Dr. Crellen. All I'm going to discuss, real quickly, is the fact that Missouri Department of Health has been monitoring private drinking water wells around the Weldon Spring site for approximately 4 1/2 or 5 years. We are committed to continuing that monitoring as long as the program of remediation at the site is underway and probably after the site remediation is finished. So we're going to be here for many, many years. Basically, what we do is, we have identified 50 private drinking water wells that surround the site. We've tended to congregate the majority of those in areas where the geological experts, -- both the State of Missouri Division of Geology and Land Survey and the United States Geological Survey -- have determined any

water from the site would move. So we have more wells in areas where there's a better chance of contamination, if it were to move off site. We basically sampled 25 wells on an alternating basis four times a year. Each well is sampled at least once. Some wells are sampled as many as four times, wells that we believe have a better chance of contamination. To date, we have not found any contamination that we believe could have come from the site.

What I'm trying to say, yes there are some wells that have some contamination. It's not radiological contamination that came from the site and it's not chemical contamination that came from the site. As you probably know, there's some naturally occurring radiation in areas of very, very deep wells in this area. We've got a few wells that have some contamination, not to a health point of view or not to a health extreme. We've also got some wells that are contaminated from what we believe are surface contamination. In other words, if a well isn't constructed correctly and/or there are some activities right at the site, there's a possibility that well might have some contamination in it. None of these wells have any health implications, at present. We intend to keep on doing this, like I said, for at least the duration of the project and probably longer. I've got a couple little hand-outs that show where these wells are approximately and exactly what we analyzed for, how often we analyzed. If anybody needs these, they can see me later.

ROGER NELSON:

I have a number of questions that are all disparate and of different types and subjects.

First question is: "Will the roofs that are falling in create a possibility of escape of airborne radioactive material?"

I guess the answer is, the buildings already are extremely loose. Most of them are in a poor state of disrepair and one more hole isn't going to cause that much more material to be able to be escaping. I think the premise behind the question is a little misleading and that's what I'd like to clarify. The airborne radioactive material at the site is primarily associated with particulates that are stirred up, dust generated. And any stirring up inside the buildings would have to be primarily related to work and activity in those buildings. And not air blowing through and none of the buildings are ventilated. There is no power or high vac type activity.

Next question is: "What is a background level of radiological particulates and radon gas? Is not any level of these things unsafe? Please explain your platform of this concept."

The background levels of radon in the State of Missouri area vary from location to location, but generally run about .5

picocuries per liter of radon. A half of a picocurie per liter is about a factor of 8 less than some numbers that you probably have recently read in the paper about EPA's recommendations on safety levels of radon. They recommend, within a structure, that you keep the radon levels below 4 picocuries per liter. The radon that we're talking about here is outdoor radon, so you have a different amount of particulate daughters which have grown in with it. And it's a complicated way of saying that we're about a factor of 10 less than what are considered very acceptable levels. Now, "Is that level safe?" Well, if you ask the people in Colorado or Wyoming where the ambient background is 2 or 3 picocuries per liter, they'd say half of a picocurie is certainly safer there. If you asked sailors who live on the sea where the background concentration is .1 or .05 picocuries per liter, then they would say half of a picocurie per liter is not safe. It's not as safe anyway, and so it's relative.

Now the other aspect of the question is, "What are the background levels of radiological particulates?" These vary extremely widely, depending upon where the air in the continental aerosol came from, whether that air blew over Texas, or whether that air blew over New Mexico and Arizona. Those levels change by factors of 10 on a very regular basis. I don't have the numbers, it varies dependent upon nuclides. Talking about uranium, that's different than thorium, that's different than radium and so on, and so forth. The background levels of air particulates are those that are exposed to everybody, and

you and I are breathing them here in this room. And the background levels, are they safe? Well, they're about as safe as they can be, because there's no place on earth where you can get away from them.

The next question is difficult to interpret, and I will try to do my best. "According to a May 1981 Department of Energy "Description of Missouri Remedial Action Sites," the DOE says, REWS there is U-238 migration and this geologic setting not good fractured limestone and there is U migration towards municipal water wells .7 miles toward Grapest. If this was true, how has the site changed to acceptable?" Did I hear somebody? "Gradient." I'll re-read that phrase then: "U migration towards municipal water wells .7 miles toward gradient."

The groundwater contamination that exists both at the raffinate pits and chemical plant area is completely different then the groundwater contamination and it's migration in the groundwater at the quarry. Is this for the raffinate pit/chemical plant area or the quarry? (Response from audience) It's at the quarry, then. The groundwater contamination leaking out of the quarry is due to a hydraulic ... (response from audience) ... Those are in two different directions and five miles apart. Yeah, okay let's talk about one at a time so that we can let everybody understand. The groundwater contamination at the quarry is due to hydraulic head difference between where the quarry is. The waste is placed at this level out here in the alluvium. The

alluvial water table is at this level, and so there's a net differential and so there is a route, or a gradient of hydraulic head that allows water that is leaking through fractured limestone, which is what the quarry is made out of, into this alluvium. Out here, where the production well field is, the water and the wells all demonstrate concentrations at background levels, and we just heard the Department of Health and Department of Natural Resources talk about the adequacy of the monitoring program to protect that well field. But nevertheless, there is migration in that direction and there is groundwater contamination immediately outside of the quarry in the alluvial area. The hydrologic pattern or setting at the chemical plant/raffinate pit area is a completely different kind of a setting. And, in order to answer that, I'm going to surprise somebody from the audience and ask him to give a better description or a description of what that hydraulic regime, in the same terms that I just used for the quarry, is underneath the raffinate pits. Ken, you want to do that?

KEN MEYER:

Okay, since this is a surprise, I'm Ken Meyer, Geological Engineering, involved in the groundwater and other monitoring activities at the site. The situation that Roger described at the quarry is very different than the situation at the chemical plant area. The chemical plant area, we have primarily the fractured bedrock that Roger spoke of at the quarry itself. The

groundwater flows away from the source, that being primarily the raffinate pits, where we haven't detected significantly elevated levels of radionuclides in the groundwater. But the raffinate pit area is located on a groundwater divide. That means basically it's on the top of a hill. Water flows in both directions from that site. That's part of our current investigations is to determine the extent and magnitude of contamination in that fractured bedrock media in both directions both to the south and to the north. The extent of contamination from the raffinate pit area to the south does not extend more than, it doesn't extend anywhere near the well field or the quarry area. To the north, the contamination doesn't extend more than probably several 100 meters beyond the site boundary, based on our current results. We're still getting laboratory results back on that. I think that pretty well, I hope that pretty well answers the question.

(Query from the audience)

Yes, I can, karst topography is a description used to describe the development of solution channels in limestone or carbonate bedrock, carbonate bedrock being limestone and dolomites. It's a natural process, occurs anywhere that those types of rocks are found and water is present. It's just a natural solutioning process where the water dissolves portions of the rocks along preferential pathways, like fractures, bedding planes, those types of things. And we do have that component of flow at the

chemical plant area. Part of our monitoring program includes monitoring springs and seeps in the vicinity, as well as the monitoring wells which detects, gives us a pretty comprehensive program to detect migration either through the fractures or through the karst terrain development.

