UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
***
BRIEFING ON SITE DECOMMISSIONING
MANAGEMENT PLAN (SDMP)
***
PUBLIC MEETING
***
Nuclear Regulatory Commission
Commission Hearing Room
11555 Rockville Pike
Rockville, Maryland

Monday, October 7, 1996

The Commission met in open session, pursuant to notice, at 2:05 p.m., the Honorable SHIRLEY A. JACKSON, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:
SHIRLEY A. JACKSON, Chairman of the Commission
KENNETH C. ROGERS, Member of the Commission
GRETA J. DICUS, Member of the Commission
EDWARD McGAFFIGAN, JR., Member of the Commission

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:
JOHN C. HOYLE, Secretary
KAREN D. CYR, General Counsel
CARL PAPERIELLO, Director, NMSS
MARGARET FEDERLINE, Deputy Director, Division of Waste Management, NMSS
MICHAEL WEBER, Chief, Low-Level Waste and Decommissioning Projects Branch, NMSS

P R O C E E D I N G S
[10:00 a.m.]

CHAIRMAN JACKSON: Well, good afternoon, everyone.

Today, the staff will update the Commission on the status of the Site Decommissioning Management Plan or the SDMP. The staff last briefed the Commission in May of '95 on this program when I was just showing up, as I recall.

The Commission is provided a detailed description of the program every other year. In this nonreporting year, the Commission receives just a summary of significant SDMP activities, however given that you essentially have a new Commission you should keep that in mind in terms of on-the-spot renormalization of your remarks.

Along with this briefing, the staff has prepared a commission paper, SECY 96-207, that describes the significant SDMP activities and the paper details progress on removing sites from the SDMP and notes that six sites have been removed since May of '95 and five other sites have had decommissioning plans approved. However, the NRC itself is faced with a number of policy issues that I hope we will discuss today, including DOE acceptance of Title II and custody for long-term institutional control and so that is a request to have you explicitly discuss it. And the possible use of a generic environmental impact statement for a number of uranium thorium contaminated sites. And that is also a

specific request. We look forward to hearing the staff's views on these issues.

Finally, let me say that there is a direction-setting issue paper on decommissioning of materials licenses as part of a strategic assessment and rebaselining. The

Commission looks forward to receiving stakeholder comments on this issue at upcoming meetings in Colorado Springs, Chicago and Washington.

Now, I understand that copies of the staff's paper and charts are available at the entrances to the meeting so if my fellow commissioners don't have any beginning comments, Mr. Taylor, please.

MR. TAYLOR: Good afternoon. With me at the table are Carl Paperiello, Margaret Federline and Mike Weber from the Office of Nuclear Materials Safety and Safeguards.

At the last briefing of the Commission on Site Decommissioning Plan in May of last year, there were Commission suggestions and, following those suggestions, the staff will focus today on three specific sites to emphasize the policy, regulatory and technical issues associated with the decommissioning of sites under the Site Decommissioning Management Plan and the staff's involvement with the public in this program.

Margaret and Mike will present the meeting. Margaret will provide an overview and background information

on the Site Decommissioning Management Plan and summarize staff responses to previous Commission direction. Mike will address the current SDMP issues, focusing on those three sites that I mentioned and for which environmental impact statements are currently being developed.

These sites do illustrate the regulatory policy and technical issues that are associated with some of the more complicated sites under our plan. Mike will conclude the presentation with discussion of the common issues for these sites, reliance on long-term institutional controls and the staff's forward view of the program. Margaret will continue.

MS. FEDERLINE: Good afternoon. We appreciate the opportunity to meet with you this afternoon to discuss staff's approach to decommissioning the tens of sites where licensees propose solution to decommissioning falls outside the envelope of the regulations.

Now, the regulations define decommissioning as the release of property for unrestricted use following the termination of a license. Now, less than 10 percent of our materials licensees require this complex decommissioning, primarily fuel cycle and industrial facilities.

Although under controls, routine controls, usually there is not an eminent threat to the public health and safety, these sites do have the potential to have doses in

exceedence of public dose limits, so this is the source of our concern.

Now, the sites present unique concerns with varying degrees of hazard, sophistication of remediation approaches and varying degrees of cost. Now, some responsible parties may not be able or they may be unwilling to commit to decommissioning and so this is another complexity in the process.

Additional complexity comes from litigation that is involved as well as the extensive coordination that is involved with the interested parties. Now, despite the complexity that I have laid out, progress in the program has been steady over the past year. As the Chairman indicated, 11 sites have been removed, six since May of 1995 and this exceeds the goals that we had set for ourselves.

We do have a poster that is very difficult to see, but this establishes our 1997 goals.

CHAIRMAN JACKSON: Could someone lift that up?

MS. FEDERLINE: This establishes our 1997 goals and gives you an idea of where we stand right now. The little pink diamonds represent -- and these are the various components of our decommissioning process so it just gives you an idea of where we are.

We do have 45 sites that are left, though, on the list so we have a lot of progress that we need to make.

Although we routinely consult --

CHAIRMAN JACKSON: Thank you, Mike.

[Laughter.]

MS. FEDERLINE: Although we routinely consult with the Commission when we terminate a site from this list, we thought it was appropriate today to discuss these technical policy issues with you and get your ideas on any other approaches that we should be considering.

Could I have Slide 2, please?

[Slide.]

MS. FEDERLINE: Today, I will briefly discuss the background of this program, I will discuss the previous briefing and Commission direction, what activities we have taken to respond to the Commission direction and I will summarize the current issues that are facing us. Then Mike Weber will discuss some example cases and get into the technical, regulatory and policy issues for each of these specific cases. Then we will summarize how we see moving forward in this program.

Could I have the next slide, please? Slide 3, please?

[Slide.]

MS. FEDERLINE: Thank you.

The SDMP program has largely been initiated in response to Commission and congressional reviews. Back in

1989, there was a review of NRC's decommissioning procedures and criteria and GAO reported that certain sites had not been decommissioned appropriately and that the decommissioning process had taken too long. In August of '89, there was a House subcommittee hearing and the Commission committed to improve its decommissioning process and provided direction to the staff to develop a site decommissioning management plan which is summarized on this slide.

The Commission approved the plan in March of 1990 and it incorporates the three components that I have listed here on the slide. First, it identifies the contaminated sites requiring additional NRC management attention, it attempts to identify the policy and legal issues that we believe have impeded speedy decommissioning and it presents a program management approach to resolve the regulatory and legal issues and to oversee site remediation.

Now, as the Chairman mentioned in her opening remarks, we do provide a biennial update to the SDMP plan. This is a complete revision of the plan. On the alternative years, we provide you a summary of just the activities that have been conducted to fulfill the plan.

May I have the next slide, please?

[Slide.]

MS. FEDERLINE: Remediation continued to lag in

1990 and 1991 and the Commission felt that it would be important to establish an action plan to compel timely cleanups. So in April of '92, the Commission approved the Site Decommissioning Management Action Plan. This identified the interim release criteria that would be in place until a rule could be put in place. It also stated the objectives for timely remediation. And another important aspect was it confirmed finality. It ensured licensees that if they decommissioned to an approved decommissioning plan, the Commission would not come back and revisit this decision.

In 1992, there was additional congressional interest in the program. The Senate Governmental Affairs Committee held a hearing and they focused on their dissatisfaction with EPA in putting appropriate standards into place and, at that point, they acknowledged the additional effort that staff had been putting into completing the decommissioning program.

But in 1994, the General Accounting Office reported on a review that they did in 1993 saying that there was slow progress being made in the decommissioning program and they acknowledged the increased efforts that the Agency was putting into the program but they noted issues that are really outside the control of the Agency. Those are litigation concerns, coordination issues. They noted sites

that couldn't meet the unrestricted release criteria and they also noted the limited availability and high cost of off-site disposal.

So with that as a backdrop, the staff last met with the Commission in May of 1995 and we have taken numerous actions to respond to the Commission direction following that meeting. We have evaluated the continuity of project management, we have evaluated the business process reengineering, we have consulted with the ACNW on the regulated community and we have implemented program improvements described in the '95 SECY paper.

Because of time, I will just touch on one or two of these. In the area of evaluating continuity of project management, we provided a memo to the Commission in late 1995. We did evaluate the turnover of our project managers

in the decommissioning program and that we concluded our assignment criteria were appropriate but, as with any program, as the program matured, the people got rotational assignments, they were promoted into other positions and the turnover was really, we felt, a result of the maturing program. But we wanted to look further.

