UNITED STATES NUCLEAR WASTE TECHNICAL REVIEW BOARD

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MEETING OF THE PANEL ON TRANSPORTATION AND SYSTEMS

NWTRB Office
Suite 910
1100 Wilson Boulevard
Arlington, Virginia 22209

Wednesday, March 11, 1992
9:04 o'clock a.m.

PARTICIPANTS:

DENNIS L. PRICE, Chairman, Panel on Transportation and Systems, NWTRB Member

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ELLIS D. VERINK, NWTRB Member

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P R O C E E D I N G S

[9:04 a.m.]

DR. PRICE: Good morning.

May we begin, please?

Welcome to the second day of this meeting of the Panel on Transportation and Systems.

On the first day, we covered some basic information about the repository, MRS, transportation schedule, and the status of system safety and human factors planning and some things about the MRS program and its design, the MRS design.

Today, we will be hearing from Michael Conroy on transportation facility and infrastructure studies and the site-specific planning process, and then, after that, we will be hearing from Jim Carlson and Ron Milner, a little more information on the transportation program update.

So, without any further delay, we'll ask Michael Conroy to take the podium.

[Slide.]

MR. CONROY: Thank you, Dr. Price.

I'm pleased to be here again today to talk to the panel regarding infrastructure studies and the site-specific planning process.

As you recall, we covered this topic back at the last meeting we had here on September 25th. So, what I'm going to do today is provide an update for you on that information we presented last time.

[Slide.]

MR. CONROY: The first thing I'd like to cover is the NSTI study, which, as you recall, is the near site transportation infrastructure study.

Its purpose was to evaluate the railroad and barge access for 76 sites, the commercial facilities that we'll be servicing, and to provide data pertinent to spent fuel transportation regarding travel restriction and infrastructure limitations and also to provide an assessment of capabilities of each mode and route and the potential for upgrade, and again, I'd like to make the point that no judgments have been made as to whether upgrades should be implemented, and specific recommendations are not made on which mode or route should be used within the NSTI report.

[Slide.]

MR. CONROY: This slide shows you the numbers I presented last time to you on the NSTI results, which basically, bottom line, shows that all sites have the near site transportation infrastructure to handle trucks

shipments, legal weight at least, most of them overweight, and that all sites have the near site transportation infrastructure to handle a rail barge cask by at least one mode, direct rail or heavy haul or by barge.

Now, those were the numbers that I called preliminary.

[Slide.]

MR. CONROY: Going to the next slide, I've labeled these "final," but I should caveat that that we are still in the process of finalizing the report, and I should have it available soon, but these represent the numbers that I believe we'll have in the final version of the report, and I'll highlight the changes for you between the -- in the preliminary and this slide.

If you look at the road numbers, that has gone down, and the current capability, by six, the reason for that being that, in further review of the data, there were six sites where it was determined that permits would be needed for shipping legal weight as well as overweight.

So, those are reflected here as being -- without permits, there would be a reduction in six. So, it's really not an upgrade issue, as indicated in the legend, but it's an issue of permits for legal weight because of the local restrictions.

DR. PRICE: So, that difference has nothing to do with

the road itself.

MR. CONROY: Right. It's a permitting issue, but to be perfectly consistent in terms of what you could ship today by that mode, these numbers reflect that. Without a

permit, they'd be reduced by six from a previous version.

One site has been subtracted from the overweight column based on further analysis, and some changes were made in the assessments of off-site barge capability. So, you see those numbers on current going down by one and offsite barge going down by three compared to the earlier numbers.

So, basically, there's a few minor changes there but no significant differences.

[Slide.]

MR. CONROY: Going on to the FICA report, the Facility Interface Capability Assessment, as you recall, its purpose was to determine and document the existing and planned commercial facility capabilities to handle casks as the 122 facilities located at the 76 sites covered in the NSTI study and to identify facilities where possible interface changes could result in benefits to the system, and again, all the facilities were visited and assessed.

[Slide.]

MR. CONROY: The numbers that I showed you last time

here I called preliminary results based on a draft report that we had at the time, and again, results are based on four conceptual FICA casks, as shown, legal-weight truck, over-weight truck, 100-ton rail barge, and 125-ton rail barge, and under three sets of -- three scenarios, a planning base of current conditions.

A scenario if administrative and licensing changes are implemented will involve things such as reanalysis or cask drop, water depth requirement relaxation, those type of things, and then, a third column, if administrative changes and licensing changes and small physical modifications were implemented, things like modifications to anti-tip-over devices and plates to spread gas weight over a larger floor area, not including things such as current emplacements or moving building structural supports, and these were the numbers that we discussed last time.

[Slide.]

MR. CONROY: The next slide I have labeled "Final FICA Summary Results." Again, the FICA report is in final review and editing right now and should be available shortly.

I attempted here, based on numbers I was getting, to capture what I thought was going to be in that report, and I show only a couple of changes from the preliminary numbers. I just got this morning some revisions to the numbers on

this slide.

So, I should have called this preliminary final, and let me just go down -- the first column is the only one affected. I believe it should now read 73 for legal-weight truck, 68 for over-weight truck, 50 for 100-ton rail barge, and 24 for the 125-ton rail barge.

So, in comparison to the preliminary numbers --

DR. PRICE: Could you go over those numbers again?

MR. CONROY: Sure.

Going down the left column, the numbers should read 73, 68, 50, and 24 in that first column.

Comparing that to the preliminary results that I presented to you at our last meeting, then, the changes would be on addition to legal-weight truck, and I believe everything else is consistent.

As I said, that report is still being finalized. It is going through publication review and should be available soon.

DR. PRICE: When you determine whether or not a facility has quote/unquote "rail access", what determines -- what criteria must be met to decide whether or not a site has rail access?

MR. CONROY: Rail access on the NSTI results would

refer to the fact that it's broken into on-site and off-site in terms of whether an on-site would mean that there is an operable rail spur to the site and connected to the cask handling building.

If some of the upgraded sites would require -- in the category that shows on site needing upgrades, there may be -- part of the spur has been removed on-site, paved over, whatever, and then the rail would have to be replaced in order to get it all the way into the building. Those types of things.

Off-site was there is a nearby suitable location where a rail cask could potentially be heavy hauled to and internodal transport made.

DR. PRICE: What is nearby?

MR. CONROY: Basically within about 25 miles.

[Slide.]

MR. CONROY: Okay. Taking the data, then, from the FICA and NSTI results, last time I went over a preliminary assessment of potential shipping modes utilizing the FICA and NSTI data. At the September meeting, what I covered was an assessment looking at potential shipping modes where we were considering only the Initiative 1 casks in our screening of the data for FICA and NSTI.

The assumption that I made in putting together the

numbers was that rail would be the preferred mode of shipment; where site had rail access and where the facility was capable of handling the rail cask, that that would be the selection for this analysis, followed by, in order, heavy haul to rail, heavy haul to barge, and then legal-weight truck.

Again, those were assumptions made for the purpose of doing the analysis. It does not necessarily represent the selections that the utilities might make on shipping modes, but in order to try to get a feel for the modal mix, those were the assumptions we were going through in the analysis.

[Slide.]

MR. CONROY: So the numbers we had were shown on this chart, where we broke things into current conditions; if small modifications were made, meaning minor on-site modifications, reanalysis or operating license revisions; or more extensive but still somewhat moderate modifications made would be the third column.

For the analysis, these were based on, as I think I mentioned last time, based on some preliminary analysis of the back-up data from the FICA and NSTI reports for each of the 121 facilities.

Now, if you notice, this is 121 and not 122 that we had

in the FICA number. That's because this doesn't include Fort St. Vrain, being a non-LWR reactor. We were looking at the Initiative 1 cask. So that's not included in these numbers, so it totals to 121.

Basically, the kind of rule of thumb we used between the small modifications column and the moderate modifications column, the small mod would be on the order of 50,000, and a moderate around the order of up to 500,000. But again, those are preliminary assessments based on the analysis that was done and would need to be extensively

looked at and verified by utility people involved on a site-by-site basis to determine if we've categorized those properly.

DR. PRICE: Excuse me.

MR. CONROY: Yes.

DR. PRICE: We're trying to debate between ourselves exactly what the numbers mean. We think we have arrived at the proper conclusion. Can you tell us if we have?

MR. CONROY: Okay.

DR. PRICE: That the facilities are actually reactors. You can have more than one reactor on a site, and so we're not talking about 76 sites, we're talking about specific

reactor locations.

MR. CONROY: That's correct. Because of multiple facilities at some sites, the 76 sites involve actually, as I mentioned, 122 facilities, and I subtracted out Fort St. Vrain. So this is really 121 facilities at 75 sites.

DR. PRICE: So it's all but one when you come down to the total 121. You say there's 122, and it's all but one?

MR. CONROY: Right. Right. And these are basically the numbers that I went over with you last time, looking at, if direct rail were the primary choice, assuming that that were the agreed upon shipping load between the

utilities and the Department, that under current conditions, there would be approximately 30 sites, potentially 34, that would be available for heavy haul to rail, six more for heavy haul to barge, for a total potential rail/barge cask served sites of 70, leaving 36 that would be served by legal-weight truck and 15 where there would be some problems to be overcome basically with reanalysis and license modifications as shown and going to the middle column to get that number down.

DR. PRICE: Oh, okay. You're using again the terminology "sites" and it gets a little confusing.

MR. CONROY: I'm sorry. I should say "facilities."

DR. PRICE: Facilities. How many sites? Can you guess?

MR. CONROY: I don't have that number on the top of my head. It would be somewhere on the order of about half of that. It would be somewhere between five and ten.

DR. PRICE: So you are saying for direct -- well, for direct rail, for example, of the 76 sites, how many would you guess by site rather than facility?

MR. CONROY: I don't have it by site. This by facility. The site numbers, I've got the NSTI broken by site because NSTI was done looking at the transportation infrastructure on a site-by-site basis, FICA looking at such things as crane capability within each facility, so things are on a facility basis. So these numbers are on a facility basis. I'd have to back and re-rack the numbers to get it on a site basis. That would be a fairly simple thing to do, but I don't have those numbers tabulated that way with me.