(Comment from audience)

A Swiss cheese, okay, I've seen that piece. That piece is very indicative of surface weathering of limestone. The deeper the rock cores we've obtained from drilling monitoring wells on site look nothing like that. There very competent with very small fractures, you know, very little evidence of solution enlargement of joints on site. I don't know where that sample was obtained but, on my farm in Defiance, I can find rocks just like that very near the surface where they've been affected by surface weathering. I guess, since I'm up here, I can answer my other two questions.

ROGER NELSON:

What I'd like to do is offer the opportunity to the State USGS. Dave, you want to add anything to that?

KEN MEYER:

No, just a good explanation. I have two cards, one dealing with groundwater contamination also at the raffinate pit area.

It says, "How is and how will leaking from the raffinate pits into the groundwater be monitored?"

I just described that we have a monitoring well network at the chemical plant/raffinate pit area that we monitor on a routine basis. We also monitor surface streams, both leaving the site and at downstream locations, and we also monitor springs and seeps in areas that are potentially affected by the site. The State in cooperation, or the site, in cooperation with the State and the USGS, are working to define the inter-relations between the bedrock and these karst features, the springs and seeps.

Another part of the question is, "Is there technology to monitor leaching, that will last even the half-life of radioactive particles in the raffinate pit and other areas?"

That's kind of a difficult question to answer because we're planning to remove the source of that contamination and evaluate the need for aquifer restoration. So, we really don't, we may not need to monitor that material over the half-life of the radionuclides present.

Another part of the question: "In the EIS, it said monitoring equipment would last only 25 years, which is insufficient. Is this issue addressed in the work plan?"

I think what the question here is referring to is a statement that leachate collection systems would only have an operational life estimated at approximately 25 years. That would be valid, especially if that was included in the final cell design in an on-site disposal facility. Monitoring wells and monitoring system design would be part of the conceptual and final design that would be carried out, once a waste disposal alternative was selected, would be part of that design process. So, without knowing the forms the waste will be in, the location they would be stored, it's difficult to say that a monitoring system could be designed to last more that 25 years, or more than 200 years, or more than a 1,000 years. It's difficult to say without knowing the actual form and location of the wastes.

My other question that I had refers to the Dardenne Creek. It says, "Since Dardenne Creek flows from the Weldon Spring site through the heavy populated parts of St. Charles County, are there plans to conduct tests of the contaminant levels in Dardenne Creek?"

The answer to that is, definitely yes. Our routine monitoring program provides for surface water sampling both upstream of the site and downstream of the site. And, to date, we haven't seen

any elevated levels of radionuclides or other contaminants at the site in Dardenne Creek. We've just recently completed, and we don't have all the analytical results back, but we have completed a lake and stream sediment sampling program where we sampled the sediment in the drainages leading from the site. This included, Dardenne Creek, Schote Creek, some lakes on the Busch area, some streams to the south of the site. And we're seeing contamination that is consistent with the previous studies that shows contamination of the sediments in the Busch lakes, in the tributaries about the Busch lakes, and in the southeast drainage. We did not see any elevated radionuclide levels in Dardenne Creek. Our current plans are to continue monitoring Dardenne Creek, both upstream and downstream of the site, as a part of our routine monitoring program.

STEVE GREEN:

I'm Steve Green, the site Radiation Protection Manager, and I've got five questions to answer.

The first is, "Can you explain whether the radioactivity, can you explain whether radioactivity was found in the steam plan building and, if so, how it got there?"

The answer is yes, we did find radioactivity in the steam plant building. We found it as part of our comprehensive effort to make sure that no contaminants leave our site. We found it in

some areas of the floor, and on horizontal surfaces, and we also found it in slightly higher levels on window sills. Since the steam plant was next to the uranium sampling building, where crushing and grinding of the uranium concentrate took place, we hypothesize that because the higher levels were found underneath the windows, that the dust blew in the windows during operational periods of the plant.

Next question is, "What levels of radioactivity do you allow in steel released for recycled use by the public?"

The guidelines that we use are those that were developed by the American National Standards Institute and the U.S. Nuclear Regulatory Commission. Before using these guidelines, we discussed them at depth with the EPA and the State of Missouri. And they agreed that those guidelines were acceptable for our use for releasing materials for unrestricted use.

Next question is, "Has any car or truck ever been found to be contaminated enough to be impounded for clean up?"

And the answer to that is no car or truck has ever been detected to have levels of radioactivity that exceed our release guidelines that I discussed in the previous question. However, if we find any contamination at all that we can detect on any vehicles that leave our site for unrestricted use, it's our

policy to send them to our decontamination pad and have that material cleaned off. And that has been done in the past.

Next question is, relates to the construction equipment used on the site for the work, and it's got three parts. First part is, "How is it monitored for contamination before leaving the job site?" The second part is, "What is done to the equipment if it is found to be contaminated, before releasing it from the site?" And the third is, "How thorough is the monitoring done, i.e., underneath oils, etc.?"

It's part of my job to make sure that no contaminated material does leave our site, so that our monitoring at our access control point, that you saw in some of the slides that we had earlier, is very thorough. We check every piece of equipment, every tool, every vehicle that could have come in contact with radioactive material at the site. The monitoring is performed with a Geiger counter and we also wipe a filter paper over the tires and the wheel wells, and inside the vehicles, the steering wheel, the gas pedal, the brake pedal, to detect if there's any loose contaminated material. If we do find any contaminated equipment, we simply decontaminate it. The contamination associated with our site for the most part is mixed in with dirt and, so just like any dirt whether it's contaminated with radioactivity or not, it's very easy in most instances to wash off.

And, Rod was asking me to explain, I said that, in most instances, the radioactivity is very easy to wash off. In one other case though, one specific problem we have at the site, we did some sludge sampling in the raffinate pits and the barge that was used to do the sampling became contaminated with thorium-230. This proved to be very difficult to clean off and what we ended up doing to clean the material off is rented the services of a hydrolaser which has the ability to produce about 35,000 PSI of pressure, water pressure. We used this hydrolaser to strip off actually the paint on the barges. And it also took off a thin layer of metal. That was the only way that we could get the contaminated thorium off of the barge. But we did succeed in doing that, and the barge has been released for unrestricted use.

Next one is, "Why were the workers at the Army site cleanup not wearing protective clothing?"

I think this refers to a slide that was shown about the Army Vicinity Property No. 7. These workers were wearing protective clothing. They were wearing protective clothing that was equal to the hazard that was posed by this small-scale clean up. The contaminant was radon. It was very low level. The excavation was done by a backhoe, not manually. The protective equipment that the people wore was shoe covers to make sure that none of the contaminated material got on there street shoes. They wore hard hats and they also wore sturdy work shoes. And that was an

acceptable practice according to the protective equipment manual that Roger discussed.

The other questions I have is, "Why haven't radon gas levels been monitored in Francis Howell High School by the Department of Energy?"

The answer to that is radon gas levels have been measured in Francis Howell High School by the Department of Energy. The monitoring was done in coordination with a high school honor student who deployed the monitors in January 1988 and collected the monitors in March 1988. The levels of radon gas that were found inside the high school were at background levels.