Although you can expect some turnover, we felt it was important to look at the management tools and the training that could perhaps provide a bridge over any staff turnovers that were occurring. We did put in place a Site

Decommissioning Management Plan database which allows us to track the commitments and track the next actions despite turnover of project managers.

CHAIRMAN JACKSON: Has there been any turnover since that, since December of '95?

MR. WEBER: Yes.

CHAIRMAN JACKSON: And how many sites have been affected by that?

MR. WEBER: I can't give you a specific number but I know that there has been, even in my own branch, turnover where project managers have been assigned to other projects and in some cases they've come back and in other cases they haven't come back.

CHAIRMAN JACKSON: So what impact does that have on the work at the sites?

MR. WEBER: What we try to do is manage that turnover so that we minimize those kinds of impacts. We hopefully work the new project manager and the old project manager together for some time so that there is a turnover of useful information, commitments, assignments. We have tried to mitigate, to the extent we can, through management of that activity so there is continuity in the direct supervisor for those activities.

CHAIRMAN JACKSON: Have you, in fact, verified that there is minimal impact?

MR. WEBER: We believe that there is minimal impact but we often hear from the licensees concerns about new project managers coming on board, concerns that it is delaying the turnaround time on some of the reviews, the decommissioning plans, things of that nature.

MS. FEDERLINE: One additional aspect that we put into place is a decommissioning manual chapter and this provides guidance from soup to nuts on how to conduct a decommissioning and a decommissioning review, just to ensure that if a project manager is newer, that there will be a continuous source of guidance and we feel that that is going to be very effective. That will go into place very shortly.

CHAIRMAN JACKSON: I think it is important that you, in fact, track what the impact is. Otherwise you have no basis for judging the effectiveness of the bridges and not unduly affecting progress at these sites.

MS. FEDERLINE: Next, I will just touch upon the implementation of program improvements that we described in our '95 SECY paper. We felt it was important to promote a more focused review of the site characterization data with the decommissioning plan and so we have now, as -- we used to do those in series. Now we do them in parallel to make sure that any review of site characterization data is conducted in light of the decommissioning approach that is planed to be used at the site. And we really feel that this

gives us a more focused review.

Another respect, and this was one that ACNW picked upon, was the importance of confirming that contamination has, in fact, been released.

What we have done in the past is highly dependent on our confirmatory survey program. What we would like to do is enhance confidence in the licensee's own measurement program and so we have put into place some additional QA measures, we're doing some end process inspections that allow us to develop confidence in the licensee's process, and therefore, we can back off on our own confirmatory measures program.

CHAIRMAN JACKSON: Before you go on, I think also the ACNW had recommended that in terms of how you prioritize the sites, that you try to quantify your approach to that as much as possible.

I think back in May I had asked you a question about how well you'd been able to quantify the risks and fold that into your prioritization. Have you been able to do any of that?

MS. FEDERLINE: Yes, we have made some progress in that area. We've developed a hazards prioritization system which we are applying to the terminated license reviews. This actually gets into the risk posed by those sites and the immediacy with which we deal with them in our program.

14

We're also implementing --

CHAIRMAN JACKSON: So you're saying, you, in fact, then do use them to prioritize?

MS. FEDERLINE: Yes, we do.

We're also developing a screening methodology to review the sites where previous disposals had occurred. The Commission had directed us to give some scrutiny to those sites at the time the facility was decommissioned and what we've defined as a process for risk significance as to whether any additional action needs to be taken at those sites. So we are moving in that area.

CHAIRMAN JACKSON: Have there been any where you've come back and decided there is need for additional action?

MS. FEDERLINE: Yes. Let me ask Mike to address that in detail.

MR. WEBER: In terms of the risk posed by the contamination?

CHAIRMAN JACKSON: No. The Commission -- I thank Dr. Federline for bringing that up -- in fact, did ask that the staff look at sites where previous disposal had occurred and reevaluate in terms of risk, et cetera, or as you would say, hazards prioritization.

The question is were there sites you found where there, in fact, was need for additional action. If so,

15

what's been done?

MR. WEBER: Absolutely. We're in the front edge of the application of that screening methodology that Margaret referred to. In fact, we haven't published that yet for broad use by the license community, but we have been applying the same sort of methodology.

We've applied it, for example, at the University of South Dakota where we found in that case it was suitable to release the former disposal because the contamination didn't pose that great a risk.

In other cases, however, like the sites we'll be talking about today, if you applied the methodology, you will find that they have enough inventory, enough activity, to pose significant risk such that this kind of high level review is appropriate.

CHAIRMAN JACKSON: I guess what I'm also trying to get at is whether you think there's any vulnerability in terms of having any significant number of previously disposed of sites having to be reworked in some way?

One is thinking about it both from a policy perspective in terms of the application of the methodology but also a resource perspective in terms of what this is going to look like going forward relative to those things already on the list.

MS. FEDERLINE: Right.

16

CHAIRMAN JACKSON: I haven't quite --

MS. FEDERLINE: We feel that we need a method so that we focus our resources on those sites that are most important. We feel, between the hazards ranking method -- we feel we have a pretty good handle on the sites that are existing on the SDMP.

The wild cards are the terminated license reviews and we feel like we have hazards methodology that we are applying there.

CHAIRMAN JACKSON: So you're saying with respect to the already terminated licenses, you're just now beginning to apply these screening criteria?

MS. FEDERLINE: That's correct.

CHAIRMAN JACKSON: So in x months, you'll have a better handle on just how large the issue is? Is that a fair statement?

MS. FEDERLINE: Right. Yes.

CHAIRMAN JACKSON: So when do you think you'll have your hands around that?

MS. FEDERLINE: I would think it will probably take us an additional -- in terms of the terminated license reviews, we've got about 7,000 more of those to go. We already have identified sum six additional sites that will be put on SDMP, but it will probably take us the rest of the year to complete the terminated license reviews and have a

full appreciation for what the impact might be.

CHAIRMAN JACKSON: So next spring, say March, you could be providing by March a report to the Commission on the status of that review of the terminated licenses?

MS. FEDERLINE: Yes.

MR. WEBER: Yes. I wanted to amplify a little bit what Margaret said.

In addition to the terminated license reviews, we also, of course, anticipate that the timeliness rule will stimulate licensees to submit notifications like these former burials. So you really have, now, two different populations to deal with.

The timeliness rule does not, itself, apply to formerly licensed facilities, but it does apply to licensees that currently operate and have these unused outdoor areas or formerly used buildings.

I think by next spring, we'll have insights into both the old burials as well as the application of the terminated licenses.

We have, as a first step in applying that hazards methodology, applied it to sites that were identified as being contaminated as part of that terminated license review.

We went through and we wanted to correlate the scores they got through the Oak Ridge ranking system versus

what we believe the relative risk may be. So we're trying to benchmark our systems so that we can have some confidence when they do identify a site with a fairly high score that indeed, it is a site that warrants more attention.

CHAIRMAN JACKSON: This is the kind of question or it retracts into the kind of question that Congress is particularly interested in.

MS. FEDERLINE: Yes.

CHAIRMAN JACKSON: In terms of how we are working off the problem, and you mentioned finality and this is part of that process.

MS. FEDERLINE: Right.

CHAIRMAN JACKSON: Commissioner Dicus?

COMMISSIONER DICUS: With both, some sites might be added to the list in the foreseeable future because of the work we're doing on the terminated license, together with any sites we might have already released thinking they were decontaminated or they didn't need to be contaminated when found out they do.

Who is accountable for cleaning up these sites, particularly some of these, the licensee obviously no longer exists, the company is gone, the people are gone?

I think there is a process in place, but I need --

MS. FEDERLINE: Our first intent is if there is a licensee, then the licensee is the responsible party and we

attempt to recover.

If there is not a licensee in place, then we attempt to go after the current responsible party.

MR. WEBER: The propertyowner in most cases.

MS. FEDERLINE: Yes.

CHAIRMAN JACKSON: What tool do we have, what enforcement tool do we have?

MR. WEBER: My understanding is if somebody is in possession of source special nuclear by-product material, that if we have an adequate safety basis, can issue orders, for example, to compel action.

MR. TAYLOR: That was an action we took, I can't remember the exact date. We knew we needed incentives to get site cleanup, so we presented a program some four or five years ago during a period of some of the matters that Margaret mentioned of an approach, and the Commission approved using enforcement orders and certain -- I can't recall the specific amount -- civil penalty levels which would be accrued separately for ultimate use of decommissioning.