[Slide.]

MR. CONROY: The next chart is basically a graphical representation of that table. I don't know if it's any clearer to understand in that format but I think it tries to get across the point that depending on which scenario you choose to believe, the numbers can change what the modal mix

will be.

The middle column shows the potential for those sites -- again, this analysis was done looking at the Initiate 1 rail/barge cask and truck designs and then showing the total facilities on the right just to make sure the numbers add up correct.

[Slide.]

MR. CONROY: The next chart shows basically the analysis I showed you last time where we took the numbers I'd just shown you and under the assumptions that offsite heavy haul could be potential problems at some of the facilities, just if you were to reduce, take off the offsite heavy haul as an option and look at only those sites where you would have to heavy haul onsite because the rail spur doesn't extend all the way to the cask handling building or the barge facility is onsite and would have to be heavy hauled to the barge facility, and the numbers change as shown here, where you would go down from 70 to 60 under current assumptions on the rail/barge cask total and then corresponding difference in any other columns.

DR. CHU: Excuse me, Mike. This is Woody Chu.

What is the distance for offsite heavy haul where there may be a problem? Is that 25 miles? Is that what you were referring to?

MR. CONROY: I believe the assumption we used in the NSTI study was approximately 25 miles. There could be some transfer points beyond that but that was not specifically analyzed during the NSTI study.

DR. CHU: So the difference between this chart and the other chart is assuming that there is a problem in heavy haul for a distance of, say, no more than 25 miles from --

MR. CONROY: Basically the difference between this chart and the previous one is this assumes not going off the site at all with heavy haul, and the other one assumed that you would go offsite heavy haul.

DR. CHU: For no more than 25 miles.

MR. CONROY: Approximately. Roughly.

DR. CHU: I won't hold you to it.

MR. CONROY: In most of the case I think too that looking at the NSTI and the FICA data in most instances the controlling constraint is the facility constraints on handling the cask rather than the near-site transportation infrastructure, so I wouldn't expect that you would see any great differences, if any, by extending the range of your potential transfer points beyond the numbers we see here. Definitely not on this chart but on the previous one this is the onsite only.

DR. CHU: And I assume that given the goal of the

program you will do whatever is necessary so that in the no capability row you'd be down to a zero?

MR. CONROY: Yes. Again, these numbers here were based on looking at the data as collected from FICA and NSTI and I'm looking at the initiative on casks, and you are correct that we have to get down to zero by some means or other.

Again, none of these numbers are assuming that there are major structural changes made to the facilities so that there is a physical way to get to that zero point. There may be some cost involved. There may be some reanalysis involved. There may be some license revisions involved for the particular facilities involved but you can get the number down to zero.

[Slide.]

MR. CONROY: Okay. The next chart shows the same thing graphically and again these are all numbers I went over last time so I don't want to dwell on those too much.

[Slide.]

MR. CONROY: What we have done in trying to give you an update here today is to look at the data some more, analyzing what we getting out of the FICA and NSTI but adding another assumption of not only using Initiative 1 casks but using what we've titled here "existing technology

casks." In fact, this looks at existing casks.

There may be other casks coming out of the existing technology initiative that Ron Milner mentioned yesterday and talked about again some more later this morning, but in trying to get a handle on some of the potential changes we might see in the numbers from that procurement we have gone back and looked at the data using existing casks.

Using the same sorts of assumptions that rail would continue to be the preferred mode of shipment followed by heavy haul and then legal weight truck, looking initially at both onsite and offsite and again I would like to make the point that I'm not trying to select shipping modes here, that the actual shipping modes will be chosen in conjunction with the individual utilities.

[Slide.]

MR. CONROY: Going through that analysis, which

again I've entitled Preliminary Assessments, and I want to make that point because -- for several reasons.

Number one, both the FICA and NSTI reports are not quite to the printer yet and I was giving you brand new numbers this morning on FICA so there's some potential for change there.

Also, this is based on some, one set of analysis done

for us looking at the FICA and NSTI data and it seems that as we go through more detail, the assessments on a site by site basis, we may get some different results, and also because conditions can change over time. Facilities do reanalysis for other purposes than for our program that can change their current capabilities. Rail spurs are abandoned so that we can lose rail capability in some instances and you can make different assumptions on how to categorize these things but these numbers are on a consistent basis with the numbers I showed you previously except for the addition of looking at existing casks.

If you keep that in mind in looking at these numbers, what you see is that in the current column, about 21 additional potentially rail cask-served sites are added.

In the small modifications column that number is -- there's an additional four and in the moderate column there's an addition of six rail-served sites.

Obviously to add those numbers, those are coming out of the truck and no capability columns.

What we see then basically is looking at -- the main impact there is from looking at basically the IF-300 cask, which is about a 75 ton rail cask, versus the 100 ton rail barge casks in the Initiative 1 design. You see a change in the "current" column that's about 21 sites but if you go to

the other columns, that change is not as significant because the assumptions are then that modifications have been made to handle the slightly larger Initiative 1 rail/barge casks.

[Slide.]

MR. CONROY: The next chart just shows those results graphically again for those who get tired of staring at tables. But again, it's based on particular assumptions that I outlined.

[Slide.]

MR. CONROY: Okay. As before, we went through and looked at the numbers again, subtracting out the off-site heavy haul category, assuming that our on-site heavy haul only would be looked at, not off-site, but looking at existing casks as well as Initiative 1 casks. I'll emphasize again one more time that I'm not trying to choose shipping modes here, but that that will be done in conjunction with the utilities.

[Slide.]

MR. CONROY: Looking at those numbers, then, we see similar impact to what we just saw on the previous slide. The numbers are reduced because of the subtraction of the off-site heavy haul. But in comparison to the corresponding slide that looked only at Initiative 1 casks, we've added 15

rail barge cask served sites in the Current column, two in the Small Modification column and two in the Moderate Modification column.

I should point out again those are -- the small and moderate are terms of art used for purposes of this viewgraph, and I've had some discussions with utility representatives saying there is no such thing as a small modification. But I was trying to somehow categorize things, and those words were what we used to describe the modifications we were looking at, not necessarily something that would be viewed small to moderate from their point of view.

But again, we add 15 rail, picking up 11 that had previously been truck and 4 that were previously categorized as No Capability by looking at the smaller IF-300 rail/barge casks.

The point I wanted to make there, I think, is that as the Phase I procurement proceeds and as we then find out exactly which casks are coming forward, through that procurement, we'll have to go back and look at this data again to see how those casks provide particular access at each of the facilities. This gives you a feel for what happens when we look at Initiative 1 versus Initiative 1 and existing.

If I then look at any new cask designs that come out of the Phase I procurement, we'll have to go back and look at these numbers again. But it should be somewhat similar in nature.

[Slide.]

MR. CONROY: Okay. Again, this is just a graphical representation of the same table.

DR. PRICE: May I ask if small licensing/moderate modification on total -- what is that number at the top of that column?

MR. CONROY: On the total facilities?

DR. PRICE: On total R/B casks served.

MR. CONROY: That's 102.

DR. PRICE: 102?

MR. CONROY: Yes. I guess on the graph, it almost makes it look like 192, but it's 102.

DR. PRICE: Okay.

MR. CONROY: It should be consistent with the table before it. Okay.

Again, these numbers are all based on assessments using the FICA and NSTI data. I should also caveat the numbers I've just shown you were basically the same basis as what I showed you last time, but with the addition of the existing casks, there are still some minor tweaks that would

need to be made to those numbers with the latest FICA numbers that I just gave you and with the NSTI changes, particularly in the off-site barge. So there are a couple of numbers that would change there, and I haven't had time, unfortunately, to re-run those numbers to give you those results, but it would be fairly consistent with those numbers. But again, as I say, that's a constantly moving target in terms of what the real conditions will be.

[Slide.]

MR. CONROY: Again, I'd like to emphasize that all of those numbers I have shown you, I would categorize as preliminary assessments. To determine what our actual shipping modes will be, we need to go through the contractual process with the utilities, which we did discuss somewhat at our last meetings.

Indications of the shipping modes will begin to emerge a little more firmly once the utilities start to submit delivery commitment schedules to us. Delivery commitment schedules will identify the particular spent fuel or high level waste that a purchaser will deliver to DOE at least 63 months before shipment is due.

In the delivery commitment schedule, the purchasers will be proposing the shipping mode to be used from their facility and identify the type of cask required.

DOE will be reviewing and approving or disapproving delivery commitment schedules within 90 days of receipt.

I should mention that the detailed instructions on the completion and delivery commitment schedules were sent out a week ago, so we have not as yet received any delivery commitment schedules. The contract identified that we could start beginning receiving those in January of 1992. To date, we have not received any. The instructions went out a week ago. There will be a period here as those are received and reviewed and forms completed, and then we should start seeing those delivery commitment schedules coming in.

As I say, on the delivery commitment schedules, the utilities will be proposing shipping modes. The final delivery schedules, which are due twelve months prior to actual delivery, will specify shipping mode. So the time period between now and twelve months prior to shipping, which is the time between the delivery commitment schedule and the final delivery schedule, we will be working with the utilities to coordinate on the shipping modes that would best satisfy the needs of the system.

If they propose a shipping mode that is different from what we anticipate as their facility and site being capable of, we'll enter into discussions with them to try to determine that that is, in fact, what they prefer to use and

try to understand their reason for that. There may be a lot of interesting discussions there.

But ultimately, we will have on the final delivery schedules submitted by the utilities the shipping mode that will be used for shipment.

[Slide.]

MR. CONROY: Last time, Ron Pope went over a site specific planning process, and I'll just reiterate a few things that he said there.

[Slide.]