DAN HOFFMAN:

My name is Dan Hoffman. I'm an Industrial Hygienist at the site. And a lot of people don't know what a industrial hygienist does, or is, but primarily I'm concerned with worker health and safety with regard to exposures to hazardous materials at work. That could be asbestos or hazardous chemicals, such as a containerized chemical. Some of these materials are classified as hazardous. Steve Green, on the other hand, being a health physics person handles primarily the radiation exposure, and that's the essential difference between the two types of functions at the site. I've got three cards.

The first one is, "When the workers change from the protective clothing to their street clothing, how do they change without getting hazardous materials on their person?"

The answer is very carefully. Depending on the nature of the work and the materials involved, there may be very little protective equipment requirements from standard safety equipment on up to coveralls with taped seams and gloves, and boot covers. Each job is assessed based on the type of activity and the materials involved. Again, the method of removal of that clothing and the decontamination of the clothing, if it's reusable clothing, is dependent on what they're doing, what potential exposures are involved. And the people that are involved in this work are provided with training as to how to minimize exposure during protective clothing in equipment removal, as from the simple method of turning a glove inside out when you take it off, or a boot cover, to team efforts where you have two or three or more people assisting each other in removing protective clothing. Another area is that there is washing or showering during asbestos removal. For example, the standard practice for workers is, as they leave the work area, they are required to go through a specific method of removing their protective clothing, going through a shower facility, and then on out into a separate clean room, which is separated by air locks, where they put their street clothing on. So again, it depends on what the particular job at hand is, as to how we do that, but that is an important part of doing work at the site.

The next question is, "Exactly how qualified are the workers who do this highly dangerous work? If a mistake is made, the consequences could be disastrous. Do these workers realize this?"

One of the things that was pointed out earlier on during the presentation was training. We have professional people in various aspects of health and safety at the site, working under contract with the Department of Energy. We have personnel that provide training. We have other personnel that provide training for us. We do a site orientation to all of the people that come on site which is specific to the particular types of materials that they would be potentially exposed to. That's kind of a difficult question to answer. Not everybody doing work at a site like ours needs to be an expert in health and safety, but they need to know what they need to do to protect themselves and the others around them during the work. So, another thing I should point out too, is that the unions have provided a considerable resource to us, in that they're providing there own health and safety training and we have discussed with a couple of the union leaders their programs for providing health and safety training to the labor force. So, there is a considerable amount of exchange and effort there in ensuring that we have people that are qualified to do the work. In addition to that, we require subcontractors to designate a person, in addition to our oversight and coordination. They're required to designate a person who is a full-time person that is

responsible for health and safety during the implementation of that subcontract. That names an individual. He's responsible, as the supervisor, for doing the work; not only doing the work in accordance with the specifications, but doing it in a safe and healthy matter.

The last question, "Are workers actually told what they are handling and the risks involved? Isn't it true that what motivates them to do the jobs is the money they are paid for putting there lives on the line?" And it has an add-on to that. It says, "Have you every seen Silkwood with Meryl Streep?"

And yes I have. Pretty good movie, as a matter of fact. Yes, workers are told what materials they are being exposed to and, in general, what the risks are. More appropriately, the risks are really a hard thing to try to put into terms. Because what you really need to do is to specify what protective clothing, equipment, procedures, work practices, engineering controls are required to minimize those risks. Risks from a numerical stand-point, are very hard for our people to deal with. But the key there is to do everything that's within reason to provide a safe and healthy work place. Again, getting back to worker training, most states and the Federal government has adopted worker right-to-know regulations. I think these are good in many industries where some of this information has not gotten out to workers. An additional thing that we have available is an anonymous complaint system. There's, at several locations at

the site, there are forms which a worker, if he feels that the situation is unsafe, he can grab a form, fill it out, send it in, type it in whatever, send it in to the Department of Energy. We encourage them to bring it to our attention first, bring it to there supervisor first, and to bring it to us there at the job site. But they do have that outlet, if they feel that conditions at the site are not safe or that they're being subjected to unacceptable hazard. Then, we have a system for listening to and responding to those complaints. So, I can honestly say that there is a commitment to do this work and do it in a safe and healthy manner. And I have seen that, evidence of that, both in terms of the people on the project and the other resources that are there to ensure this happens.

JOHN PETERSON:

I'm John Peterson from Argonne National Laboratory. I have one card. It relates to page 26, Section 2.3.6 of the Work Plan. It's a quote. "Urban areas occupy about six percent and non-urban areas about 90 percent of St. Charles county, 'based on 1983 information.' The county is growing so fast, especially in the last five years. Don't you feel more current data ought to be used and updated?"

Agreed. It will be updated in the RI/FS EIS.

"By the way, what's the left over 4 percent?"

The left over 4 percent relates to basically transportation uses and water uses, specifically major highways, railroad rights of ways, and similar miscellaneous areas.

BOB HLAVACEK:

I believe this is the last question, and it's a good question. "What percentage of the clean up contracting has been awarded to minority owned companies?"

We, at the site, recognize two separate categories, minority businesses and minority disadvantaged businesses. We have goals that we establish. And for the fiscal year 1988, our goals were, for the minority disadvantaged businesses, 7.5 percent, and for minority businesses, 25 percent. I'm not, I don't recall the exact numbers that we achieved last year but they are in the range of 16 percent, as opposed to 7.5 percent for minority disadvantaged business, and in excess of 40 percent compared to 25 percent, for minority businesses to the maximum extent we possibly can. We will continue that policy in the future. I guess that's it, Rod.

ROGER NELSON:

This question is, was in series of ones that Ken interrupted me on, but the question is stated: "The entire discussion of the Femme Osage Slough characteristics is confusing and your plans not clear. It seems a plan to test north and south of the slough would be worthwhile and necessary. Will this be done, in order to get a meaningful characterization?"

And it's in reference to page 66 of the Work Plan. And going through that section of the work plan and trying to understand what the question was really asking, I believe the correct interpretation is they're asking for additional information about the contamination around the slough area. And that's exactly the plan. The Work Plan does not pretend to be a complete characterization report. The Work Plan, as Steve said, is a road map on what the environmental compliance processes will be. There is still a great deal of characterization information to be derived from the groundwater regime at the slough area. In order to design a groundwater restoration, or an aquifer restoration program, we need a lot more information from the area, and that information will be derived, as time goes on. And that is one of the reasons for separating the groundwater as a separate operable unit from the waste themselves.

And actually there really was one other question, but it wasn't

a question. It was signed "Meredith Bollmeier," and it says, "I would like to ask a question."

MODERATOR:

Thank you very much for your thoroughness and attention to our questions and concerns. Meredith.

Meredith Bollmeier:

This is in relation to the many comments that were made about radon in the monitoring at the high school. And I would just like to say, because it wasn't clarified, and I think that it probably should be. We wouldn't expect there to be any high levels of radon at the high school or anywhere around the site at this time. What we're mainly concerned about is during the demolition period in the dismantling of the buildings and the digging up of things. Because it has to do with, the buildings are cinder block and they're permeated all the way through.