I think perhaps one or two of you remember those policies that we presented to the Commission.

We actually, to the best of my knowledge, have issued one order -- isn't that right?

MS. FEDERLINE: We issued an order to Chemetron.

MR. TAYLOR: Chemetron. With regard to the rest of the work that's been going on where there are licensees, we've been able to work and try to get sites cleaned up. There's quite a list that we've gotten off the list and

gotten acceptable release criteria and we hope finality, so those policies are still in place.

We knew when we asked for that authority and decided to do it, that we hoped we didn't have to do it. That was a very important act by the agency. The issuance of that one order was a very important action. It was Chemetron in Ohio.

CHAIRMAN JACKSON: Do you think it tended to accelerate things?

MR. TAYLOR: I think it has, but I think it helped us to make progress.

CHAIRMAN JACKSON: Good.

MR. TAYLOR: Showed we mean business. Many of these sites have been around a long time.

MR. WEBER: I'm reminded also, we did issue a confirmatory order in the case of the Pawling site in New York. No order was negotiated with the parties, but that was one mechanism that we had to establish a suitable remedy for the contamination at that site.

MR. TAYLOR: A slightly different order, but it was to accomplish a cleanup.

MR. WEBER: The Commission's general expectations in the area were laid out in that 1992 action plan. There's a whole section in there on how we ensure or compel timely remediation.

CHAIRMAN JACKSON: Okay, thanks.

MS. FEDERLINE: Next slide, please.

[Slide.]

MS. FEDERLINE: SDMP sites warrant a special oversight and management attention because of a complex mix of technical issues, regulatory issues and policy issues. Among these are the importance of public involvement.

We believe the staff efforts to involve the public, though they are extremely timeconsuming and resource intensive, are extremely important.

I've been out to some of these sites and have seen the proximity of homes to some of these sites and it's very understandable that people would want involvement in the process, and we've been trying.

One way that we've been doing that is through, for the most highly contaminated sites, developing environmental impact statements. There are environmental impact statements underway on all of the sites that we'll be discussing today and we can illustrate how that process, we believe, provides some transparency and consideration of options for disposal.

The three sites we've chosen today, because of the diversity of SDMP, are not necessarily representative of all the sites because the conditions do vary widely among the sites.

They are illustrative of the complex issues that face us when we address any one of these sites. That's why we thought it would be useful to walk through them with you.

No one common issue that you'll notice as we walk through those sites is the potential need for institutional controls at these sites, and this is historically different than NRC's regulatory approach in the past.

Our general approach has been to establish an unrestricted level that we can walk away from, and for the vast majority of sites that is achievable and reasonable because it does not incur the long-term monitoring costs that would be present with institutional controls, but for the highly-contaminated sites it does in some cases make sense to consider institutional controls and we are doing that as part of the residual radioactivity criteria rule.

Let me now turn it over to Mike, who is Chief of the Low Level Waste and Decommissioning Projects Branch.

I also want to introduce the project managers who are on the front row. We have Jim Kennedy, who is the shieldalloy project manager. We have Jim Shepherd, who is the Sequoyah Fuels, and we have Heather Astwood, who is

project manager for the Parks Township site.

CHAIRMAN JACKSON: Before you begin, Mike, I have a question I want to ask you about the SECY paper.

In 96-207 you indicate that the Staff is also evaluating the feasibility of a generic environmental impact statement.

MS. FEDERLINE: Yes.

CHAIRMAN JACKSON: And addressing the onsite disposal of uranium thorium waste, and you talked about,

what, I think 10 to 20 sites that would be affected, and there are various obvious resource and regulatory benefits.

The question has to do with are there vulnerabilities? I mean based on your experience at -- your past experience with respect to decommissioning sites, how accepting would you anticipate the public would be, have you looked at the legal issues, and is there enough commonality over the 10 to 20 sites with respects to geology, hydrology, extent of contamination, proximity of residential areas, et cetera, that you really believe that -- or am I asking you this too soon in the process?

MR. WEBER: Good questions.

CHAIRMAN JACKSON: But what I'll then do is, if they are good questions and you would not like to answer them, you will get them as part of the SRA.

[Laughter.]

MS. FEDERLINE: Well, let me just start, and Mike can continue.

We are just at the onset of that. We felt it was necessary to do a range of these sites before we contemplated a generic, so we have really not embarked upon the generic assessment yet and we have considered all of the issues that you brought up.

There is diversity and complexity among these sites and it could be very difficult.

CHAIRMAN JACKSON: Okay.

MR. WEBER: We have developed a task plan to develop the generic environmental impact statement.

The first phase of that is the feasibility analysis.

Of what we have seen so far, or let me take a step back, when we described our intentions in last May's briefing as well as in SECY 95-209, we said we wanted to complete draft environmental impact statements on several of these sites that we will be talking about today.

I think we had hoped to complete three drafts before we initiated the generic environmental impact statement.

As Margaret pointed out, the intent was to see how much similarity is there in terms of the alternatives available, in terms of the impacts that may be associated

with the decommissioning actions.

I would think from our interactions at the three sites that we are -- in the four sites that we are developing EIS's on now that if a generic EIS were pursued the public would want some other process that they could be involved in in the implementation of the results of the GEIS.

CHAIRMAN JACKSON: Right.

MR. WEBER: I think there would be a lot of concern if we did that and excluded the public from having a meaningful voice in the process, so that would be something we would have to look at in terms of moving forward with that plan.

But we did think if we do find sufficient similarity there that it only makes sense to try to address this issue generically and not continue to piecemeal it, and that is what we have got to weigh -- what are the tradeoffs with that generic approach.

CHAIRMAN JACKSON: And I guess your SECY paper also indicated that onsite disposal of material at those sites requires an exemption from our existing regulations --

MS. FEDERLINE: Yes.

CHAIRMAN JACKSON: -- supported by NEIS, and the question is, is there anything or are you far enough along to say whether the regulations themselves perhaps need to be

changed instead of granting a number of exemptions or are you going to be evaluating that as part of your --

MS. FEDERLINE: Well, we are considering that as part of the residual radioactivity rule and generically implementing standards we would be able to look and say for a few very highly contaminated sites institutional controls might be allowed.

CHAIRMAN JACKSON: And so that would require regulatory change, right?

MS. FEDERLINE: Yes.

CHAIRMAN JACKSON: That is an interesting issue.

MS. FEDERLINE: It would be desirable.

CHAIRMAN JACKSON: Right, okay, thank you.

MR. WEBER: If we could have the next slide,

please, Slide 7.

[Slide.]

MR. WEBER: The first slide I'll be talking about is the Parks Township shallow land disposal area. That is the initial SLDA.

There is also a Parks Township operating facility that is immediately adjacent to the SLDA and we have to keep the two separate.

I think the Parks Township site is a good illustration of some of the technical issues that we are working on. Now all these sites have technical regulatory

and policy issues but this one particularly is useful in illustrating some of these technical issues.

The site is located in Parks Township, Pennsylvania, and that is about 30 miles northeast of Pittsburgh. It covers -- the entire land area is about 114 acres, but out of that only about 1.2 acres actually are occupied by waste trenches.

The trenches are illustrated on that photograph, that oblique area photograph aside of Margaret, and I have illustrated on that with while tape one of the trenches so you can see that it's one trench in a cleared area.

There are additional trenches there and you will see that in the map in the next diagram.

Now these waste disposal trenches were constructed back in the late 1950s through about 1970 to take wastes that were generated at the Apollo nuclear fuel processing facility, which is just downstream -- or upstream.

NRC or at the time the Atomic Energy Commission had a regulation on the books, 10 CFR 20.304, that authorized disposal of radioactive waste provided certain limits were met, and that disposal did not require prior site specific authorization by the Commission and in 1981 NRC rescinded that regulation because it encountered various problems with those prior disposals and it felt that it was more appropriate to approve them on a site specific basis.

The burials at Parks as I mentioned took place between 1959 and about 1070. The site has some rather undesirable features. One is that it is rather close to residential areas. If that aerial photograph had a slightly larger area, you would be able to see just off the slide homes. The town of Kiskimere is located in close proximity of the site.

Last year we showed a video to the Commission at the Commission briefing and I believe you saw some of the homes in that video.

It is also located above shallow groundwater and the immediate residents use groundwater.