MR. CONROY: We are developing waste transportation service planning documents, SPDs, and those documents are collecting information from the NSTI and FICA data and from other sources, and on a site by site basis collecting what our current state of knowledge is on each facility's shipping capabilities and assessing against the Initiative 1 and existing casks which cask might be suitable for use at those facilities.

To date, we have got drafts done of 20 of those documents, basically going down the list of those sites which are listed in the annual capacity report as being towards the top of the queue. Whether those sites will be the actual ones shipped will depend on how the utilities allocate their rights to their individual sites and how

trading rights are exercised.

But we're basically using that as our template for going down the list in terms of developing the site-specific service planning documents. As I say, we've got 20 drafted so far and are scheduled to have 20 more drafted this fiscal year, and basically, on a facility by facility basis rather than a site basis, you would say, "Well, I would need 122 of those ultimately, but in fact the total is really more like 97 if you look at those facilities that share cask loading areas. So the other 50 are fairly easy copies of some of the other existing ones. We'll do one for each facility, but the work involved is about on the order of 100 of these, and we'll have 40 done by the end of this fiscal year.

[Slide.]

MR. CONROY: The process, then, as I say, we'll get delivery commitment schedules in. We'll be reviewing and approving those. We'll be sending out the site-specific planning documents to the purchasers for their review and comment so they can let us know where we may have missed things, where there may be information that's been updated, where there have been changes in the facility and in the infrastructure since the time of the FICA and NSTI data.

We'll use those in responding to the continual processing of delivery commitment schedules, and use that to

being our preparations for shipping capabilities.

Then when we receive final delivery schedules, we'll begin more detailed site-specific servicing plans, capturing specifically how the transportation system capabilities will be utilized on a site-by-site basis for the specific fuel and specific schedules that are developed through the contractual process, and then those will ultimately be used then to generate transportation shipping campaign plans near the time of shipment.

So it will be a continual process, going from the level we are at now, getting into more detail, working with utilities on a site-by-site basis to identify those casks that are suitable for use at each site, and identifying the most appropriate shipping mode from each site.

That's all I have. I'll answer any questions.

DR. PRICE: Dennis Price. What kind of philosophy did you have with respect to loading? Was it generally if the facility allows the loading to occur let's say by truck, that that would in general then be the shipping mode, the assumption that you made?

Behind what I'm asking is how did you consider -- say, for example, it might have a capability for overweight truck or a fairly heavy haul on a highway to a rail, maybe 25 miles or greater away, and how about those internodal

transfer kinds of things? How did you handle that problem?

MR. CONROY: Well, in the tables and figures I have shown you today and last time, the analysis, we specifically did not look at overweight truck, although we have the data from the FICA and NSTI on that.

The particular set of assumptions we were using for that analysis was, as I said, looking at rail as a preference followed by truck. We could have gotten into looking at the overweight truck as well. The numbers become all that much more confusing as you go through them. But basically, most of the truck-served sites, from NSTI's perspective, are also overweight truck capable.

If you look at the FICA results, you'll see that the number goes from -- let me make sure I have the latest numbers here -- from 73 to 68 going from legal-weight to overweight truck.

But what we were looking at was trying to go rail where you could, and then go truck where that's not possible. Overweight, there would be -- when you throw that into the equation, would change some of those numbers slightly looking at the FICA data.

The internodal, we basically didn't look at that in any detail in this set of numbers beyond looking at what we get out of the NSTI report in terms of the off-site. If the

NSTI report said that there was an off-site internodal transfer point available, then it was counted in my off-site numbers and then subtracted out when we looked at the on-site only.

As we do things on a site by site basis through the SPD process and getting into the site-specific service planning, there may be instances where we want to take a more thorough look at some of those options and looking at whether it would be appropriate to go from legal-weight truck to overweight truck, whether it would be appropriate to look for other transfer points that we have already identified in the NSTI study. So it's not reflected in these numbers, but those are certainly things we will be looking at as we go on in the process.

DR. PRICE: And what have you learned that you might be able to share with us about the use of a universal cask as it relates to these studies?

MR. CONROY: Well, I am not sure what a universal cask would look like, I guess is the biggest problem I have with trying to answer that question.

I think Ron discussed yesterday some of the difficulties in trying to, because of the long time before we'll know what the waste package characteristics will be for a repository site in terms of characterizing what we

would want in terms of size and weight on a universal cask.

I'd have to make some assumptions as to the length and width of such a cask, and then go back and look at the FICA data to answer that question.

DR. PRICE: Well, let's make an assumption it's something like a castor cask, or something like they have at Surry.

MR. CONROY: If I assume it's on the order of the 125-ton rail barge FICA cask, and building on the point that I made earlier that in most cases, the NSTI constraints are not controlling, but the facility constraints are controlling, then if you go to the FICA table towards the front of the presentation, there would be, under the planning base of basically current conditions, 24 out of the 122 sites that could handle a 125-ton cask as described in the FICA report, or 52 with administrative and licensing changes, and 78 with administrative licensing changes and physical modifications.

I think that gives you some sense of what a large cask would look like in terms of capabilities.

DR. PRICE: And on the physical modifications, are those crane capabilities one of the primary limiting factors, or could you describe to us what you ran into there?

MR. CONROY: Yes. Crane rating is one of them. Some of that is picked up in the second column. There are other factors as well. Again, it's not looking at crane replacements.

These numbers would capture doing reanalysis for taking the license capability of a crane closer to its nameplate rating as opposed to putting in a new crane at the reactor. So that's one of the factors involved.

DR. PRICE: Dr. North.

DR. NORTH: Could you describe how far you have gone in terms of checking all these results with the individual utilities, and could you describe the extent to which the utility industry's current research -- I believe there's a project at EPRI that's specifically addressing some of these limits -- how all this has been taken into account in your numbers.

MR. CONROY: Okay. In the FICA and NSTI projects, each of the individual site reports that are summarized in the summary report that I was giving you the data from, each of those individual reports were submitted back to the utilities for their review and comment, and a comment resolution process gone through.

Between our last September meeting and now, we have been finishing off about five or so NSTI individual site

reports, and that's the reason for some of the numbers changing, because they had been out for a long time awaiting comments from individual utilities.

So looking at the FICA and NSTI data, I have a pretty good level of confidence that those are consistent with the utilities' understanding of what was trying to be achieved in those reports.

In going through the analysis, though, that I was doing here, I was making a lot of assumptions in terms of trying to get a handle on modal mix because people are always asking what's the modal mix.

So I was assuming that rail is preferred when, in fact, there may be some sites that -- even though they appear to be rail capable from the FICA and NSTI data, there may be other reasons that the utility would choose to go by truck. So those would not be reflected in these numbers.

In terms of -- I haven't asked them to look at these tables and try to buy off on those because it gets very complicated on a site-by-site basis. As I say, what we will be doing with the site-specific service planning documents is submitting those to each of the utilities, as they have delivery commitment schedules, and asking them to review those and comment in detail on those.

With regard to the EPRI study, I haven't seen the

results of that myself. Maybe somebody else can comment on that. But we'll take a look at that.

DR. NORTH: Yes. My understanding is they are looking at some of the problem sites where there is a limitation on crane capability and the like and trying to come up with some innovative approaches for how you might load large casks at those sites. Others may know a lot more about it than I do.

MR. CONROY: We have been taking --

DR. NORTH: I urge that you find out what's going on there and check it with the affected utilities and see what implications it might have, both with respect to large cask and with respect to the modal mix question.

MR. CONROY: Okay. Yes. I should mention, too, that in the Phase I cask procurement, we are looking at the data from FICA and NSTI and trying to build upon that to put it into the -- build upon all of that data to build the specifications for that procurement to ensure that we are consistent with facility capabilities, and some of that type of information will be useful for that process.

DR. PRICE: What are the implications of these studies for the MRS and its design and for the repository and its design?

MR. CONROY: It is difficult to say for the repository

given the long lead time involved there. For the MRS, the implications I think -- I don't want to speak for the MRS people, who were here yesterday, but I think the implications are that we have to look carefully at what the shipping capabilities are at the reactor sites.

As we go through the process that I have described of going to actual shipping modes identified on final delivery schedules, we have to make sure that the modes that are identified and the type of casks that are identified through the DCS or FDS process are consistent with the receiving and handling capabilities at the MRS so that if we do have, for instance, sites that remain truck served, that we have the capability to receive truck casks as well as rail casks at the MRS.

I would expect that that would be something we would likely see. Looking at these numbers, there are about 15 sites that even on the right most column we end up with 15 facilities being truck served. So I would not want to see an MRS that would not be capable of handling truck casks or something sized like the truck cask we were looking at here.

DR. PRICE: How have you interacted with the M&O and their throughput study?

MR. CONROY: The throughput study is looking at things on a system-wide basis. We have been sharing all of this

data with them, the FICA and NSTI data. They have access to that, so they should be building upon that and what they are looking at.

In terms of how they are factoring in the MRS capabilities, I'd have to refer to the MRS people or the systems people to answer that question.

DR. PRICE: Do they ask you questions?

MR. CONROY: Yes. We have had a couple of meetings with them and provided some information on the throughput study.

DR. PRICE: Have you identified for them potential problems that they should be addressing in the throughput study that you think relate to the information you've got from your studies?

MR. CONROY: Yes. Some of the discussions we have had have centered on that, not on a particular site by site basis but in terms of the large picture we have had discussions on that.

DR. PRICE: What are the kinds of problems that you think they're interested in that come from your studies?

MR. CONROY: Well, basically, just you know making sure that we have the modal mix properly represented, that we don't make overly conservative or overly optimistic assumptions on the modal mix and again from my perspective

trying to keep things somewhat looking on a system-wide basis at the impacts if we are in this column or that column or that column or somewhere in between those, what does it mean to the overall system and what system-wide impacts might be gained from looking at some of those upgrades.

DR. PRICE: Yesterday we referred a little bit to some fog about some of these things. I don't know if any of you have additional questions because you are in a fog or has all the fog been cleared?

We'll ask you if you please would come to the mike and state your name and affiliation and then raise your comments or questions.