My question in relationship was the present radon monitors. DOE has an active monitor called a SARA Anderson 10 micron dichotomous air sampler. And it works on an active basis and it's tested every, I guess your samples are taken every three days, right? Two and five, okay. Then, St. Charles Countians Against Hazardous Waste has installed passive monitors in buildings at Francis Howell.

But there's a problem with both of these monitors. Neither one will act like a smoke alarm that sends up alarm that there's a problem. The best we can hope for from them will be when they get their readings in either two days or five days, you can find out there's already been a plume or an exposure. That is what our concern is.

And that is why, instead of just thinking about monitoring or health exams or things, we are looking at the best available technology to prevent any kind of plume or air travel from going from the site to the school. And one of the ways is called the black bag technology. And Rod asked me to get more information to him. We've been trying to find this out. They do it in the East when they demolish big skyscrapers and things like that, so they don't scratch other glass buildings. And it literally looks like a huge trash bag that's held in place by a crane on the top, you know, up at the top. But it's much sophisticated. It's got air vents and filters and all that stuff. And it's kept in place during that whole time. We think this may be a good place to start on it and it is an available technology. So, that is what were going to be looking at. And I thought maybe, by the next meeting, we'll know more about that, that we can tell people about.

But, I just wanted to get that in, because the monitors that are there, they're not going to send an alarm and they are not going to do what a lot of people are thinking that they will do; that

they can stop work and do it. They'll find out about it three days after, or in the case of the passive ones, three months after. So, I just wanted to clarify that.

STEVEN GREEN:

I'd like to respond to that, to those comments. When work is done at the site where significant levels of radon could be generated, there are measurements, there are instruments available that will provide real-time monitoring. There are simulation flasks that can be evacuated and then air drawn into the flask and you can get real-time monitoring results. Regarding the release of radon from buildings, really when the buildings are torn down, there won't be any releases, or appreciable releases, of radon from the buildings. This is because, in order to have releases of radon from the buildings, you need to have radium-226 contamination and sizeable levels inside the buildings, which we do not have. The buildings are, for the most part, uranium contaminated. And so, with the exception of one building on site, Building 403, there will not be appreciable levels of radon released as the buildings are torn down.

[Query from the audience]:

Steve, when you say real-time monitoring do you mean, that you'll be able to tell almost instantaneously what the level is and give quick warning if there are any problems?

ROD NELSON:

How much time really is the question.

STEVE GREEN:

I think Roger Nelson can probably give more exact facts.

ROGER NELSON:

It's about a one-hour turnaround. It's a flow through simulation flask.

[Query from audience]:

"Do you in fact have that equipment in place?"

ROGER NELSON:

No, we do not. But we're not disturbing any materials that have radium-226 as a significant source. As soon as that level of stuff starts happening, as soon as we have a change in a

radiological condition where radon monitors are necessary, that's when a RGM1 or RGM2 type of device is necessary.

ANDY AVEL:

There is at least one last question. I'm Andy Avel. I'm the Site Manager for the St. Louis sites in the Formally Utilized Sites Remedial Action Program. I'm here as, I was here as an observer, but it looks like I've gotten involved a little bit. The question that I have is, "The City of St. Louis has turned down the Department of Energy's request of an 81.7 acre disposal site at the St. Louis Airport. Where do you think the radioactive waste in the St. Louis and St. Louis County are apt to be taken?"

Let me stop here and answer that question, then there's another part. We are currently working in the St. Louis sites toward the objective of following the direction of Congress to dispose of the waste locally and do it in a manner that's acceptable to the City of St. Louis.

The statement of the question goes on. "Do you think it would be more or less probable that the St. Louis waste would be brought to Weldon Spring, if the Weldon Spring wastes are kept there?"

And the response to that is, I believe in 1982, we made a promise to the citizens that are concerned with Weldon that no additional waste would be brought in, and maybe Steve or Rod might like to add to that.

MODERATOR:

Well, it is late, but are there any additional questions burning? Then, yes.

[Question from the audience]:

"Which agencies' standards will you use to determine the maximum contamination level of the water to be released nine miles upstream from the St. Louis County's drinking water intake? Will you use EPA, DOE, NRC's current standards, NRC's proposed standards?"

STEVE McCRACKEN:

We will use current standards but we'll do better than current standards. What we plan to do is take the current standards and then apply the concept of as low as reasonably achievable. When that plan comes out, you're going to find that we propose to go well below the current applicable water treatment standards. And, by the way, that plan should be coming out for public review in about a month. We would hold a public meeting very

soon after that to allow you an opportunity to comment on what that plan presents.

MODERATOR:

John, did you have one.

JOHN NICHOLS:

My name is John Nichols. I'm a professor of mathematics here at the college. The first comment I'd like to make is I'd like to comment on the openness of the officials that are dealing with this problem. Those of us that got involved in this in the middle 70's found that it was very difficult to get an official that dealt with this problem to say anything. Now, it's hard to get you all to stop talking.

But in any case, there's one suggestion I'd like to make. And I've tried to listen to all the questions and this hasn't really been brought out. But one of the things that I think might be lacking in the volume of information that you're disseminating is the question of the problem, and the task of informing the public more thoroughly about the actual health effects of the different kind of contamination. Like what is the effect of the alpha emitters, the beta, and the gamma? And I do not think that the problem is that complicated that the general public

will not have some fundamental understanding of what the health risk are for alpha emitters.

The other suggestion I'd like to make that I think is surfacing, but not quite as dramatically as I would hope, is the sense of urgency on the quarry and the raffinate pits. I do not know exactly, in reading your work plans, exactly when you will start the process of, for example, draining the pits. That, I impress upon you that, and I think most of you are aware of it, that the urgency of getting the liquid out of the ground is probably the highest priority. So, the question I have is, "Is there a plan, is there some sense of trying to disseminate more information about the actual health effects on the variety of contaminants?

ROD NELSON:

Let me handle that two questions or comments very rapidly. First of all, they're very good suggestions, very good comments, John. We have been working and thinking and trying to come up with a way to talk to the public, address the issue of risk with the public and that sort of thing. There is a problem with that because obviously we have one point of view. There are others in the public that have a separate point of view. And very, very difficult to come to a unanimous consensus on it.

We share your concern about the sense of urgency of the quarry and raffinate pits. The EE/CA for the water treatment plant

will be coming out very soon. That's what Kay alluded to and that Steve had referred back to. We will be coming out, very shortly the public will have the opportunity to review it. We will then go through a design and construct. And I think within about a year, our plan is to start treating water down in the quarry. And during that same period of time, we will be coming out with a feasibility study for the exhumation of the material on the quarry and the associated temporary storage area on the main site. And I know that's rather brief, but I hope that answers your question.

[Question from audience]:

"I have a quick question that regards the removal or the exhumation of the material from the quarry. There are many special interests here obviously. And I guess I'd have to say my overriding concern is for the students in this school, five of them are mine. But the ...

ROD NELSON:

We appreciate that.