Finally , it is above a deep coal mine. About 80 feet down is mined out area where coal had been extracted about a century before or so and now you have all the problems that are associated with line collapse and subsidence.

Go to the next slide, please.

[Slide.]

MR. WEBER: This next diagram is a map showing you the general location. The blue is the Kiskiminetas River, which flows from the bottom of the slide up towards the top. The black area is the general outline of the site. The orange dot which is just to the upper left of that black area is the active Parks Township operating facility and

across the river you see something labelled KVWPCA -- that is the Kiski Valley Water Pollution Control Authority.

They unfortunately find themselves in possession of a sewage lagoon that contains sewage ash with about 3 curies of enriched uranium in it.

This we believe came from the discharges that occurred legally from the Apollo facility over the years.

Could I have the next diagram, please?

This is a blow-up of the area and the blackened areas represent the trenches themselves.

You can see that on the northern part of the site there is a dry run. It's an intermittent stream and then there is a cluster of about nine trenches to the right and one trench to the left.

Trench 1 is the trench that is outlined on the aerial photograph that you have before you and I didn't show all the trenches because it would get a rather busy picture.

In addition, there is Trench 10, which is down closer to the operating facility.

The houses that I mentioned earlier are just to the south of that road that is along the southern boundary of the site.

Could I have the next slide, please?

[Slide.]

MR. WEBER: Now as I mentioned, the waste that is

located in those trenches originated from the nearby Apollo fuel processing plant and principally the wastes were residues from uranium processing where various wastes have been treated to remove the enriched uranium because the uranium had value.

In addition to the uranium, which is in both highly enriched and low enriched forms, there's naturally occurring or natural enrichments of uranium, thorium polychlorinated by phenols and various volatile organics, so you can see that both we, the NRC, and the state, Pennsylvania Department of Environmental Protection, have interests in the successful remediation of the trenches.

The trench volume is about 600,000 cubic feet of contaminated waste and soil, and in total we estimate about anywhere up to 6 curies of uranium in the trenches.

There is some uncertainly and that is one of the technical issues that I will get to later.

COMMISSIONER DICUS: Quick question.

The PCBs and the organics, are they mixed in with the other or are they separate as opposed to mixed waste --

MR. WEBER: Yes, as best we can tell, they are intermingled.

Of course, the controls that were in place at the time this waste was placed were a lot less than you will find today at operating facilities.

Although this material has been there for several decades, to date we have noticed no offsite contamination of groundwater or surface water.

There has been some limited migration of both radiological and chemical constituents but when I say "limited" it's on the order of a few tens of feet from one of the trenches, at least for the uranium.

The next slide, please.

[Slide.]

MR. WEBER: The licensee in considering what alternatives would be appropriate at the site identified three principal alternatives.

One is disposal offsite. That is by far the conventional decommissioning route where all the contamination down to release levels is removed from the site and taken off and disposed of at a licensed facility that may be licensed to receive radiological waste or chemical waste by EPA or a state or in some cases a state agency that may have authorized both chemical and radiological waste disposal, mixed waste disposal.

Another option that was considered was exhumation of the waste, treatment of the waste and then disposal or stabilization of the waste onsite -- so-called SOS option.

Then finally there is stabilization in place. Stabilization in place is the licensee's preferred approach.

That is what the licensee has proposed in addition to assessing these other alternatives.

Thus, they would stabilize the material where it is in trenches by placing an engineered cover on top of it and then constructing various engineered groundwater barriers to provide long-term protection of the groundwater immediately beneath the site.

These groundwater barriers could include, for example, grout curtains, slurry walls, and hydraulic control borings, all of which are intended to provide long-term protection of the groundwater.

Of course, the questions with this arise how long are these going to work, how effective will they be, and who might be required to maintain them in perpetuity, as long as the waste poses a hazard.

Thus another option or another provision in the proposal is to institute some sort of long-term land use restrictions and institutional controls to maintain these barriers to provide protection.

The existing regulations, as we talked about before, certainly point to unrestricted release as the endpoint for decommissioning, and if the waste trenches were disposed of or stabilized where they are, of course, that would be a different end point. Thus, we initiated the

environmental impact statement to consider the alternatives

as well as the impacts.

Go to the next slide, please.

[Slide.]

MR. WEBER: This background lays the discussion of some of the key technical issues. We need to resolve these issues as part of the development of the environmental impact statement. We also need to resolve the issues in actually authorizing the decommissioning, and that would follow after the record of decision on the environmental impact statement. One of the key technical issues is potential reconcentration of the enrichment uranium into a critical mass.

CHAIRMAN JACKSON: Is that real or hypothetical?

MR. WEBER: Well, that's what I'm going to get to. There is sufficient mass inventory in the trenches to form a critical mass and so what we're talking about here is the potential long-term concern that somehow the uranium would be soluabilized or leached from its waste form, transported to some distance, and then reconcentrated through precipitation or absorption into some form that would be a critical geometry and thus, give rise to the uncontrolled criticality.

CHAIRMAN JACKSON: You have mentioned that this had been around, some of this, for a while. Do you have a good handle on what has prevented this kind of

reconcentration into a critical mass heretofore?

MR. WEBER: Time is one important factor. We estimate that it would take tens of thousands of years, if not longer, for this process to work in order to get sufficient reconcentration.

We've conducted a thorough review of this amongst the staff and we recently concluded that although it's conceivable or possible that you could have a reconcentration, the likelihood is extremely remote and therefore, it doesn't deserve additional consideration as part of the EIS development.

So we've satisfied ourselves that it's so remote, so unlikely that it doesn't warrant additional review at this time.

We will have to, at the time of licensing, again revisit this in terms of a safety evaluation. That may require additional review of this issue.

CHAIRMAN JACKSON: When you do that safety evaluation, do you intend to apply some kind of a risk-based methodology not unlike what you might even be looking at at a repository, for instance?

MR. WEBER: The dilemma that we have in these kinds of assessments is getting a handle on the probabilities. First of all, there's great uncertainties, as you can well imagine.

The waste forms are heterogeneous, there's various wastes in there. We'd have to estimate how likely are all these different factors that would have to align themselves in such a way that you would have sufficient reconcentration.

That's our challenge. We're not thinking at this time about a full-blown PRA-type approach, probablistic risk analysis, but certainly, we will have to quantify, to some extent, or use some qualitative basis to estimate what those probabilities are.

That's what we've done to date in developing the conclusions we've reached, but certainly we may have to take that a step further in response to public comments, as well as in our response to our need to satisfy ourselves in the safety evaluation process.

CHAIRMAN JACKSON: It strikes me that if you're doing a safety evaluation, that's essentially what you are doing, trying to get your hands around those probabilities.

MS. FEDERLINE: Yes.

MR. WEBER: Yes.

COMMISSIONER McGAFFIGAN: How much HEU are you talking about? Is that classified?

MR. WEBER: No, no, it's not classified; it's part of the public record.

The next issue is source term characterization and

that's there for a key reason, because there is uncertainty about how much HEU is there.

I believe the estimates that I had were anywhere

from one to three tons of enrichment uranium in the trenches. So you have certainly enough, well enough, have a critical mass, but the question is, when that is distributed throughout 600,000-plus cubic feet of waste, when you have to rely on various mechanisms to both dissolve and reconcentrate the uranium and transport it and the right geometries, it's a rather iffy proposition.

CHAIRMAN JACKSON: It's iffy all around.

MR. WEBER: The third issue is groundwater protection.

As I mentioned before, there is shallow groundwater nearby; people use the groundwater to a certain extent. There are nearby users and thus, we would seek and the licensee and the community wants a high confidence that if the waste were to be left in place, it would not pose an unacceptable hazard to the groundwater.

If you rely on institution controls and you place a suitable cover on top of the waste, groundwater becomes one of the principal, if not the principal, pathways through which human exposure could occur over the long term that would be of concern at this site.

Therefore, we are closely evaluating the

licensee's technical demonstrations in terms of the durability and the institutional controls, as well as the engineered controls, that are designed to provide long-term protection with the groundwater.

Could I have the next slide, please?

[Slide.]

MR. WEBER: The near-term schedule for resolving these issues is laid out on Slide 13. We are, I should mention, cooperating fully with the Pennsylvania Department of Environmental Protection.

We signed a memorandum of understanding with them on the cooperation for remediation of all the SDMP and related decommissioning sites within the Commonwealth of Pennsylvania this past summer.

They are an active participant in our review. They are participating in our development of the environmental impact statement and they have certain interests with respect to not only the radiological constituents, but also the chemical constituents.