MR. HALSTEAD: Good morning, Mr. Chairman.

Bob Halstead, state of Nevada. Good morning, Mike. I have a couple questions but before that I want to say that the state of Nevada considers the FICA and NSTI studies to be particularly important for our transportation planning purposes, particularly for evaluating the Yucca Mountain site but of course for whatever studies are done for the MRS sites as well.

In our case we are as you know planning to do a rather large and involved routing study to attempt to determine the impact of routing decisions that are made, particularly for highway access in the state of Nevada and the way that the

designation of an entry point or entry points would affect the overall transportation system and in order to do that we want to make sure that we are using the same planning assumptions for in this case reactor to repository shipments assuming that there isn't an MRS.

Because of that, the accuracy and reliability of the assumptions both about the facility interface situation and the particular access routes from existing reactors and storage sites to the interstate system are important to us.

Dr. North asked part of the question I wanted to ask about your review process. That was the involvement of the specific operating utility or utilities; but I wasn't sure when you talked about your issue resolution process whether, if you had an instance where a utility didn't agree with your assumptions. Is your report going to denote that or I mean what is the end resolution?

MR. CONROY: On the FICA and NSTI, I think what we have there is the numbers as representative after the review and basically things -- it was just a matter of getting the latest information and verifying information in terms of the review with the utilities.

Since they were consulted and visited and a lot worked very closely with them in collecting the data, in terms of how we're publishing that information I am not exactly

certain at this point. I don't think that that will be included in the final reports.

MR. HALSTEAD: So if there is a dispute between the utility and the utility's estimate of their capabilities and yours, that will or will not be reflected in the report?

MR. CONROY: I don't think we have any remaining disputes.

MR. HALSTEAD: Okay.

MR. CONROY: I think those have all been resolved. If there are any --

MR. HALSTEAD: That would be our hope, but --

MR. CONROY: But again I would say that in relation to the FICA and NSTI data, in terms of the assessments and the assumptions I was making in terms of trying to draw a picture of modal mix, that's a different story.

If a site is both truck and rail capable, which is it going to ship by, truck or rail, I made an assessment here that would go by rail but that may not be the case.

MR. HALSTEAD: Also in regard to the review process, are each of the site reports, the NSTI site reports submitted for final review to the state department of transportation or the appropriate state routing authority in each of the host states?

MR. CONROY: I believe they were and I'll have to check

on that but I believe that in each case they were.

MR. HALSTEAD: That would be an important issue for us also because, you know, one would assume that there may be some controversies over route designations. Those may or may not affect, from our standpoint, the issue of which interstate would be used in a truck shipment routing study.

MR. CONROY: Most of the time it doesn't have any effect.

MR. HALSTEAD: Again, that would be my assumption

but hopefully if you haven't planned to discuss that review process in the final report, I think it would really strengthen those reports for you to be able to describe in some detail the reviews that were performed in each case and let's assume that there aren't any remaining conflicts, but if there are I think we need to know about them.

The other question I have is about the availability of the site and facility reports and perhaps I am confused about the relationship between the site service plans and the site and facility specific reports, the notebooks that I have seen in the past.

Are all of the site specific reports for FICA and NSTI completed?

MR. CONROY: I think they are, yes, in terms of going through the review process, we hadn't intended doing a large distribution of those reports though simply because of the volume involved is enormous.

We are in the process of putting the finishing touches on the summary reports which are based on the completion of the individual site reports.

MR. HALSTEAD: Well, leaving the summary reports aside, are the actual site and facility reports going to be published or when you say limited, you know what I am getting at. I would like to have a set of those reports at the University of Nevada, Las Vegas School of Engineering, where our transportation research center is, and I am willing to exchange an extensive set of slides on 800 miles of rail corridors but not to be overly humorous about this, we weren't sure whether you actually planned to publish those reports for distribution or whether you were going to do three sets with color photos and say have one in your office and one at Yucca Mountain project office or what your availability plans were.

MR. CONROY: We had not anticipated making the individual site reports published reports but I think we can get together and discuss for specific purposes having additional copies made.

MR. HALSTEAD: I can't speak for other states and I don't know if any other state people are here but I would guess it would also be a good idea to be planning on making available at least one set of site and facility reports for each of the reactor shipping sites as well. I think that might help to avoid controversies down the road.

Again, we are anxiously awaiting the final report and I am sure we'll be able to work out some way to provide that information to our researchers.

DR. PRICE: Thank you.

Others?

MR. MOTE: Good morning. My name is Nigel Mote. I am from Nuclear Assurance Corporation. From a fairly close involvement with these projects I think there's one or two things that I could add to Mike's presentation, which may help to clear some of the fog if any is remaining.

The first thing is on upgrades. The name carries with it a feeling of something significant to do. There are two cases or two groups of cases where I think there are some clarification needed.

The first one is that many utilities -- I'm sorry, many facilities were not ever licensed to handle casks. That is, in their initial licensing documents the lead time before the first cask handling operations were required was seen to

be long enough that no provision was made. That was left over to another date.

We have categorized those as upgrades because you could not handle a cask today but necessarily you need to understand that some action would need to be taken whatever cask needs to be handled, so in that case an upgrade is not an extra change because you are trying to increase the cask handling capability. It is that the procedure was never in place and so this is a procedural matter which would need to be done but technically precludes operations today. Therefore we had to categorize it as an upgrade because the current capability is zero.

DR. PRICE: I wonder, do you have a sense of how many upgrades are actually physical changes to something, as compared to getting permits or approvals or something like that?

MR. MOTE: It is not broken down that way now but it would be relatively easy to do that.

DR. PRICE: I am sure we would like to see that.

MR. MOTE: To a first approximation, the three columns that you saw, the today capability, with licensing changes, and with licensing changes and physical modifications give you those numbers.

I have those numbers right here.

DR. PRICE: Now we also are dealing with like a permit to haul on a road, which isn't a licensing issue. It's still a permitting --

MR. MOTE: Okay, I'm sorry. I was referring to FICA. If I change to NSTI the one liner which I think you are asking for is we tried to find a site that could not handle 125 ton cask and there isn't one.

In some cases you would need to do again what we categorized as an upgrade terminology agreed with DOE and we said if you cannot do it today then you need to upgrade, but if I focus on what the upgrades are for the roads, every one was permit except where a physical upgrade was already planned to take place.

One specific example, there is a bridge on a route I think from Nine Mile Point which is currently load limited to 40 tons, but in their scheme for '92 they are going to bypass the bridge and put an at-grade crossing across the railroad tracks.

Now we categorize it as an upgrade because it barred today's capability but it is not an upgrade that the utility would need to plan or fund. It was something which was already in process.

DR. PRICE: That's a most interesting statement.

MR. MOTE: Apart from -- I'm sorry. I didn't mean to

interrupt you.

DR. PRICE: Let me make sure I heard -- for 125 ton capability in fact there really -- all are really, can do that?

MR. MOTE: Correct. If I can add a philosophical note. We tried to take a step back through the project and say are we looking at something which philosophically is what you'd expect to find? All of the sites were built with components which were presumably in excess of 125 tons so at one time there was a capability to ship those loads in.

DR. PRICE: That is part of what has been puzzling to us, because we know that in order to build these things they had to bring in some pretty heavy stuff and that capability has to be around there somehow.

MR. MOTE: Right. As I say, the upgrades that we categorized were defined if you like by there is a lead time to be able to do this. It doesn't mean that you have to do some heavy engineering work.

DR. PRICE: Yes.

MR. MOTE: The second flavor on that is the price tag is going to be the determinant on whether you want to do it or not. The upgrades started, I think the lowest was $5,600 and that was too precise a number so we have not declared that number in those terms. We just said it's less than

$10,000 but in many cases where for instance the barge and rail capability is not there today, it is again not a heavy engineering requirement to upgrade. It is more that the utility has not needed to use the facilities for several years and they are behind on maintenance.

That is not an imprudency in that they are behind on maintenance. It is because they have not needed the facility so why spend the money? At the time they need to re-use the facility it is a relatively easy job to put it back into service again.

MR. CONROY: Nigel, I wonder if you might clarify, in terms of this apparent discrepancy that Dr. Price referred to in terms of what large handling capability, when you say that basically all the sites can handle something of 125 ton, you are speaking in terms of the transportation infrastructure?

MR. MOTE: Absolutely. Shipping away from the site. I am not referring to cask handling for that statement. If it comes to cask handling there are some easy concepts which are the same as that.

I come back to the first group of upgrades that I started out with where a number of sites have never put in place the requirements to handle casks and so again it comes back to there is a lead time before you can do something, so

in our definitions the today capability is zero and in some cases for instance the cask handling load limit is defined as zero tons, purely so that there is no operating procedure to allow casks to be handled.

Some of the facilities which could handle 125 ton casks if they put their procedures in place are today down at zero and our assessment in the table that you saw have a today capability of zero by definition not by a real restriction.

The second group of the sites which I would single out for upgrades are that a number of utilities are putting in place their own changes. For example, Fitzpatrick is looking at upgrading its crane to make preparation for dry storage capability and so the numbers where Mike said the numbers have changed some, it is because through the NSTI utility review process we also collected some updates on FICA.

It's not changed in assessment and it is not

upgrades of the project. It is that through time the facilities will change their capability and we are trying to catch those at the latest point to cut it off as we go through the review procedure, the FICA documents.

So the second group of upgrades that I would like to focus on, those were the utility for its own needs will

perform some upgrades.

I refer to Fitzpatrick.

Three or four years ago D.C. Cook replaced its steam generators and this is a program where other utilities will take the same action in the next few years.

In some cases they will use the cask handling train system to handle the new steam generators as they did at D.C. Cook. That will cause them to re-evaluate how they handle heavy loads.

In some cases it is to be expected -- I'm not making a commitment and I have not discussed this with the utilities but it is to be expected and it's in our minds that in looking at how the FICA data is used may be an awareness it is wise that some facilities will upgrade for other purposes, and so where we have identified upgrades they need not be triggered by cask handling requirements. They may come in the natural course of events anyway.