AUDIENCE SPEAKER:

The issue that concerns me is that we'll be removing substantial amounts of material from the quarry and concentrating it near,

much nearer, the actual site of greatest concern to me and that's the kids. The other issue that I wanted to bring up is, I think that there is very compelling scientific evidence available for all of our perusal nowadays that there is no safe increase of radioactivity above background. That can be debated and argued in a variety of different fashions, but I think the basic take-home message is, that any increase of ionizing radiation above background has significant effects on mutagenesis rates in cell culture and now one can extrapolate that directly to human health concerns. But, I don't want my genetic material being mutated more rapidly than is absolutely necessary.

The point was made that background levels do vary. Where I grew up, most people probably don't even know and are not concerned, but where I grew up in St. George, Utah, the background is very high because we got bombed for 15 years or so. Background levels there, as compared to here, obviously are relative sorts of comparison, but still the issue remains, that any increase in radioactivity that might take place at the school, would be cause for concern.

So, my question, the concern that I have is that the way that the Work Plan is presently constituted leaves a fair amount of room with the statement that we'll avoid any unacceptable risk or, I forget the exact words but, there seems to be an out there that will allow you to say down the road that, well yeah,

background did go up or there was some exposure to the kids at the school but it was acceptable, based upon the following criteria. Are you prepared therefore to make a statement about what levels will institute some action on your part, either to close down work, or move the school, or whatever?

ROD NELSON:

No, not at this time, we are not. As I mentioned, we are in the process of preparing those documents that fully talk about that scope of work.

AUDIENCE QUESTIONER:

But the concentration of materials at the site will take place while those documents are being prepared. Is that correct?

ROD NELSON:

No, absolutely not.

AUDIENCE QUESTIONER:

Okay.

MODERATOR:

Yes, Kay.

KAY DREY:

I guess, we're all being bombarded with information about how the Department of Energy at various places like where you came from Rod, Hanford, Washington, the Department of Energy has not been leveling with the public, for instance, at Fernald, Ohio also, which learned how to do what it did from Mallinckrodt, which is the company that ran the Weldon Spring facility and the facility downtown. And I must say, when I hear Roger Nelson say, that we don't have to worry about radon, because there's only radium in one building, when radon comes from thorium-230, which you just mentioned, it also comes from uranium, and we have three different kinds of radon in the quarry, I just don't understand how you expect us to have faith that what you are saying is going to be accurate.

ROGER NELSON:

As we've discussed many times before, Kay, the concept of radioactive equilibrium is a relatively straightforward concept. And I think I'd like to try and draw an analogy for the public here tonight. To demonstrate to them that if one does not have significant quantities of thorium-230 or uranium as a parent, their amount of radium isn't necessarily, or the amount of radon being produced, isn't necessary going to be the same as the amount of the uranium that you just alluded to. There won't be any radon emanating from the uranium, because

there's no parent radium there present. And, yes, radium is a decay product to uranium but as you pointed out many times, Kay, uranium takes 4 1/2 billion years to decay. And so, when you've removed that radium, in between, then it takes 4 1/2 billion years for that uranium to turn into the radium which then turns into the radon. So when that radium is gone, then there is no radon or radium and subsequent radon available for it. And so you have to have the parent radium nuclide present, in order to have a radon source. And radium is a relatively straightforward radionculide to measure because it has some gamma radiation associated with it and its daughters, and you can measure that very carefully. And we've made measurements in all of the buildings and we know that there isn't radium present. Steve do you want ... there certainly is a lot of radium in the quarry. The Destrehan Street facility, which was cleaned up, operated prior to modern milling techniques for the yellow cake that was purified by the plant at the chemical plant area. The Destrehan Street facility actually processed uranium ore. In that ore, all of the daughter products are there in generally an equilibrium because it's ore. It's in a geologic setting and it's been allowed to grow in for those 4 1/2 billions years or whatever. And in that case, there is a lot of radium. The radium is in equilibrium or it's close to equilibrium with the uranium parent. And for the wastes that are stored in the quarry, there is significant quantities of radium producing significant quantities of radon which we see and measure at the site perimeter. I'm not sure who made the reference but we do

make, we have made measurements of the quarry perimeter radon concentrations and those levels are approximately at the DOE standards for off-site radon concentrations of 3 picocuries per liter right at the perimeter of the quarry. And that's why we are sure that we're going to need to have, or implement, or institute controls, operational engineering controls, based upon real-time monitoring data of the radon concentrations. Because when that material is exhumed, we fully expect to see radon concentrations rise.

KAY DREY:

I just, I think that when, you've used this fact that uranium-238 has a half-life of 4 1/2 billion years. That's true, but if you have one gram (which is a 30th of an ounce of uranium-238), in one second it gives off 12,400 alpha particles. And that's pretty serious stuff. That's one gram of uranium. Radon gives off alpha particles too which is why it's dangerous. And the uranium is not waiting 4 1/2 billion years to start decaying. It's decaying every second into a whole stream of daughter products: radon, radium, thorium-230, polonium-210, you name it.

ROGER NELSON:

Joe, you can't shut me up. Kay, at a thousand alpha particles being created by the decay of uranium, per second did you say, or per minute?

KAY DREY:

.... 12,400 per second per gram.

ROGER NELSON:

... 12,000 per second. So all of these alpha particles are occurring and, of course, the reason they're occurring is because that uranium nuclide is decaying into those alpha particles. Now, alpha particles are important, don't get me wrong, but the question at hand is, where is the radon coming from? Radon is coming from what those alpha particles left behind when they decayed. That uranium decayed thorium, actually if it were a uranium-238 molecule or atom, it decayed to thorium-234 and a alpha particle. Now, that thorium-234 has a 1.12 minute half-life and so on the average those thousands of particles of alpha, those thousand of transformations per second that are occurring, also transform into thorium-234 and that thorium-234 transfers by beta-decay to protactinium-234 and that has a half life, no it has a half-life of 27 days, or something like that. And so in 27 days that occurs, But the next is a

protactinium to U-234 decay and that one has a half-life of something like, help me out Steve, another several million years or several hundred million years. And so now, now what do I have? Now we have 10,000 grams per second of U-234 being created. Now, yes, you're right Kay, that one gram of uranium-238 has 10,000 transformations per second into U-234, but now you're only starting with 10,000 atoms. I would bet say that that's about 1 trillionth, of 1 trillionth, of 1 trillionth of a gram of U-234. Now, how many U-234 transformations are going to occur now in the next few days? Very few. Because you have to build up all of those U-234 atoms into equilibrium with the U-238. And the same thing happens with the thorium-230, and the same thing happens with the uranium-226. By the time you get to that point, you have very few atoms left over and you have to wait for thousands and thousands of years for that to grow into equilibrium. At that point, the radon will start being produced in significant quantities and, if it were all in equilibrium, the radon would be decaying at the rate of 10,000 or of how many thousands per second that your were quoting for the original parent. But until that equilibrium is re-established, it won't occur.

SPEAKER FROM AUDIENCE:

That discussion, that argument is accurate okay, and nobody should feel like they're having the wool pulled over there eyes. Okay, I think that's really important to mention. The

issue has come up though that alpha decay is a very serious issue and therefore, particulate distribution plumes and so on and the distribution of U-238, U-234 and whatever else is an alpha emitter into the atmosphere is a real concern, because inhalation of these particles concentrates the uranium in the epithelial tissues of the lungs. And it only takes a couple of tracks of alpha particles through the cell to cause significant mutational damage and, therefore, my concern is the particulate matter, not so much what the nature of the isotopic decay is.