We believe that a coordinated, government response in this case makes the most sense and that is the reason why we are cooperating so closely with them.

Our plan is to publish the draft environmental impact statement in March of 1997. That is a slip from what we had previously forecast, the reasons being we had some

delay in resolving this criticality issue.

We are also, as I mentioned, cooperating with the State, just allow enough time to get our comments resolved with our contractor, with the NRC staff, and with the Commonwealth. That's pushed the schedule out to March of 1997.

We have, as Margaret mentioned earlier, initiated some special public involvement activities at these three sites. We have what we call a public information roundtable which includes stakeholder representatives of all the different interests in the vicinity of the sites.

We would allow a 90-day comment period on the draft EIS and we intentionally schedule the public meeting on that draft EIS well into that comment process, so that we allow people time to read the document, become familiar with what we're saying, ask questions, and then make their comments known to us, but also give them some time after that meeting to refine those comments or supplement those comments as part of the public comment process.

We would hope to publish the final EIS early in 1998 and a review of the decommissioning plan would occur shortly thereafter.

COMMISSIONER McGAFFIGAN: Will there be a preferred alternative expressed in the EIA?

MR. WEBER: Yes, there will be. I think it's

NRC's practice to identify a preferred alternative. We did so with the Shield alloy site. We concluded that there were no obviously superior alternatives for that site, and I'll get into that in a little bit.

COMMISSIONER McGAFFIGAN: You hinted earlier that one of the themes today is going to be institutional control. Is institutional control of the site likely to be the preferred or is that something that's --

MR. WEBER: That's the licensee's proposed alternative or that's one of the components of the licensee's proposed alternative, so that is one of the issues we'll have to deal with as part of the EIS.

COMMISSIONER McGAFFIGAN: Is there any constraint? You mentioned earlier that regulatory changes would be needed to use institutional controls. Is that a constraint on the EIS process or is that something that can work in parallel?

MR. WEBER: I think it's something we are actively resolving in parallel. We'd like to identify a number of mechanisms that may be useful or valid to provide for the long-term institutional controls necessary.

Our hope, as we move forward also in parallel with the development of our final rulemaking on the residual contamination criteria, is that we would be able to identify some off-the-shelf, institutional controls that at least

could be used as a starting point for tailoring and applying on these specific sites.

MS. FEDERLINE: Let me just add before Mike goes on, as you've noted, we've addressed the technical issues that relate to Parks Township. There are also policy and regulatory issues that apply to this site, but because of time, we opted to feature only one set of issues for each site.

MR. WEBER: If I could have the next slide, we'll turn to our next site which is the Sequoyah Fuels Corporation site in Gore, Oklahoma.

[Slide.]

MR. WEBER: We're using this site to illustrate some of the regulatory issues that we face with some of the more problematic SDMP sites.

This site is an 85-acre, industrial area on a 600-acre site. It's located about 75 miles southeast of Tulsa, Oklahoma, just outside of Gore.

This site, you may be familiar with, processed uranium concentrate to produce uranium hexafluoride. They also processed uranium tetrafluoride to convert back into a more stable form.

The licensee is currently unable to provide conventional financial assurance, which is one of the regulatory issues that we typically face at this site. That

exacerbates the difficulty in finding a suitable remedy for the contamination that is at this site.

I'll be describing how much contamination is there and what the likely remedies are going to be, at least as proposed by the licensee.

To illustrate this, if you take the existing volume of waste that's at that site and multiply by conventional waste disposal fees, the cost to remediate the site for waste disposal alone, for off-site disposal, ranges anywhere from hundreds of millions of dollars to upwards of a billion dollars or more. When we're dealing with a licensee that has limited financial assets, that certainly makes this something of a problem.

The licensee is also required to remediate the site in accordance with an Environmental Protection Agency-issued order for hazardous waste under the Resource Conservation Recovery Act Program. So we are cooperating closely with EPA.

Like Parks Township and Pennsylvania site, we have a site-specific MOU here for the Sequoyah Fuels facility. That was signed a couple of years ago and we're actively implementing that to ensure that we provide a coordinated government response to the site.

COMMISSIONER DICUS: Let me ask a question about that.

This remediation under EPA, does that require removal of the hazardous waste or simply stabilization, since we're looking at maybe on-site disposal here as well?

MR. WEBER: Much like our program, EPA is on the front end of those decisions and so they are leaving open to various different options. They are going through a phase process, so they've recently completed site characterization and a little bit later on, I'll get to the specific next steps. You can see that we're moving through the process in tandem.

COMMISSIONER DICUS: It might be fair to say that some decisions or is it fair to say, let me put it in the form of a question, that some decisions we might make

regarding this site would be influenced by what EPA does?

For example, if EPA decides that the waste needs to be removed, will that influence our decision and vice versa?

MR. WEBER: Certainly, it could. That's one of the reasons why we cooperate with them. One of our concerns is, frankly, if that is required, what impact would that have on the licensee's ability to remedy the rest of the site.

COMMISSIONER DICUS: Exactly.

MR. WEBER: So both EPA and NRC recognize that we're dealing with a finite pot of resources and we need to

cooperate to ensure that's used in the most protected way for the public.

MS. FEDERLINE: One of the important things here is that we develop our environmental impact statement in the same time frame that EPA is developing its documents as well. That way, we get a time sequencing approach. If either agency raises a problem, we'll know about it in a time frame that we can do something about it.

MR. WEBER: Unlike our process, they are not constrained to an EIS development, so to some extent, they are a little bit lighter than we are in terms of moving forward, so we've got to really do our best effort to keep in parallel with them.

MR. REITER: Just on this question of resources, how far can NRC reach within the corporate structure that Seqouyah Fuels --

CHAIRMAN JACKSON: The Commission can't discuss the --

MS. CYR: That is the subject of an ongoing litigation. The Commission staff issued an order and various pieces of it are pending currently before the Commission and boards.

MR. WEBER: Could I have Slide 15, please.

[Slide.]

MR. WEBER: I mentioned earlier I'd give you some

estimates of extent of contamination at the site. There's about more than 7 million cubic feet of radioactive waste at the site in the form of building soil, contaminated equipment.

There were also, much like the Parks Township site, former burials under 20.304 of our regulations, and the contamination here, unlike Parks Township, is not enriched, it's natural isotopic ratios for the uranium.

There is some radium also at the site as bleed through as part of the uranium hexafluoride process. Approximately 9 million gallons of raffinate sludge still exists in the ponds at the site from a solvent extraction process and there you have uranium, radium and various chemical contamination. Those ponds contain about 35 curies of uranium.

All told, there's at least 122 curies of uranium at the site and the licensee estimates that's in excess of 181 metric tons of uranium. There's additional uranium that is still in the facility itself and so you're probably looking at something on the order of 200 or so tons of uranium at that site.

There's also significant uranium groundwater contamination and contamination of the groundwater by nitrate and arsenic. That's one of the things that EPA is concerned about. There is some migration of that

contamination.

CHAIRMAN JACKSON: How stabilized is this site?

MR. WEBER: It is under the control of the licensee. There is a fence around it, but the contamination continues to migrate in the groundwater.

One thing that works for the licensee is there are no near distance users of the groundwater. As best we can tell, the groundwater is migrating in the direction of the Arkansas River and thus --

COMMISSIONER DICUS: Yes, we've had the sample at the request of the Governor's office in the past. It is then off-site, the groundwater plume?

MR. WEBER: There is some off-site contamination.

Could I have the next slide, please?

[Slide.]

CHAIRMAN JACKSON: Go back for a second.

MR. WEBER: Okay.

CHAIRMAN JACKSON: Technically, this is more

difficult than the previous example?

MR. WEBER: There are technical challenges. This does not have the criticality concern that we have at Parks Township, but you have similar technical challenges in terms of characterizing heterogeneous wastes that were disposed of, figuring out what to do with the wastes, what are practical remedies for the contamination at the site, so

there are technical challenges.

CHAIRMAN JACKSON: So at this point, the contamination is not really stabilized in the sense of preventing further off-site migration?

MR. WEBER: Correct. Some of the contamination, the old burial sites, have covers on them, but some of the contamination sits there in open impoundments and has not been stabilized.

CHAIRMAN JACKSON: Okay.

MR. WEBER: This next diagram is a site map and I've illustrated in orange there, the areas where the principal contamination exists. You can see the --

CHAIRMAN JACKSON: You see a lot of it.