If I could just summarize and I hope I am not taking too much time here, if you look at the percentage of the sites today that can handle 125 ton casks it is down in the 20 percent region but if the upgrades that were identified in FICA were seen through, that's an if, then that figure would go up to 65 percent of facilities could handle 125 ton casks.

Again, I would comment on that. The sites that can handle the heavy casks are the later sites with the bigger reactors and so the percentage of fuel which could be handled by those casks as opposed to the number of facilities that could handle them is going to be higher because the larger later reactors have bigger discharges. I haven't looked at it but I would imagine the number would go up to something like 80 percent of the fuel which could be handled in those heavy casks.

MR. CONROY: But by the same token then since these are the newer reactors, those are that first in the queue, the older reactors, are more likely to have problems handling those casks.

MR. MOTE: Absolutely, yes. I am referring to a program as opposed to a date specific transportation system.

DR. PRICE: So the upgrades that you are referring to that give you the 65 percent number, did I understand those are less than $10,000?

MR. MOTE: No, I'm sorry. The $10,000 is I was trying to indicate an upgrade for the shipping.

DR. PRICE: Shipping only.

MR. MOTE: Inside the plant upgrades, we did not have a price tag to work with but predominantly again the upgrades are in engineering terms trivial. I am saying engineering

terms -- in practical terms, the licensing requirements and the utility organization requirements are significant. Any change to a licensed facility is significant. I am not trying to comment on it. This program specifically did not address those issues.

DR. PRICE: But the design and mechanical work that's involved and so forth is really not the major ticket?

MR. MOTE: A number of them for instance are cases where the cask diameter is a limitation because there is a frame somewhere that was designed for a specific cask some years ago, typically the IF-300.

If you try to handle a 100 ton cask or 125 ton cask, the real limitation is not the steel frame but the concrete structure outside the steel frame and the upgrades that we have analyzed include reconfiguring the steel frame. In no case do they consider changing the configuration of the concrete structure.

All of the upgrades that we considered we believed were within the reach of a utility without -- I'm sorry, at a utility site without any structural modifications.

Another typical problem was that in the decontamination area there would be some diameter limitation and there are a number of alternatives to that. You can find the different decontamination area or you can increase

the size of the decontamination area. In many cases we are talking a few inches of clearance.

DR. NORTH: I wonder if you could explain the state of the documentation of these issues you are raising. I invite a DOE response on this as well.

If we go to the notebooks on the sites that were being discussed, are these issues set forth? Are they available in some other set of documents?

MR. MOTE: I'm sorry, are you talking about the upgrades?

DR. NORTH: Yes.

MR. MOTE: In the FICA documents each upgrade is identified in the site specific assessment report. I do not know that those are intended to be in the public domain. That is a DOE decision.

The site specific reports for NSTI I was told at the beginning of the project were not intended to be published and available. I am not pre-judging DOE's position on this but we were told that for instance hand sketches were acceptable. Hand sketches could be part of the report. They did not need to be computer drawn. They did not need to be of an engineering standard as you would want for an engineering report. These were working documents meant to identify problems and working documents

were the rule of the day for those reports.

DR. PRICE: Could I ask DOE if the reason for this is that you run into proprietary information with respect to utilities? Is that what is behind this?

MR. CONROY: Yes. In collecting that kind of detailed data we've got there is some problem with sharing with the outside world all of the details within the particular facility so we're trying to categorize and summarize those things and look at lessons learned from the overall system point of view without getting into publicizing any details of individual facilities.

MR. HALSTEAD: I would like to follow up on two points, Mr. Chairman, one on the last point about proprietary data, but let me hold that for a minute.

DR. PRICE: I would like to keep Nigel here in case there are some other questions too, so ask your question with respect to Nigel and then we'll get back to you on the other.

MR. HALSTEAD: The question that you asked which elicited the interesting response about the 125 ton cask handling capability gets to the heart of one of the concerns that we have addressed in our studies, particularly of the potential use of dual-purpose casks.

My own feeling is there is no reason why this same

approach wouldn't be applied to a universal cask as well and really this goes back to some of the studies that Nigel may have been involved in earlier with Nuclear Assurance that were done for the state of Tennessee and one of the papers that Ray Hoskins, actually two papers that Ray Hoskins has prepared for us, and that is the notion of using a family of similar casks of different weights.

We could argue plus or minus 5 or 10 tons on what that distribution ought to be but let's say we were talking about a family of dual purpose or universal casks ranging from say 75 tons, 100 tons and 125 tons. If we had that family of casks available, I wanted to ask Nigel whether he thought there were any reactor sites that wouldn't be able to accommodate one of those casks in that kind of size range.

MR. MOTE: There were certainly some sites that could not handle a cask of 75 tons in the pool. Again, another refinement on the analysis is that at Three Mile Island, all of the fuel that has been shipped away from Unit 2 was done so in a 25-ton transfer -- less than 25-ton transfer cask within the facility and then transferred to a dry transfer facility within the fuel handling building into a 75-, 80, 90-ton -- I'm not sure of the shipment cask weight, but a cask of that weight which could not be handled

in the pool, and then shipped by rail from the site.

In principal, that sort of dry transfer facility is another feature which could be used to make every site able to ship away with a rail/barge type cask.

I come back to the NSTI conclusion in which no site could ship that cask, so the problem that Bob's identifying is that there are some sites where you couldn't put that weight of cask in the pool.

But there is another fix which could be looked at to load the fuel out of the reactor in a transferred cask and then transfer that into a heavier cask for shipment away from the site.

One of the options that I know DOE has looked at in the past is the impact of doing that on a number of shipments and on the risk on dose uptake on cost and the program implications.

So there are some sites which could not handle a heavy cask in the pool. Predominantly, the early sites or the early facilities, maybe back in the '60s and '70s, which were designed specifically for shipment away from the site within two or three years are discharged by road casks.

MR. HALSTEAD: Would you say that -- I don't know if you have a specific number for the number of pools and cranes that couldn't handle a 75-ton cask, but are we

talking about a significant problem in terms of the total number of shipments? Are we talking about ten percent of the spent fuel? I know it may be older and earlier in the queue than the larger capacity facilities, but I am just trying to get some handle on how significant the problem is if we had a 75-ton cask.

MR. CONROY: Bob, if you look at the one chart I had, trying to answer your question, if you look at the one chart I had where I looked -- we looked at using existing casks as well as Initiative 1 casks, and looked at -- which would in essence capture the IF-300, which is about a 75-ton cask, and looking at on-site and off-site heavy haul, we ended up with under current conditions 19 sites that would have to remain truck, under small modifications, 17 facilities that would have to remain truck, and in what we call moderate modifications, nine that would have to remain truck. So that gives you some sense of what the numbers would come out.

MR. HALSTEAD: Thank you.

DR. PRICE: Ron?

MR. MILNER: I wonder if I might just make a comment on that. Ron Milner. To the extent that a larger size cask would improve the efficiency of the transportation system because it boosts the payload capability of the cask, it

certainly is our goal to the extent that we can to use the largest capacity cask or the largest weight cask possible in a system.

I'd certainly have to agree that technically, many of the modifications, probably most, are not only feasible, but probably from a technical point of view quite simple. From a licensing standpoint, from a contractual standpoint, it may be far different than simple.

Those are issues, particularly on the contractual side, that as we go through the site-specific planning documents, we'll have an opportunity to deal with the utilities on, but I guess I'd like to leave the message that we certainly have the objective, to the extent that we can, of using the maximum capacity cask possible.

DR. PRICE: With respect to what you just identified in the licensing problem, what sense do you have of NRC's interest in and posture toward making it easier, if it's difficult? I don't mean relaxing their requirements, just making the process easier.

MR. MILNER: To this point, we haven't yet discussed any of this with the NRC. The discussions relative to the licensing area has been with the utilities to date. We have not taken that the next step and explored that with the NRC.

DR. PRICE: And are the utilities quite wary of the licensing process?

MR. MILNER: In many instances, there is certainly a concern there, yes.

DR. PRICE: Any other questions or comments, or anything while we've got Mr. Nigel Mote here at the microphone, who has been most helpful?

MR. MOTE: Could I just make one last comment?

DR. PRICE: Yes, please.

MR. MOTE: I just want to clarify something.

DR. PRICE: I have to admit, I see some overheads there, and I'm very curious about what they --

[Laughter.]

MR. MOTE: I'm sorry. Those are just pieces of plastic.

DR. PRICE: Oh, okay.

[Laughter.]

DR. PRICE: Plastic, and I see some imprint on them, and that's what makes me curious.

DR. CHU: Is that a grease pencil?

[Laughter.]

MR. MOTE: No. That's a regular pen.

The comment that I was going to make was to clarify the 25-mile radius limitation. We were given that as a

guideline. Where it seemed appropriate, we went outside that. In fact, the rail facilities, I think the furthest one from the site was about 40 miles from the site, and we categorized the heavy-haul route to that facility because it made sense.

DR. PRICE: I see.

MR. MOTE: So the 25 miles that Mike referred to was a guideline, not a strict limitation.

DR. PRICE: Yes. Well, this issue of the internodal aspects of it and the overweight truck -- I'm just wondering how thoroughly that was exercised because it seems to me that that's a real vital part of understanding this whole thing.

MR. MOTE: Do you mean did we take into account the practicality of using internodal transfer facility at the point that we identified?

DR. PRICE: Yes.

MR. MOTE: In most cases --

DR. PRICE: You know, the 25 mile, maybe it's a distance beyond that that you would haul over to the rail and make the switch.

MR. MOTE: Yes. We did not always try and find an existing facility. There were cases where the road that we were using or that we were characterizing for heavy-haul

shipments ran alongside the rail system, and we looked at the local geography, how flat the land was, whether there were physical restrictions, and could you perform a transfer operation there.