But, I come back again to the real issue that I feel is that we are concentrating sources of alpha emitters closer to the most serious issue which I feel is the children, who are most sensitive and most prone to mutational damage at this stage in their lives. And I share a real concern there. And if we start to see 4, 8, 10, 15 picocuries per liter of particulate matter showing up in the high school, I think we've got a real problem, because kids are breathing that, and its concentrations in epithelial tissues has got to be a real concern.

So, I would really like to see you take two or three percent of your budget and move the school. It seems like a very small number in comparison to your overall budget. You've built in $140 million. Share a little with us and let's move the school. That's overkill, I agree with you. I work with these things all day. I know where you are coming from, but I don't think it's worth the risk.

In the environment that I come out of, where as little kids we sat in the elementary school and we felt the tremors, as the bombs would go off just upwind from, in the Nevada test sites. And as we couldn't go out for recess because the radioactive clouds were coming over town. Frankly, we were being exposed and we didn't know about it at the time, in all of its glory. But then I was working in a hospital a few years later, which was a referral center for that town. I saw a number of my friends come in and die of multiple myeloma and Hodgkins' disease and later brain cancers, all with the appropriate induction periods and all above the baseline levels in those towns. I don't want to see that happen in 15 or 20 years. Maybe, there's statistical issues that we won't be able to deal with, but the fact remains that it's a present concern and a real issue that I think, I'd like to see more addressed in the Environmental Impact Statement. Thanks. You guys, incidentally, are very professional in your approach and I appreciate that. You're very open. I think your sincere and honest in what you're doing. I hope you feel we're the same way, okay.

MODERATOR:

One more question, yes. Oh, I'm sorry.

[QUESTION FROM AUDIENCE]:

I think I missed this somewhere in the translation. I have a question. The statement's been made that you haven't made a decision as to where this nuclear waste will be sent. Okay, but then also the question came up, how many shipments past the Francis Howell High School...[indistinct]... this toxic, containerized chemical situation. Okay, you also said that, one of the gentlemen on the panel made a remark, that, this material is shipped late in the day. My question is, "Where is it shipped to? Why does it pass Francis Howell? Where is it going? And where is the dirt coming from that's going into the landfill down along the ...[indistinct] ... of the Mississippi River?"

STEVE McCRACKEN:

I'm probably gonna miss one of these. I'm not aware of any dirt that is coming from our site that is being landfilled anywhere off of our site. As far as the, where the hazardous material or the containerized chemicals will go when they leave our site, if they are not radiologically contaminated, if they are radiologically contaminated, they will not leave our site. If they are not radiologically contaminated, they will be removed to a permitted hazardous waste disposal facility. It's our feeling that it is a much better thing, where there are permitted facilities to deal with the type of contaminant, that

is where it should go. Give me another one. I think that ... pardon? I think that the ...

Right, the question was, "Will you evacuate the school when you take the hazardous materials by the school?"

The answer to that is: No, we won't. We don't think we have to. We will have in place enough controls to assure ourselves that we can handle any situation that would occur. And all that involves understanding what the materials are that you're going to be shipping, and doing what we call a job safety analysis to determine what are the controls that you should have. So, I talked about that. The material that goes to a permitted hazardous waste disposal facility, where did that go? Eldorado? Ok, I'll let Jack answer it. He knows where they went.

JACK HAMMOND:

The chemicals that left the site so far, the PCBs, went to ENSCO in Eldorado, Arkansas. Some of the non-PCB oils went to PPM, Inc. in Kansas City, Missouri for clean-up and recycle. For instance, the transformers that were now no longer usable that had had PCB oils went to U.S. PCI in Tooele County, Utah. The chemicals that you're talking about, in terms of the containerized chemicals, those facilities are yet to be determined. And it depends upon the nature of the chemicals,

the permitting options of an individual disposal facility, and the kinds of chemicals that they can receive versus the types of chemicals that we find to be present on the site. As I mentioned, this initial effort that's going on with the containerized chemicals is largely to determine exactly what we have, to combine those chemicals into packages and lots, that then can be shipped to licensed or permitted disposal facilities. And that effort is ongoing right now. As we finish that characterization, then we will get a reading from the subcontractor as to what permitted facilities those materials will be going to. And that information then would be made available, when the shipments are going to occur, to the school itself.

MODERATOR:

One last question, yes?

SPEAKER FROM THE AUDIENCE:

Gentlemen, I guess I would like to raise a point of information at this point or at this juncture in the work product that you're developing. The scope of issues, that have been excluded from the EIS and the Feasibility Study, on a operative basis, have they now been severed from further involvement in the development of this document that you're working on?

ROD NELSON:

I don't understand the question.

SPEAKER FROM THE AUDIENCE:

Well, I don't know what the page is, but it's kind of a reiteration of the question that Dr. McDaniel talked about. It's in the Appendix, right. The issues that you have declared outside of the scope of the EIS/Feasibility Study... whatever acronyms we want to use. I have strong concern, major concern, about some of those items being delineated out of this EIS. Particularly, the issue, not only the medical question with regards to the students, but the issue of groundwater remediation in the vicinity of the quarry not being addressed until after the Record of Decision. I guess we're talking about items 3, 5, and 6 and I'm also concerned about what in the world 4 means, whether you read it frontwards or backwards. My ultimate question, gentlemen, is: "If I have an objection to the exclusion of these items from the EIS, is this a moot point now, has by closing this meeting and walking away with this Work Plan, are those items severed from the work that you're gonna conduct from here on out? You must have thought of this before now."

STEVE McCRACKEN:

Let me try to address your questions. As, first of all, as far as medical exams and monitoring of health in the students at the high school, we've talked about that a great deal this evening. Certainly, the folks from the Department of Health are much more able than I am to discuss that, and I think they've done that very thoroughly.

SPEAKER FROM AUDIENCE:

My concern, gentlemen, is not what's being discussed tonight.

STEVE McCRACKEN:

Sir, let me finish my comments and then, if I miss something, you can come back to it.

SPEAKER FROM AUDIENCE:

We will.

STEVE McCRACKEN:

Okay, fine. As far as the remediation of the contaminated groundwater being beyond the scope of the RI/FS-EIS, what we're saying is that there will be a decision made about that

groundwater. What we must first do is remove the bulk waste from the quarry and then go back in and do a decision-making process that will determine whether we've removed the source, and once we determine whether we've removed the source, then you can begin to do those evaluations that would determine whether or not the groundwater at the quarry needs to be remediated. So, yes, there will be a decision made about that. It's simply not a part of the RI/FS-EIS. I mentioned there are a number decision-making processes and that will be one of them. Let's see, the removal of residual contamination at the quarry being beyond the scope of the RI/FS-EIS, again that's the same thing. We must remove the bulk waste. We would then go back in, and we would perform another RI/FS but a separate RI/FS that would reach a Record of Decision that would be a Record of Decision that would be by the EPA and by the Department of Energy on how to deal with those residual materials. You know a lot of what you're bringing up, I think are very good questions, and they're questions that we need to do those things that are required for you to understand what it is that we've got in there. So again, I guess I would repeat what we said earlier that, if you want to meet again to discuss any issues in this document or anything else that we're doing at the site, then certainly we would be happy to do that. Now, go ahead.