MR. WEBER: Yes, there is a lot of orange. If you look at the main access road off Highway 10 coming in on the righthand side of the diagram, there's a little road up beyond the guard house. The processing facility is right there on the top end of that road where most of the processing occurred.

Much of the rest of the site consists of the ponds with the raffinate slude, the old burial areas, storage cells, runoff from when they had the 1986 accident, there's a plume that transported to the southeast from the accident back in 1986, and so on.

You can see there is a lot of surface

contamination. The buildings are contaminated. It is a challenge to decommission this facility.

Can I have the next slide, please?

[Slide.]

MR. WEBER: For the decommissioning, the licensee has at least conceptually proposed that an approach similar to that taken for uranium mill tailings be pursued where a design would be developed for a more or less conventional uranium mill tailings cover. The contaminated soil, building rubble, et cetera, would be consolidated into an on-site disposal cell. The rest of the site would be released for industrial use, which is of great concern to the local residents that it be used -- some residents prefer that it be used in a productive way. Other residents are concerned that the contamination be removed entirely from the site.

And then if an on-site cell is used for the stabilization of the contamination, some sort of long-term controls, again, would be appropriate to ensure that the barriers are suitably maintained, the site is monitored and so forth to ensure that people do not dig into the waste and become exposed to the contamination. So, again, here we have an institutional control issue.

Some of the key regulatory issues are depicted on the next slide. One, I have already mentioned and that is

the financial weakness of the licensee. Our challenge and the licensee's challenge is to find a safe and protective solution within the capabilities of the licensee. This may prompt imposition of interim measures. For example, you brought up, Madam Chairman, about stabilizing the waste for some interim period. That may be appropriate and necessary, especially if we see that decommissioning might drag on. It may be better to stabilize the waste in some interim form so that we don't have as great long-term concerns as we otherwise would have.

We have already talked about the need to coordinate with the EPA in the coordination of the schedule. Our desire is that there be a coordinated response to make sure both agencies are satisfied that whatever remedies are selected are going to be protective of the public and the environment.

CHAIRMAN JACKSON: Mike, is the EPA's cleanup schedule as aggressive as ours?

MR. WEBER: I believe so. In fact, I believe theirs might be more aggressive than ours in terms of -- I mentioned earlier, they don't have the environmental impact statement process to go through, which allows them to streamline their reviews a little bit more than ours.

And then, lastly, the institutional control issue, what controls may be necessary to provide for the long-term

protection of the public and the environment. That raises associated issues of how durable these controls are, how effective they will be in protecting the public and who is going to carry them out. Should it be the federal government, the state government, the Cherokee Nation, some private firm, rely on land use controls, deed restrictions and so forth.

Schedule of activities on the next slide, Slide 19, we have recently commenced the environmental impact statement analyses to lead ultimately to the development of the draft EIS. We are further behind here because we recently completed the scoping back in May and we are preparing the scoping summary report, both the public comments that we received as well as the participation from the various cooperating agencies and we have reviewed the site characterization report submitted by the licensee this past spring and summer and provided comments. Similarly, EPA had the licensee prepare a site characterization report and has been doing a review of that information.

I list here, in response to Commissioner Dicus's question, the corrective measure study that is being conducted by the licensee is due to EPA, I believe, it's now in three months or four months after the remedial facility investigation is accepted. That is a document that looks at what alternatives are available to remedy the contamination

at the site. So, much like our process, EPA will then go through a process of evaluating what various alternatives exist and how likely they are going to be in succeeding in stabilizing the contamination, protecting the environment.

Based on our understanding of their schedule, that would be due sometime the first quarter of 1997 and you can see that our draft EIS should be out in the fall of 1997, so there is a little bit of a lag there but we are doing what we can to keep abreast of their schedule so we can accomplish this coordinated response to the licensee.

May I have the next slide, please?

[Slide.]

MR. WEBER: The last site that I will focus on is the Shieldalloy Metallurgical Corporation site which is located in Cambridge, Ohio. This is illustrative of some of the policy issues.

Again, as Margaret pointed out, we have policy, technical and regulatory issues at all three of these sites but we are focusing in on the specific sets of issues to illustrate them. This site is on about 130 acres, it is 70 miles east of Columbus and it is in between Cambridge, Ohio, and Byesville, Ohio, on Route 209.

Unlike the previous two facilities, this facility was never in what you might call a conventional nuclear business. The contamination that they have on site arose

from the processing of metal, feedstock materials, ores and chemicals and the contamination that came along for the ride, the uranium and thorium contamination, was there in trace quantities but they found themselves in sufficient quantities to require a license from the Atomic Energy Commission and, more recently, from the NRC.

The licensee is currently in Chapter 11 bankruptcy and has been going through a detailed and extensive reorganization planning process. They initiated bankruptcy back in 1993 and are still responding to the Bankruptcy Court on schedules for developing the reorganization plan.

One of the principal environmental liabilities that they have to deal with as part of that reorganization is the decommissioning of this site in Cambridge, Ohio, as well as their sister facility in Newfield, New Jersey. And I believe the Commission recently received a SECY paper on the Newfield site because there are some licensing issues that are also involved in that case.

Could I have the next slide, please?

[Slide.]

MR. WEBER: Much like the Sequoyah Fuels facility, there is a large volume of contamination at the site, seven million cubic feet of contaminated slag and sediment that currently is stockpiled in two piles on site. If you want to envision that volume, that is about a football field

stacked 160 feet deep of waste, so it is a fairly large area. Although, I must admit, when you go to see the site,

it doesn't look as large as the volume would speak to.

At this site, there are elevated concentrations of natural uranium and thorium in the slag and, of course, their associated decay products. There are also anomalous concentrations of various decay products including thorium 230, protactinium 231 and actinium 227. It is unclear why these concentrations are elevated but the best we can tell is perhaps the site at some point in its past processed uranium or, I should say, processed sidestream chemicals that were sidestreamed from a uranium processing facility. And it may be that some of the decay products bled through the uranium processing stream into the vanadium concentrates, for example, that may be at the site.

This issue came to our attention through a response to allegations. An individual alleged that there was off-site contamination beneath his home. We initiated an initial response and ultimately we discovered that there were several tens of properties, off-site properties, that contained elevated levels of natural or of radioactive materials in slag that may have been removed from the site over the years to be used as construction backfill. So that is another related issue that we have to deal with at this site.

53

There is also slag and sediment that contain elevated levels of metal constituents including vanadium. For example, there is some vanadium contamination in the wetlands immediately adjacent to the west pile.

Much like Pennsylvania and the Oklahoma facilities, we are cooperating with the state of Ohio, both the Ohio Department of Health, Ohio Environmental Protection Administration and the Attorney General's Office in resolving some of these issues.

May I have the next slide, please?

[Slide.]

MR. WEBER: You have seen this map before in our briefing earlier this spring. We used the Shieldalloy site to illustrate how we were applying some of our performance assessment techniques in the decommissioning program. This was the one site that was discussed. In the middle there, on the map, you can see the orange area, those are the two piles. The so-called west pile, which has a cover on it, and then the east pile which presently is not covered. The processing facility is in between those two piles and I depict there in blue Chapman Run which is a stream that flows from the south to the north and ultimately discharges into Wills Creek, which is the water supply for Cambridge.

Could I have the next slide, please?

[Slide.]

54

MR. WEBER: The licensee's proposal at this site is to stabilize the contamination on site, to leave it pretty much where it is and place a cap on the two piles and, once again, some type of long-term institution control will be necessary or would be necessary to provide protection to the public and the environment. However, unlike the previous two facilities, Shieldalloy wants to continue to conduct their line of business at their present site. Now, I should point out that they ceased processing licensed radioactive material at the site in 1972 so the present owner, Shieldalloy, really never processed uranium or thorium at the site, even in the trace quantities that originally led to the slag that is on site. They acquired that when they purchased the property back in 1987. So they have not been doing licensed activity.

Nevertheless, they still have an active NRC license and I should point out, I think, our recent update on the SDMP, there is a field in the site review, the attachment to the SECY paper, where we list the license as expired. That's in error. The license is active and we continue to maintain that.

The next slide, please.

[Slide.]

CHAIRMAN JACKSON: If you are looking at long-term institutional controls, as you go about doing your

55

analyses or you require certain submissions from the licensees, are costs of the particular long-term control scenarios factored in?

MR. WEBER: Yes.

MS. FEDERLINE: Yes, they are, in the environmental impact statement.