If we were satisfied that it was practical, then we said, "Okay. That is good enough as a site." It did not prejudice that you may need to make preparations for enclosure and the right of use for the land, but we did, on an engineering basis, on a judgmental engineering basis, satisfy ourselves that it was a reasonable opportunity to perform that sort of transfer.

In most cases, though, it was either an existing commercial facility or a privately-owned facility. In the case of a privately-owned facility, we did not always approach the owner, and we were not required to approach the owner. The principle we were trying to establish was that the operating rail line and the heavy-haul road route were close enough together that in a reasonable distance, you would expect to be able to find somewhere to identify a potential transfer point that you could use.

DR. PRICE: All right. Thank you very much.

Mr. Halstead?

MR. HALSTEAD: Yes. I was concerned, Mike, in that exchange between Ron and yourself about the suggestion that

proprietary data might preclude access to the site and facility reports, and I would just like to reiterate my hope that we will be able to obtain those reports through an amicable process.

To date, fortunately, the transportation component of this program has been spared the suffering of litigation and the other kinds of things that have plagued the other parts of the program, and it's very important --

MR. CARLSON: Bob, if I could interrupt you, at this point, to save you litigation at this point, all the proprietary information that was supplied in the preparation of the report has been returned to the utilities. So the reports do not contain proprietary information and we will make arrangements so that your folks can get copies of the reports.

MR. HALSTEAD: I really appreciate that, and I would hope that that would continue the, I would say, generally very cooperative exchanges that we have had on transportation issues.

On my part, I will try to make sure that, on the other end of the near-site transportation planning for Yucca Mountain, that you have the same access to the data that's been developed by our researchers at UNLV and at UNR.

MR. CARLSON: Thank you.

DR. PRICE: Any other comments or questions from the audience, please?

[No response.]

DR. PRICE: Let's take our break. Well, we're making up for yesterday; we're ten minutes behind.

[Laughter.]

DR. PRICE: Let's take a 15-minute break, and we'll see you back here in 15 minutes, or 20 minutes until.

[Recess.]

DR. PRICE: Let's come back to our seats and get ready to go again, please.

Before we turn the session over to Ron Milner for our last topic, transportation program update, I would like to ask Mr. Milner if DOE would provide to this panel, when they can, a service -- what do you call it? -- service performance document.

MR. MILNER: Site-specific service planning document.

DR. PRICE: Okay. Planning document. A-site specific planning document for a facility such as Turkey Point, and also one for a newer type facility.

MR. MILNER: I would be happy to.

DR. PRICE: Okay. Thank you. All right. Now the ball is yours.

[Slide]

MR. MILNER: Thank you, Dr. Price.

When we last appeared before this panel, we reported to you on several program adjustments that we were undertaking. I believe that was last September, and so I wanted to go over a little update on where we are on some of those adjustments at this point.

[Slide]

MR. MILNER: First, in the area of institutional operational planning, in recognition of the fact -- at least in my opinion it is fact, anyway -- that equally if not more important than getting the hardware capability in place is to ensure that an appropriate institutional and operational climate is in place to be able to operate a transportation system.

So one of the adjustments that we were undertaking a that time and have moved forward on is to place more emphasis in the transportation program on those two aspects. Jim Carlson a little bit later will be providing a little bit more detail in that area to you.

The second adjustment that we had made was in the area of the Initiative 1 cask program, where we had revised that into a two-phase cask program. We talked a little bit about that yesterday, and I'll cover that a little bit more today.

A third initiative that we undertook was a peer review

of the design basis for the Phase 2 casks under the Initiative 1 cask program, something that we are beginning to term the higher capacity casks, pushing the envelope in terms of capacity.

Just briefly on that, since the RFP for those casks had been issued in 1986, well ahead of the program having a QA program established at headquarters, we wanted

to go back and look at the design basis for those casks to satisfy ourselves that it would meet the headquarters QA program were it undertaken at this point.

We have completed that peer review and the bottom line was that it did in fact meet the QA requirements of the current program.

Lastly, I'll talk a little bit about the independent assessment of the high capacity or Phase 2 casks that we undertook.

[Slide]

MR. MILNER: On the two-phase cask program, I don't want to spend too much time since we talked a bit about it yesterday, but just briefly, we undertook that revision to the program, one, to provide greater assurance that we would have a transportation capability, an adequate transportation capability in place by 1998 to support start of MRS

operations.

Also, we wanted to step back and take a little harder look at the Phase 2 casks, and that split into a two-phase program would then allow us the time to take that step back and look and make any adjustments that might be necessary as a result of that.

Just quickly going over the Phase 1 cask, as we talked yesterday, could either be the procurement of existing casks, casks that are out there and currently satisfied now, or perhaps some minor modifications or enhancements to those casks which might increase payload or something of that nature, or entirely new cask designs, but those using current technology, current materials and so forth.

Essentially, we could end up with procuring any one or, more likely, a combination of those types of casks. Then what we have termed as Phase 2 is the cask that we have had under development for several years.

[Slide]

MR. MILNER: Just to go over a little bit on the Phase 1 casks, we plan on putting out an RFP probably sometime in the late summer time frame. We will be putting out a CBD notice, a Federal Register notice, prior to issuing the RFP. In fact, we do plan on issuing a draft RFP prior to that.

Hopefully, we will issue the Federal Register notice within the next several weeks, and we're currently on a schedule for issuance of the draft RFP in the May time frame. Both the Register Notice and the draft RFP would provide an opportunity for public comment and public input to that process.

[Slide]

MR. MILNER: On the independent assessment of the higher capacity or Phase 2 casks, we assembled a team of

experts comprised of some DOE people, some utility industry people and outside parties to review the casks.

That review was looking at the feasibility of meeting schedules to support MRS operations, certainly compatibility with the reactor sites, the interface, operational capabilities.

The review also got into a hard look at the fabricability issues of those casks, and then certainly the cost to complete that program.

A final report from that group is due a little bit later this spring, although we have been given a verbal preliminary report from the group. That report has identified a number of issues relative to the casks that were under development. The issues primarily were ones of

interface issues and fabricability. So we are now taking some time to address those issues.

As a result of that we have, at least for the time, placed a hold on further work on those casks until we have an opportunity to address those issues. We would anticipate that we could move through that process in the next six months or so, and then determine where we go from there on those casks, whether it --

DR. PRICE: Well, what were the things related to fabricability, the problems related to those?

MR. MILNER: I don't have all the specifics with me, but in one case, I recall there was some unusually close tolerances on a groove running down the length of the cask body which, one, could be a fabricability problem, and second, over the course of the lifetime, could be an operational problem, too, in maintaining that tolerance.

DR. PRICE: Materials problems weren't part of that.

MR. MILNER: Jim, do you recall any of the specifics?

MR. CARLSON: This is Jim Carlson. I don't remember any specific materials problems that were identified. There were questions about the fabrication of particular materials to the tolerances and the welding and joining of some of them that, you know, these people thought we should take another look at some of these issues.

MR. MILNER: That basically concluded my remarks. Any other questions you might have?

DR. PRICE: Any questions from the Board or staff?

[No response.]

DR. PRICE: Any questions from the audience? For another appearance, Mr. Halstead.

MR. HALSTEAD: Just a quick one this time, Ron. We have not been directly involved, of course, with the independent review of the cask program. We would certainly like an opportunity to offer you some comments on a draft

report, if you have any plans to circulate that.

Again, this is not a formal process with, you know, the normal types of review input, but as parties who have a very serious interest in the cask design program, I would certainly like to have an opportunity to review the report before it's final.

MR. MILNER: I don't know that we're planning on putting out the preliminary report for comment or so forth, but certainly, the final report, once we have it, would be available.

DR. PRICE: All right. Mr. Stuart.

MR. STUART: Ivan Stuart from NAC in Atlanta.

Ron, when you talk about current technology casks in

your new RFP, do you mean by that, for example -- let me use the IF-300 as an example.

MR. MILNER: In the categorization of the three different types of casks here, I would class that in the existing cask.

MR. STUART: Is it your plan that you would -- as I understand it, there are only a couple of those casks that actually exist today. Would it be your plan to ask the current owner if he would bid on sort of selling you those casks or selling you more of that same cask?

MR. MILNER: I think it's assumed that if he would be interested in selling those casks, he would respond to the RFP.

MR. STUART: So when you say current technology, you mean actual physical casks around today, not --

MR. MILNER: No, not solely. As I indicated, we're looking at really three different potential existing casks that are there today, certified, or new casks using current technology.

MR. STUART: Okay. Thanks.

DR. PRICE: Other questions or comments?

[No response.]

DR. PRICE: Just a comment, and it's not to belabor a point, but as I understand your cask program, you really

have the mandate of 1998 which is a given from your viewpoint that you have to work with, and that sort of establishes the strategies, that you go from that point, given the 1998 date, then there are certain things that you have to accomplish by that time.

I just want to make that point about that's the 1998 date that is appearing again that you have to respond to. It's a given for you.

MR. MILNER: Well, that's right. That's certainly the schedule we're working towards, so the transportation planning and so forth is geared to support that.

DR. PRICE: All right. Any last comments, because its' coming up on eleven o'clock, and as you'll notice now, we can have any general discussion at this point that --

MR. MILNER: We have Jim Carlson.

DR. PRICE: Oh, I'm sorry, Jim.

MR. CARLSON: I'd like to make some comments.

[Laughter.]

DR. PRICE: Yes. Okay. Yes. Excuse me very much. We have one more.

[Slide.]

MR. CARLSON: Dr. Price, panel members, it's again a pleasure to speak to you a little bit. I think Ron and I decided today to share the honors of the program update, and

I'm going to talk a little bit about the other elements of the program that Ron didn't cover that I think I briefed you on last September.

I wanted to talk a little bit on a couple other things that have been going on related to the transportation program that Mike alluded to in the waste acceptance area that move along our planning of the systems logistics and the potential casks we'll need for shipping, and also talk a little bit about the organizational changes that have taken place in the last few months.