SPEAKER FROM THE AUDIENCE:

If I'm understanding you correctly, sir, you're saying that the items 5 and 6 will be discussed and addressed in a subsequent RI/FS-EIS. Is that correct?

STEVE McCRACKEN:

That's correct.

SPEAKER FROM THE AUDIENCE:

My concern is that the issue of urgency is indeed remediation of the groundwater contamination beneath and in the vicinity of the quarry. That is the most critical question now. And we're bucking that off into, past '91.

STEVE McCRACKEN:

I could not agree with you more. And that's the exact reason why we're proposing to treat the water as soon as possible, to then take and remove the bulk waste from the quarry as soon as possible ahead of the Record of Decision in 1991, and then undertake that decision-making process that will determine whether or not we have any work left to do. So the point is we agree with you.

SPEAKER FROM THE AUDIENCE:

The concern is what's already migrating, sir.

ROD NELSON:

We understand that.

STEVE McCRACKEN:

We agree.

SPEAKER FROM THE AUDIENCE:

And you're going to determine that after '91? And then study that?

ROGER NELSON:

No, your timings wrong.

UNIDENTIFIED WSSRAP SPEAKER:

After this process is completed which will be in like '89-'90, then we are free, after bulk wastes are off, then we are free to go back into this process.

SPEAKER FROM THE AUDIENCE:

My concern is why do we need to exclude those from the EIS now?

UNIDENTIFIED WSSRAP SPEAKER:

Just because the ...

SPEAKER FROM THE AUDIENCE:

And what assurance is there that... What assurance is there that a full EIS will be done on that?

UNIDENTIFIED WSSRAP SPEAKER:

Right, but it can start prior to the ROD.

STEVE McCRACKEN:

John, let me just say again, we could not agree with you more. That quarry needs to be expedited, and the plan that we've got here expedites it to the maximum that we can. And so, we're right in there with you. We agree with you and we ought to move out just as quickly as we can to do the things you're talking about. Unfortunately, you cannot reach decisions about groundwater until you understand whether you've removed the source. You can't understand whether you've removed the source

until you get the bulk waste out of there. And then you can go back in and you can determine whether or not you've removed the source or whether there's additional work that's required to get at that residual material. It won't do any good to treat groundwater until after you have removed the source.

SPEAKER FROM THE AUDIENCE:

Well, I think just about anyone can follow that. The question still is, I guess: "What assurance does anyone here or do I as a public official representing citizens is this community have that there will indeed be that kind of full EIS forceable addressing those questions? And that it won't be some lesser form of decision-making process."

STEVE McCRACKEN:

I think that you've got the assurance of this plan and certainly the EPA. I'll let Bob Morby speak to you on that.

SPEAKER FROM THE AUDIENCE:

I'd like to hear this from Bob, I guess.

BOB MORBY:

I think what we did, when we looked at this site, is that we said there were things that needed to be done as quick as we could move along to do some of those. And those were, the concept of the initial remedial actions came about, or initial responsive actions. And so, those are the things that we have come here with plans or asked the DOE to prepare the plans to come and discuss them. Then, we and the State of Missouri have approved those. They're those that we think carried the magnitude that required a Record of Decision. And we have laid that requirement, honestly. You do a Feasibility Study and do that analysis and come here and discuss it. Rather then just doing something in the mid of night, and then come here and you say, "What the heck are you people up to and what have you been about?" So there is a process that we have imposed upon the Department of Energy to go through that. We think, when you read that Work Plan where he has put items in there that exclude, I think you have read it more definitively then it was intended to be read. I don't think there has been any of that put aside and will not be treated as particularly, speaking to the groundwater issue that you reference after the wastes have been removed from the quarry. So, I guess the answer is short. As you haven't missed anything that's going to miss the EIS process or the RI/FS process.

SPEAKER FROM THE AUDIENCE:

I have your assurance, I guess, from EPA's standpoint that those issues...

ROBERT MORBY:

From EPA and Morris Kay, who's the guy who will be responsible for making the decision.

SPEAKER FROM THE AUDIENCE:

That subject will still be part of a future EIS?

ROBERT MORBY:

We have not given that up either in the EIS or the RI/FS.

SPEAKER FROM THE AUDIENCE:

What about the subject that Dr. McDaniel raised?

ROBERT MORBY:

Which one?

SPEAKER FROM THE AUDIENCE:

The health question. The medical question which is number 3 on that listing.

ROBERT MORBY:

I guess as we look at that, as I understand it, and there's a gentleman here from the EIS program (I'm from the Superfund Program), there are some requirements under ATSDR and looking at the health assessment, we've had those individuals come and speak to that. I'll take the comments that were received here this evening back home to that individual, let him understand what your feelings are in that regard.

SPEAKER FROM THE AUDIENCE:

Very good, thank you.

MODERATOR:

You have a question that you would like to address?

SPEAKER FROM THE AUDIENCE:

Yeah, I'd... do you have any way of knowing whether there's a vein of water that might be dumping water into the quarry and

another vein of water that carries it downstream? You might be dumping fresh water into that quarry which you would be cutting off and shut a lot of water off. I don't know if you understand what I mean, you know. Because water does run uphill.

WSSRAP SPOKESMEN:

I always get the sticky ones. I think what you're asking is that, by doing the bulk waste removal, we'll be maybe affecting clean water that's moving through the quarry or near the quarry?

SPEAKER FROM THE AUDIENCE:

You may have a vein of water that's dumping water into the quarry and going through the quarry and spreading it down in Dardenne Creek. I looked at a piece of ground down on Highway 461 and I was told that it was contaminated with, it was radioactive along the creek. And whether this is true or not, but anyway it caused me not to buy the piece of ground.

WSSRAP SPOKESMEN:

Okay, I think...

SPEAKER FROM THE AUDIENCE:

And I've got a witness here with me.

WSSRAP SPOKESMAN:

I think just about everyone from the State Geological Survey ...

SPEAKER FROM THE AUDIENCE:

If that land is not contaminated, then it's called injustice, his piece of ground, because he can't sell it. But it's causing a lot of de-valuation of St. Charles County land, because people are afraid to move out here because of the contaminated water and land.

WSSRAP SPOKESMAN:

Okay, I think everyone from both the State and the USGS and the site staff would agree that the groundwater situation at the quarry is not affecting anything in the vicinity of Dardenne Creek.

SPEAKER FROM THE AUDIENCE:

Well, then he's got the wrong information from somebody, because he told me it was contaminated.

WSSRAP SPOKESMAN:

That may very well be. All of our surveys have not identified any contamination along the Dardenne Creek area.

SPEAKER FROM THE AUDIENCE:

Well, who can I have him contact to clear his ground up to where it's cleaned?

WSSRAP SPOKESMAN:

He can contact the project.

SPEAKER FROM THE AUDIENCE:

Okay, I'll tell him. It will help that part out, anyway. It'll make his land worth a lot more money.