MR. WEBER: Now, our ability to quantify those

costs is, of course, a function of what option will ultimately be selected.

CHAIRMAN JACKSON: Right.

MR. WEBER: But we have been looking at ranges of costs as far as the different alternatives and clearly any approval of the decommissioning plan which would ultimately lead to the final resolution of the site would have to include some sort of provisions for financial assurance if needed and, as we will see a little bit later in terms of transfer to DOE, there are certain financial aspects that have to be addressed.

The next chart, Chart 24, highlights several issues in assessing the long-term impacts. These are issues that are technically driven but have policy implications.

First, I want to point out that these dose estimates that are on here are based on what we believe are conservative calculations and I have to say that at the outset. We did have our public meeting on the environmental

impact statement, we had comments on the one side saying you can't believe what NRC is saying in the environmental impact statement and then, on the other side, the licensee was concerned that perhaps we had overestimated the impacts and thus made the situation look worse than it really was.

We have done that in light of some of the uncertainties that we presently have with the data at the site. Those conservative estimates are driven in two ways. One, in terms of the scenario that we assume in doing the calculation and, by scenario, I refer to what assumptions do we make in terms of how someone might be exposed to the contamination. You will see three different scenarios there, scenarios A, B and C.

Scenario A is largely an industrial scenario. What kind of exposures would you expect if somebody used that site for 2,000 hours a year in an occupational setting. They weren't growing crops, they weren't drinking the groundwater, et cetera. Primarily, they were being exposed through the direct gamma exposure route.

Versus scenario C, which is a resident farmer scenario. This is typically what we have used in developing our decommissioning criteria. It is what EPA often uses in looking at the cleanup of some of the contaminated sites under the Superfund program. Not the disposal of the waste but the cleanup, where you are going to release the site for

unrestricted release.

You can see there quite a dramatic impact in terms of what scenarios are assumed. For example, if you take stabilization in place, scenario A would be estimated to give a dose of about 8 millirem per year versus scenario C would be about 464 millirem per year. The contamination is the same; it is just we have changed the way in which we have assumed someone is going to be exposed to the contamination.

The conservatisms are also driven by the parameter values that we select. For example, in the leach rate for the slag, how much of the radioactive material will leach, at what rate and how quickly will that be transported in the groundwater beneath the site? And that drives the dose estimates that you see in this chart.

The third thing I would point out is that the maximum dose, without controls, as you can see in the improved cover column, is 30 millirem for stabilization in place, which is desirable because, of course, that's less than our public dose limit in Part 20 of 100 millirem per year. Thus, it is apparent that if the scenarios we assumed are appropriate, that you may not need the kind of long-term institutional controls you may need at other sites, for example at the Parks Township site where you have sufficient inventories of enriched uranium in the trenches. It is

something that we have to carefully weigh, of course, because if you use a slightly more conservative scenario, the doses will be driven up.

This is principally driven by the assumption that no one is going to live and grow crops and drink groundwater immediately out of the east pile because it is a small area and because of the rocklike nature of the slag.

If somebody were to dig a garden there that they would quickly realize that this is not the best place to grow your vegetables.

The fourth point is that the offsite dose is limited.

It's six millirem, based on the calculations that we have done in the environmental impact statement, so you can see in all cases whether any action is taken or the site stabilized in place the dose would be below 10 millirem per year.

Finally, in the far-right column you see the cost estimates ranging anywhere over three orders of magnitude from about $.3 million to in excess of $100 million -- so depending on what option is selected, it has significant impacts on the costs of decommissioning.

This sets us up for discussion of some of the key policy issues on Slide 25. I mentioned the scenarios that we have assumed and how the conclusions that are drawn are

driven in some part by the scenarios.

The doses to the public based on the scenarios that we used in the draft EIS are expected to be below 10 millirem per year with the application of effective institutional controls, and that is desirable because it is a small fraction of our public dose limit in Part 20. Without those controls we still believe the doses would be below the public dose of 100 millirem per year because of the reasons that I previously cited.

We have assumed minimal intrusion into the pile due to the nature of the slag.

The calculated doses, as I pointed out earlier, are believed to be conservative and thus if you took a more realistic view of how someone might be exposed or what some of the parameters are and how they might drive those dose estimates, you could find reduced doses.

So just to summarize that slide, we have the policy issues associates with what scenario is assumed, how conservative should we be in doing those calculations, and again the questions of institutional controls, how durable are they, how effective, and who should do them.

Schedule of activities -- we are a little bit further along on the shieldalloy site.

On Slide 26 you can see we have published our draft EIS in July and we have already begun receiving

comments on that draft EIS.

We had a public meeting on September 16th in Cambridge, Ohio. We had about 100 people turn out for the public meeting including state and local representatives, elected officials, and some Congressional staff members, the licensee of course and other interested members of the public, so there was a wide variety of people who participated.

We had media coverage as well.

CHAIRMAN JACKSON: How do you make use of the results of the public meeting?

MR. WEBER: We transcribed the meeting. All the comments that come in have to be evaluated in terms of finalizing our EIS.

We are already aware that an individual has proposed an alternative that was not considered, so we have committed that we would consider that in the final environmental impact statement to see if that is an obviously superior alternative -- as an example.

But we are obligated to respond to the comments that we receive as part of the finalization of the EIS and we often find that those comments are useful because they may point out information that we did not have access to or in this case an alternative that perhaps we didn't specifically identify.

We would expect to publish the final EIS in August of next year, August of 1997, and again the decommissioning plan would follow shortly thereafter.

On Slide 27, if we could summarize what we have seen so far, some of these issues are unique to each site.

As an example of that we have the potential reconcentration into a critical mass at the Parks Township facility.

But there are certainly common issues and they include what exposure scenario should be assumed, how conservative should the calculations be, what is appropriate, how can we be sufficiently protective and yet not go overboard in being unrealistic, how durable are institutional controls, who would do them, how effective might they be and how long can they be assumed to last.

Closely linked to that then is Government custody.

One mechanism to provide for long-term control

might be state or federal ownership, very similar to what is already in place for the uranium mill tailings program where the Department of Energy is responsible for the long-term custody of tailings disposal facilities, and then the cost effectiveness of the remedies -- the age-old question since we are operating in many cases below the public dose limit, below the adequate protection threshold, what role does cost have to bear in our considerations of the various

alternatives.

As we pointed out earlier, there is significant public and some Congressional interest in these sites. For that reason, we initiated these public information roundtables, and we have been engaging the public or at least trying to throughout this process so that they are aware of the issues and they participate actively in the identification of those issues.

COMMISSIONER DICUS: Let me ask you a question about that.

On the onsite disposal option, you mentioned, I think you mentioned earlier some people are for it, some people are against it from the public's perspective, but is there a trend, do you get a feel that it's generally going to be acceptable to the public or --

MR. WEBER: Well, since we have our EIS out for public comment now, I would be a little reluctant bit to forecast how it's going to come out.

COMMISSIONER DICUS: But you have had the public meeting for example.

MR. WEBER: We heard comments both for and against.

COMMISSIONER DICUS: How about -- then let me go on to another question real quick.

The coordination with the compacts that these

sites are in, I assume that's occurring. I assume they are participating in the comments.

Again, I guess that is an ongoing issue?

MR. WEBER: Yes, it is an ongoing issue. So far I am not aware that we have received comments from the compacts. We do coordinate with them but I think to a large measure in most cases the facilities that are under development were not contemplated to take these kinds of wastes.

COMMISSIONER DICUS: That's right.

MR. WEBER: So we often get the impression, it may be my informal understanding that they are just as happy if we can find a way to take care of this waste and not have it go to their disposal facilities.

For example, in some of the states the design capacity is less than the amount of these sites, and those facilities are intended to operate for 20 years or so.

CHAIRMAN JACKSON: Mr. Taylor, you had a comment?

MR. TAYLOR: No, I was agreeing. A lot of waste here.

COMMISSIONER DICUS: Have we terminated a site using onsite disposal yet?

MR. WEBER: Yes. We found it acceptable to leave onsite disposals behind at other sites.

We have approved a decommissioning plan for the

Chemetron Harvard Avenue site. We have approved a decommissioning plan for the BP Chemicals site. Both of them are in Ohio. We have not terminated their licenses because they are in the process of performing the decommissioning but there have been sites where we have terminated the licenses with onsite disposals.

In other cases we have terminated the license way in the past and now we have gone back to revisit it and decided it's okay to leave that contamination behind.