Certainly from my own personal view, one of the most significant one is Chris Kouts, about two weeks after the last meeting, was detailed to help prepared the mission plan, so basically, Mike and Bill Lake have been sort of doing a yeoman's job handling those duties as well as their normal program responsibility. So we've been running a little shorthanded.

We have brought on a new person in the institutional area. This is Elissa Turner, who is sitting at the far end of the front row, who will be working with us on the 180(C), the TCG meetings, the external relations area.

We also have lost one person in the institutional area. Susan Smith has moved over to the MRS group. So we're down to basically three people within the OCRWM organization

managing these activities.

The transition of the Chicago operations work has gone over to the M&O team. The M&O team has been staffing up as rapidly as they can. We have Bill Teer with us again today who will be -- if you get questions that I'm not sure on the details, I may be looking to Bill for some help.

We still have support out of the Oak Ridge office and the people who have been supporting the operations planning. Most of the work that Mike talked about is coming out of those people.

What I specifically was going to talk about -- Ron talked about the cask development activities and the cask acquisition plans. I'm going to give you a little bit on the support systems operation planning. I actually don't

even have a slide on the economics and systems work that's going on because it's been an area where there hasn't been a lot of activity this year. Then I have some slides to address the institutional program.

Primarily, what we're doing in the 180(C) area to push forward are developing plans for providing technical assistance and funding to states, Indian tribes, to support emergency planning and routine shipments.

[Slide.]

MR. CARLSON: I just thought of the other item. The other part of my responsibility has to do with the utility interface and systems logistics function, which has to do with the contracts and the relationships with the utilities. That's a parallel branch to the Transportation Branch. Alan Brownstein talked to you a little bit about that at the last meeting.

We have made two, I think, major items have gone out in that are this year. One was we published the first annual priority ranking. And this is basically indicates what fuel has the position -- their position of the spent fuel in the queue that allocates the rights to the utility for our limited Federal receipt capacity in any given year.

This was published in July, in a draft form. So, the utilities could look at it, the fuel owners, and tell us whether our data was correct. We got comments back and we published the final report in December, which covered, I believe, up to December 1990, spent fuel discharged, and ranked them in order, as to what their priority is in the -- with the other fuel that's out there.

We published our fourth Annual Capacity Report this year. And that report basically takes that priority ranking and allocates it against the Federal system receipt capacity. So, it tells each utility where they have rights

for receipt in any given year.

Now, the third document that actually went out in the last week or so that Mike mentioned, is the Delivery Commitment Schedule Instructions and the form. These need to be returned to the Department by the utility, specifying the range of fuel they expect to deliver to us in the given year, the transportation mode, or actually the type of cask that they would like us to supply them for that delivery.

This information needs to be back to us at least 63 months before the scheduled receipt year. So, we're looking at September as the date. For those fuel -- or those utilities who have acceptance rights in '98, they need to provide us DCSs by September of this year.

So, a lot of the planning that Mike talked about will be coming together later this year, where the utilities tell us, okay, this is what we plan to send you, the range of fuel, the type of fuel and how we want it handled.

The way the contract is set up, operations within the gate are the utilities' responsibilities. They will tell us what to provide them. They will provide the people to load the cask. It will be done under their license and their quality assurance program. Outside the gate, it is our responsibility. So, that's sort of how it's set up and where that process stands.

As Mike outlined, there's going to be a lot of negotiation with the utilities when we get into the specific planning. There's a similar process envisioned for negotiating with the locals in the states with regard to how we operate outside the gate, particularly, if we get into areas where internodal transfer may be something that looks desirable to us. We may find that it's just not practical to the local governments or the local officials. And we may find ourselves, in Bob's term, litigated rather severely before we can even move anything. So, that process is starting to move ahead.

This year is sort of a watershed year with regard to some of those, because of the way the law was structured in the contract process.

With that sort of background, it leads right into -- we are evaluating the implications of the standard contract with regard to the waste generators and the transportation system. The agreements listed there are talking about the improved delivery commitment schedules, which will further define the transportation system requirements. And the goal of this activity is to integrate the waste acceptance and the transportation programs, and that sort of comes together within my organization.

I would like to -- you mentioned earlier the impacts of

these decisions on the MRS interface. The principle, certainly from my previous experience involved in the MRS design process and, I think, as Joe Stringer pointed out yesterday, the actual -- to a large extent, your fuel transfer capability, the number of casks you have to handle and how much you take out of each cask is one of the biggest driving items in the MRS design. The number of specific transfer cells that are required will be heavily influenced by the number of truck casks.

And something, I think, Mike pointed out. The early waste acceptance capacity, since allocation is based on the oldest fuel first, is the way that the contract is set up, is allocated primarily to the older reactors. And as Nigel and Mike pointed out, these are primarily the truck reactors.

So, we find a lot of the early system requirements will drive the facility designs. Where, in the later years, where you're looking at truck casks that can handle large amounts of fuel on each shipment, you would have less frequent arrivals, be less of an influence on opening and closing casks and cask handling.

DR. PRICE: Did you mean, in later years, rail casks?

MR. CARLSON: Yes. Rail casks coming in -- the larger -- the newer reactors which have the rail capabilities would

be having the fuel allocations.

Now, another thing that does come into it is the utilities receive the right to designate the spent fuel. So, you're not necessarily going to get it from the reactor that earned that right. You may have a utility with an old reactor, but they may have -- all the storage is taken care of there, and they may want to ship from one of their newer sites.

DR. PRICE: And, in fact, can they trade that with another?

MR. CARLSON: When they each have -- when the utilities -- if two utilities have approved delivery commitment schedules, they can propose to trade it -- a trade. DOE does have an approval in that process, and it's based -- I think the wording is that it's based on the impacts to the Federal Waste Management System, as to whether we'd approve that trade or not.

I think it would be a question of, if someone was proposing a trade that was just completely out of sync with

the way that it looked like the system was coming together, and we just didn't have time and resources available to address it, we probably would have to deny it.

The last bullet, I think Mike covered that and Nigel

and Bob, to an extent that we probably don't need to have too much more discussion on that.

[Slide.]

MR. CARLSON: By in large, the bulk of our effort in this area has been developing the site-specific planning documents, and we will get a couple examples over to you so you can have a look at them. And that may be something worth while to consider at a later meeting -- to walk through the kind of specific details that are involved.

Based on the DCSs coming in and the planning, we will begin our long-term site-specific logistical planning, because we'll have a better feel for exactly how the utilities -- what they plan to provide us and how they'd like us to ship -- or the type of casks they're interested in.

The -- we've done further refining, and I think we're probably pretty well closed on establishing the cask maintenance facility requirements, and these are being provided to the M&O design team to do along with the MRS design activities.

We also have a separate effort. We've been looking at potential contractor and contractual vehicles and management organizations to put in place the transportation system. How best, from a standpoint of setting up an

organization that can contract with the railroads or with the various lines we should configure ourselves? And this has been a separate study. And I think there's probably a draft that's pretty well along. I see the author shaking his head rather questioningly. But this is an activity that is ongoing at Weston.

[Slide.]

MR. CARLSON: I am going to briefly talk about each of these areas where there's been work going on in the institutional planning area.

[Slide.]

MR. CARLSON: The strategy for developing the Section 180(C) process or procedures has been published and worked through. We provided a preliminary draft at the TCG meeting, it's been probably more than a year ago. We've got comments back from the people there.

We've issued a formal draft for comment, a Federal Register Notice, I think, went out last week, stating the availability of that and a 60-day comment period. In fact, I think I'm getting on to the next slides.

But, we developed a five-step process indicated in the 180(C) strategy on how we would develop this strategy. And again, 180(C) is the requirement, under the law, to provide funds and training assistance to states and Indian

tribes, to permit training for emergency response and routine transportation operations.

[Slide.]

MR. CARLSON: As I said, we've basically published and distributed the 180(C) document. We've announced the availability, and we've had a few calls coming in where there were people who probably didn't get it on our direct mailing, who have asked for copies.

The 180(C) policy options. We're doing some preliminary drafting to get some options together. And again, those will be vetted through the state and local process group to get pre-decisional input and ideas from them on how we should be proceeding in these areas.

DR. PRICE: Could I just, out of curiosity, the word "vetted." I looked that up in the dictionary, and we were discussing what it means in these kinds of -- what does it mean when you use the word vetted?

MR. CARLSON: I don't know. I've noted it and I have had the same thought.

[Laughter.]

MR. CARLSON: I think what -- I thought of that when I was writing my notes to myself on points, and I thought, boy, that word is probably not a good one.

To me, what it means is we're going to share it with

these people and discuss it and have an open discussion of the approach. So, it's more of an airing of the issues and potential solutions.

I don't know, do we have an OCRWM definition for it, that you're aware of?

MR. MILNER: that's the best definition I've heard so far, I think.

DR. PRICE: From transportation, it has kind of a sports car sound do it.

[Laughter.]

MR. CARLSON: Okay. In this particular area, we are working very closely with the other DOE emergency preparedness activities and trying to present -- and this has been a comment that we receive frequently from the states,and I think Mr. Halstead has mentioned that.

EM-50 is the other part of the DOE that is responsible for transportation policy and operations. And they've established, I think, a very good infrastructure. And I think the state people could comment on them. We talked to the WIPP people and the WGA who have done a lot of work in these areas, and we're trying to capitalize on the experience and work in our planning, and trying to integrate these programs to the extent we can, to provide a single focal point for the various states and interested groups to

work with.

[Slide.]

MR. CARLSON: The content of the strategy document that was issued. There's a discussion of the legal issues around the requirement, planning principles, which we received, based on comments received from the various groups.

We've included a proposed organizational membership of the working group. This is one where we've worked closely with our sister organizations within DOE to take advantage of some of the groups that they've been working with and have contractual mechanism with. Particularly, they would bring to us a number of first responder groups, the representative of fire chiefs and police organizations and state police, which we felt would be an excellent addition to any group discussing emergency response planning.