ROD NELSON:

I think one last comment. That is, if somebody thinks that they got a piece of ground that is contaminated on Dardenne Creek, we'd like to know about it and we'd like to see the evidence that that individual's got.

SPEAKER FROM THE AUDIENCE:

Okay, I've got another question. You're talking about the alpha in this one lake. Is that lake radioactive or is it just alpha in there? Is drier weather causing a lot of that or is it radioactive water? Couldn't you drain that and if you get rid of the water, you won't have anymore contaminated alpha? The algae would be gone, if there's no water.

WSSRAP SPOKESMAN:

I believe you were referring to the red algae bloom in the Femme Osage Slough. That had nothing to do with any...

SPEAKER FROM THE AUDIENCE:

Oh, it's not one of the lakes up there?

WSSRAP SPOKESMAN:

No, it's a standing water body on the Weldon Spring Wildlife Area, but it is affected by the Weldon Spring quarry. It is radiologically contaminated, contains contaminated water but the red algae bloom had nothing to do with contamination in that body of water. It's just a naturally occurring condition. I guess that happens when conditions for that type of algae are

right. It will bloom and become that very dense mass like it was.

SPEAKER FROM THE AUDIENCE:

Did the drought have a lot of effect on that?

WSSRAP SPOKESMAN:

I'm not enough of a biologist to say whether that had anything to do with it.

SPEAKER FROM THE AUDIENCE:

Well, the only reason it was to my attention, because I watched the early morning ... at 5:30, they got a farm program on. And they had, a lot of cattle died and they drank this algae water and it killed them. Maybe it's poison, no doubt about it. Killed the cattle. They warned the farmers to keep them out of the ponds.

MODERATOR:

Do you have a question?

SPEAKER FROM THE AUDIENCE:

Yeah, it'll be brief.

MODERATOR:

Please.

SPEAKER FROM THE AUDIENCE:

I do want to thank you for your openness. I see a lot of new faces up there, except for David Bedan. And I see lots of new faces every time we have another public hearing. I see new consultants, new engineers. I see new plans. I've been coming to hearings and studying documents since '79. I remember in 1981, I believe it was, that you all wanted to make a five-state radioactive waste dump at Weldon Spring. I remember when you wanted to dump millions of gallons of untreated radioactive water into the Missouri River. Our Congress people put a stop to that. I just don't know which truth to believe from you guys. I don't know which faces will be up here next, after you screw something up out there. And frankly, you didn't address some of the things that people really are concerned about. I walked through Francis Howell High School with a student from there, an alumnus who had leukemia. She took me to a photograph of her class and pointed out student, after student, after student who had sarcoma, myeloma, leukemia. We heard a

physician from St. Joseph Hospital testify at another hearing before you folks about a high incidence of cancer in St. Charles County. This has been a problem for a long time. You do need to clean it up, but I hope that you do it carefully. I think the very least that you could do is look at your Appendix A once again and try to include some of those things back in the program.

MODERATOR:

Thank you. Well, we...Yes?

SPEAKER FROM THE AUDIENCE:

Just a quicky. How about if I shift gears real good here. I saw a new wrinkle about using the ocean as a dump for some of the wastes in this site. That really struck me as different. A couple of things came to my mind when I thought about that. Something like that, an action like that, would seem to parallel what we have here. Where maybe, sometime in the past, the DOD thought they were out here in the sticks, let's dump this stuff. Hey, the ocean's big, let's dump it. I really think also that dumping the waste from the site like this into the ocean would not speak well of you folks as professionals. Again, the whole idea of let's just check this stuff over here. Since most of the documents that I read show that you guys feel that on-site disposal is the best technique to apply to this

contamination, is this ocean stuff just a smoke screen or what is it?

STEVE McCRACKEN:

To answer your questions, it is mentioned in the, in the document. We don't seriously think that there would ever be any of this material that would be disposed in the ocean. We don't think that could ever be dealt with. It just could not happen. There would be a number of things that the public and other people would have to say that would not allow that to happen.

QUERY FROM AUDIENCE:

Why was it in the Work Plan then?

STEVE McCRACKEN:

John, you want to...

WSSRAP SPOKESMAN:

Well, when we tried to lay out the Work Plan in a broad range of what we think are still feasible. It's feasible to do it. There are a lot of conflicts, I agree. What we have to do is look at all the pros and cons and then logically work our way through it, and I agree with Steve, it's going to very quickly

fall out. We're following the process that EPA has laid out under Superfund. And what they've tried to do is not to overlook anything that's possible. That's what you do, you start with the whole realm and you...[indistinct]... build your way through down to your solution. And that's what we've done.

SPEAKER FROM THE AUDIENCE:

So it's one of the ridiculous ones?

MODERATOR:

Well, I'm going to call us to a close. Is this really pressing?

SPEAKER FROM AUDIENCE:

Yes. I'd like to know how people mail in comments or statements? And to whom and what's the procedure on that? And what kind of real time-line do we have? I appreciate your saying we can always add to it, but will it be possible?

ROD NELSON:

What is it that you want to comment on, in particular? No, no, no, no. I mean is it the Work Plan or ....

SPEAKER FROM THE AUDIENCE:

Yes. How do we include any written comments on the Work Plan?

ROD NELSON:

Okay, the Work Plan is not like an Environmental Impact Statement where we're gathering comments and going to respond to them and that sort of thing. If you have comments, you can send them to us. And, as we mentioned, this is a living document. It will be updated from time to time and we'll certainly take your comments into consideration. You can...

SPEAKER FROM THE AUDIENCE:

Have you got an address?

ROD NELSON:

Yes, there's an address.

SPEAKER FROM AUDIENCE:

Will that be made part of the official record?

ROD NELSON:

Yes, that's correct.

SPEAKER FROM THE AUDIENCE:

Will written comments which are sent by a certain time be part of that in the repository?

ROD NELSON:

Yes, they will go in the Administrative Record file.

SPEAKER FROM THE AUDIENCE:

And that will be in the repository at the High School?

ROD NELSON:

No, it will be in the Administrative Record. There is an Administrative Record on the site, all documents that pertain to this project.

WSSRAP SPOKESMAN:

At the site itself, ma'am.

SPEAKER FROM THE AUDIENCE:

I misunderstood. I though you said that the record of tonight's proceedings would be at the repositories, including the high school.

ROD NELSON:

Yes.

WSSRAP SPOKESMAN:

Under the Superfund law, there's a requirement for the Administrative Record on all the things that are used as part of the decision-making on the site. These letters would be inclusive into that copy.

SPEAKER FROM THE AUDIENCE:

But to the point, would that be separate from oral comments that were given this evening?

WSSRAP SPOKESMAN:

No. Because all the oral comments are on this transcription that we've done and it too goes into the Administrative Record file, as well.

MODERATOR:

Well, I want to thank all of our Federal and State people for coming and I want to commend and thank all of you. If there's one thing that comes from a meeting like this, it is that we need to communicate more effectively. I would hope that the, what appears to be the growing cooperative working relationships between Dr. Garvey's group and many of the members up here, could be extended to include the concerns that we have for Francis Howell School. Without anything further, thank you.