If I could have the next slide.

[Slide.]

MR. WEBER: In addressing the question that the Chairman put to us at the beginning about institutional controls, Staff is pursuing this common issue on institutional controls. We are doing it both generically as well as on a site specific basis.

There are several different types of controls that may be effective at these sites.

One of them may be Government custody.

There may also be the other mechanisms that were identified as part of the proposed rule on the decommissioning criteria. For example, I believe as part of

the rulemaking package we specifically laid out different alternative mechanisms that might be effective.

Again, you would have to tailor those controls for

the amount of contamination and the risk that is posed by that material.

For some very limited risk situations it might be prudent to use some sort of zoning restriction or commitment from the licensee if the licensee is going to be in place for some time.

In other cases where you have extensive contamination you have concerns about the long-term durability of the responsible party, Government custody might be the preferred way to go. Sites such as these we have already seen are going to be decommissioned. Some may be decommissioned with land use restrictions and so some sort of long-term care may be needed to ensure protection of the public.

To date, the states that we have interacted with have not expressed a desire to take over long-term responsibility for these sites. That doesn't mean that they have ruled it out, but they have been encouraging us to find other remedies.

One of the remedies that we have been pursuing is under the Nuclear Waste Policy Act of 1982 we believe that authority already exists for the Department of Energy to take site where low level waste has been disposed of provided that NRC makes certain findings including that our requirements are satisfied, that the transfer of the site to

the federal government would be at no cost to the federal government, and finally a determination that would have to be made is that federal ownership is in fact necessary and desirable to ensure long-term protection of the public.

CHAIRMAN JACKSON: This no cost to the federal government provision, is that no cost for the transfer of the custody or through the life of the custody?

MR. WEBER: I think we viewed it more as through the life of the custody, that we shouldn't be transferring a burden to the federal government.

If we anticipate that periodic maintenance would be needed or monitoring, that ought to be built into the transfer, so that perhaps --

CHAIRMAN JACKSON: Okay, so some fund or some financial provisions.

MR. WEBER: Yes.

CHAIRMAN JACKSON: Because I was going to say you can't guarantee no costs going forward, right?

MR. WEBER: Right.

MR. PAPERIELLO: I believe we do something like that when we transfer mill tailing sites.

COMMISSIONER DICUS: Yes, we do.

MR. PAPERIELLO: Because there is a fund put aside for it.

MR. WEBER: And we did that for the transfer of

the AMAX site under Section 151(c) of the Nuclear Waste Policy Act, but you have hit on a concern that DOE has expressed to us, and that is this question of, well, at whose expense would the long-term maintenance and control be?

We are discussing this with DOE. Their principal concerns in addition to the financial risk include technical adequacy.

They would like to be participating with us as we go forward, so there are no surprises when we knock on their door and say here's the site, please take it.

There are regulatory uncertainties.

For example, we may find that remediation in the decommissioning has been performed in an acceptable manner and we are willing to terminate the license. DOE is concerned about the long-term risk that at some point in the future a state or some other regulatory entity would come knocking on their door saying, oh, by the way, you now have this contamination -- we expect you to do something other than what NRC originally found acceptable.

We are working with them to try to get a common grasp of these issues and identify feasible means to control or contain those issues.

The fourth --

CHAIRMAN JACKSON: Do you contemplate perhaps

working out some kind of MOU with DOE to, you know, work out

a consistent methodology for approaching these issues?

MS. FEDERLINE: Yes.

MR. WEBER: Yes. In fact, when we met with them this past summer, that was one of the proposals that we made, that we would work on some sort of agreement or MOU or something that would lay out up front what the common expectations are, what the roles and responsibilities are and we believe that would also go a long way in terms of laying out some ready-made solution for this limited number of sites that may be out there that would require some sort of government custody.

We plan to continue progress, on Slide 30, with the development of the site-specific EISs and through this developmental process, evaluate the feasibility of the generic environmental impact statements. As I mentioned before, we wanted to get several of these under our belt before we decided was it feasible. Our technical people and the regulators will be involved in scoping out what are the pros and cons. We will be working with the general counsel's office in assessing the legal viability of this approach.

But, as we stated in SECY 95-209, we believe that there may be some long-term payback here in terms of improved efficiency as well as some improved predictability

if we could address this through a generic process. And, as I do believe Margaret previously pointed out, we may also then use the generic EIS as a basis for going back and making regulatory changes to codify that right into our base requirements.

We will encourage and continue to encourage timely decommissioning under the existing criteria. The timeliness rule is a big driver in that area because it does apply to these sites. As you saw on the chart that we showed earlier, we are making progress. We are slightly ahead of where we expected to be at this time and, certainly by next May, which that chart is intended to cover, we hope to have met all of our goals if not exceeded them.

We will follow the SDMP action plan, as the Commission previously directed, to implement the program. We are also working -- we haven't talked about it in this briefing but, of course, we are working closely with our Office of Research, General Counsel's Office and the other program offices on the radiological criteria rulemaking. We believe that is still desirable because it would enhance the efficiency, consistency and predictability of the program giving licensees a defined end point for their decommissioning programs.

And then, as I mentioned, we are in the process of discussing with DOE on this long-term agreement or mechanism

to provide for government custody of sites should we find that to be necessary to provide protection.

Thank you.

CHAIRMAN JACKSON: Thank you.

Thank you, Mr. Taylor.

Commissioner Dicus, Commissioner McGaffigan, Commissioner Rogers?

COMMISSIONER DICUS: One more quick question.

CHAIRMAN JACKSON: Go ahead.

COMMISSIONER DICUS: One final question.

The statistical methods that have been use or that we are using to provide a confidence that the site has been accurately and adequately cleaned up, has had some soundness problems and I understand we are working on that. Do we have confidence that we have got it where we need it to be?

MS. FEDERLINE: We are working with three other federal agencies to develop the multiagency site investigation manual which would provide consistent guidance across the federal government for decommissioning activities for termination surveys specifically.

MR. WEBER: We are confident that 5849 provides us, NUREG CR-5849 provides us with an adequate technical basis. The problem is that there are some criterion there that licensees find problematic and when we have evaluated, there really are better ways to go and that is why we have

been developing this MARSSIM manual that Margaret referred to.

COMMISSIONER DICUS: Thank you.

COMMISSIONER ROGERS: Just on that, how is that going? The SECY said it should be completed in late 1996. Do you still expect that?

MR. WEBER: It is either late this year or early next year.

We did recently this summer complete an internal review of the document and the committee, the interagency committee, is looking at the comments and trying to resolve them and to prepare the document in a form that is suitable for release.

COMMISSIONER ROGERS: I know last year, I think, when you reported to us in SECY 95-209 and you described the virtues of that, it looked like it could be extremely useful. Do you still feel that it has that great promise?

MS. FEDERLINE: Yes. We think it will provide the technical basis. We think that there will probably be the need for an overlay document to provide some simplified discussion but we think that it will provide the overall technical basis that will allow us to move forward.

CHAIRMAN JACKSON: Commissioner McGaffigan? No?

Before I close, since we do have the project managers here, again, these are kind of major headache kinds

of sites, is there anything that we have missed or any particularly thorny issues from your perspectives that we need to keep in the back of our minds that we haven't already heard about?

No? Well, thank you.

The Commission would like to thank the staff for a very informative briefing on the SDMP program. In the paper, you described a number of successes over the past year, including the moving of sites off the SDMP, as we have discussed, approving decommissioning plans, issuing inspection guidance and implementing the streamlined decommissioning approval approach that is described -- that was described to the Commission last year. And, in fact, I would like to compliment you on your diligent efforts because these do represent improvement since the last time we were briefed.

But, as you pointed out a number of issues involving policy decisions do remain. As you just said, DOE's role in long-term institutional controls is unresolved but, in some sense, it seems few alternatives exist if DOE does not take custody. And some sites remain on the SDMP which are many years away from even starting decommissioning and a number of them, as you pointed out, have inadequate decommissioning funding. So there is obviously room for progress in these areas.

The Commission will be considering these issues and the policy issues as they are brought forth but the overall direction of NRC's materials decommissioning program under the strategic assessment and rebaselining. Again, this is for public consumption, the Commission looks forward to stakeholder input in the weeks ahead before we track down to our ultimate decisionmaking.

So, unless my fellow commissioners have anything to add, we stand adjourned. Thank you.

[Whereupon, at 3:38 p.m., the briefing was concluded.]