We also state in there that we will implement the 180(C) requirements, using the rulemaking process, which is the Formal Administrative Procedures Act. And the final approach will be handled as a DOE rule or DOE in the Code of Federal Regulations.

[Slide]

MR. CARLSON: Some of the different things we've looked at in the policy options area are the different

grants and funding mechanisms or vehicles that are currently in existence that provide funds to states and other entities for emergency planning. Some of them are listed here.

What we've got under the 180(C) is sort of an animal that's a little different than any of them. Some of these address only highway and not rail; some are for routine operations; some for emergencies.

There isn't any specific one that covers all of the different vehicles, and this is something we plan to put forth to the states and locals to get feedback from them on the sort of mechanisms that they think represent a reasonable way to get adequate funding to the jurisdictions.

[Slide]

MR. CARLSON: I mentioned before the coordinating group, and Susan Smith will be basically the OCRWM lead on this. I do have permission from the MRS people to use her a little bit in this area.

The EM-50 group that I mentioned was setting up also proposing a state and local working group to help air issues, since I don't want to vent any more issues today.

This group was being pulled together on a schedule that fit very well with our 180(C) planning, and we felt this provided a real good opportunity to try to pull the programs

together, to speak with a single voice, and also get input from the various groups, not have them going to two different meetings to address similar items.

So we're working cooperatively with them. The first meeting of this -- I call it a group, but it's rather loose-net. We've sent letters out to how many people, Susan?

MS. SMITH: About 25.

MR. CARLSON: About 25 different organizations representing state regional groups and again, as I said, some of the first responder groups. Other people are normal attendees at the transportation coordinating group meetings.

The meetings will be open to the public and there will be opportunities for participation to interested other parties who would like to be heard on this process.

[Slide]

MR. CARLSON: I think I have pretty well covered this in my discussions, that we are working to minimize duplicative training and interactions within the Department, and this has been a constant comment that we hear regularly from the states and from the external groups.

[Slide]

MR. CARLSON: The CVSA inspection procedures project -- we had been hoping by this time we'd be in a demonstration

phase working on the WIPP shipments. We haven't gotten there yet. I do believe that this procedure

was used by Colorado in inspection of Fort St. Vrain shipments.

This one -- I have been talking a little bit to the people closer to it than I've been. Since the procedure was developed by state inspectors, there are feedback mechanisms both where we can improve the procedure based on the data that we collect, if we find that there are parts of the vehicle or the package or the areas that show greater or lesser cases of either non-compliance or problems, it can be modified. I mean, there will be feedback within the process. And since it is the state inspectors, accident reports and follow up to make sure we are looking at the right things is integrated in the way this thing has been developed.

[Slide]

MR. CARLSON: This is sort of a chronological history of where we are and where we're going. It is our hope that by '95, the procedures will be recommended to all CVSA members for adoption as a unified inspection procedure for spent fuel shipments.

DR. PRICE: How complete is that membership?

MS. TURNER: 48 states and Canada and Mexico.

MR. CARLSON: Okay. Certainly the continental United States, all 48 states, and Canada and Mexico.

[Slide]

MR. CARLSON: In the area of highway and routing issues, I think this is more of a statement of where we are. We have been planning or we're hoping to be able to have a session on routing issues at an upcoming TCG meeting.

Now, the specifics on the agenda and stuff haven't been worked out, and I think we'd like to work towards a table-top exercise where we can work with the states and regional groups to hear their opinions on routing and apply them to a fictitious shipment to see how it impacts the way the shipment would be run and get the feedback. Right now, we, of course, do have to follow the DOT and NRC rules with regard to shipping.

There are no Federal rail routing criterion. I won't ask DOT to comment on where we are. I think there was under the HMTUSA a requirement that they look into that issue, whether there should be rail routing criteria.

We do plan, if there are none developed, to develop some ourselves so that we do have a procedure for how we approach the routing of rail shipments also, and we would proceed with that in, again, an open manner to allow those

people who are potentially affected by the shipping and the routing decisions to comment to us.

This sort of ties back to the management operations in that when we do set up how we're going to manage the shipments, if we are going to have specific criteria where we are dictating, so to speak, how the railroads are going to route our shipments, it will require us having a contractual mechanism to make that happen, which is often difficult to do under normal Federal procurement regulations.

[Slide]

MR. CARLSON: This is a sort of a status on where routes and route designation is now. Eight states have designated alternatives to the interstate since this is a state right. Seven other states have designated the interstates. No tribes have designated.

I believe Nevada is in the process of route designation. I think Mr. Halstead mentioned NSTI data would be useful to understand the implications of some of these decisions.

DOE does provide access through the Transnet system to RAD TRAN, and, you know, information to these various parties through the cooperative agreements if they would like assistance on how to make the route selections.

DR. PRICE: When you do your table-top exercise that you referred to a little bit ago, will you be on line with RAD TRAN during that?

MR. CARLSON: I'm not sure the planning has gotten that far on it. I don't think we were planning to. Then again, that is something that's in the proposal stage, so I'm not making any commitments that we're going to be able to have that at this point. But it's something we'd like to try to do in the near future.

[Slide]

MR. CARLSON: In the area of public outreach activities, we have developed a new transportation exhibit to go with national meetings. We have received some table-top models of the Initiative 1 transportation casks that have been put together to provide to areas that are interested in what casks look like.

We're updating our fact sheets and information brochures. The engineered for safety film is available. And we support the other outreach activities within the office.

[Slide]

MR. CARLSON: Our future activities in this area -- I think I have covered most of them already. The third bullet sort of fits in the other part of the program, that

we are working, so when an MRS EA needs to be prepared, we will have the transportation analyses that are necessary to go along with this ready to be incorporated and made specific to whatever site should come along.

[Slide]

MR. CARLSON: Basically, the main point that comes out of these last two is when we see moving to the actual training or providing the funds for training assistance under 180(C) to the states, and when we start getting into route-specific planning when we move from basically our regional cooperative agreement work where we're dealing with areas in the country and down to where we're dealing with specific states on routing and shipping.

That's basically all my prepared material. I'll be happy to answer any questions.

DR. PRICE: All right. Board or panel?

[No response.]

DR. PRICE: Okay. From the audience, any questions? We're at the end now, I do believe, and you can make any questions or comments you'd like to make.

MR. HALSTEAD: I have several, but I'd like to give other people an opportunity.

[Laughter.]

DR. PRICE: All right.

MR. MOTE: Nigel Mote again, Nuclear Assurance Corporation. I'd like to make an observation regarding, I think you said eight states where there are alternate routes designated.

One thing we found at NSTI was more than a glib, but an unofficial comment from the state DOTs. One I remember very clearly was California, where the road routes from the reactor sites to the interstate are extremely long, and -- I'm sorry -- they can be extremely long or you can go cross-country on lower quality roads.

In our discussions with the California State DOT, we were told, "In practice, we're going to want you to go this way," which was a significantly longer route in miles, but stayed on, I think it's California State Route 101 and State Route 5. I may have the numbers wrong, but there were two specific routes where the California State DOT said, "If you're shipping fuel, then we would want to designate those routes."

They were giving us advance notice, I believe, or an informal opinion that they would rather see those sort of shipments stay on other routes than the shortest, lowest mile routes.

They aren't designated yet, but I believe the view we were getting from the state DOTs was, "We don't see it's a

problem to designate routes, and we will get into that business when we see that there are some shipments coming up and it's in our interest to designate routes."

We got a very clear impression that it is not a complex procedure, and the state DOTs will want to do that. That's purely an observation.

DR. PRICE: Thank you. All right.

MR. HALSTEAD: I had a couple comments on the Section 180(C) implementation that Jim addressed, and then I have some comments on rail access studies for Yucca Mountain.

Without belaboring the remaining disputes between these states and the Department of Energy over implementation of 180(C), I'll say that we've made a lot of progress over the last few years in resolving some early conflicts over what that language meant, and I think DOE has generally moved toward the position originally advocated by the states and some of the regional organizations that that language should be broadly rather than narrowly interpreted. Where I think there is still -- where there is still some substantial disagreement is that the states who anticipate being impacted by transportation activities carried out under the NWPA and the NWPAA is in the area of defining that planning to ensure safe routine shipments.

To make the complex issue brief, the states generally feel that the Department of Energy should in some fashion designate routes as early as possible -- "designate" is not the right word, but identify the routes which they believe will be used -- so that the states along the transportation corridors can be identified as stakeholders and so that funding, not just technical assistance and not just funding assistance for emergency response planning, can be provided to those states so that they can participate at an early stage in the development of the entire transportation system.

I think the lesson, and it's good lesson learned, from the planning for the WIPP transportation system is that the earliest possible and fullest possible involvement of the affected states is more likely to result in consensus positions that contribute to the development of a safer transportation system and a transportation system which is more likely to be acceptable to the people who live in those areas.

I won't belabor the point. We have testified before the board on the specific experience of the WGA WIPP transportation planning group but I would say again I think that is a very good model for the civil radioactive waste program to follow.

I would like to make a few comments about the issue of transportation access to Yucca Mountain. There are some very real problems with rail transportation to Yucca Mountain. There are a great many uncertainties about the feasibility of rail access to Yucca Mountain and these uncertainties result in potentially profound implications for the design of the transportation system, for the development of the cask system, and specifically for planning for the MRS and the repository sites.

Because our time is short again I will try and make these comments briefer than I would like and I would hope at some future time, as we have discussed in the past, that perhaps we can schedule an opportunity where I and other people working for the state could share in some detail our concerns about the specific rail corridors and the alternative and the lack of alternative plans that are being developed now.

On this occasion, what I would like to start out with is the point that as we understand the proposed budget for fiscal year '93, the Yucca Mountain project office, which has primary responsibility for site transportation access studies apparently is not budgeting any funding for either additional work on the Caliente Rail Corridor which has been designated as the first alternative for study, nor are there

any plans to proceed at this point with studies of the Jean and Carlin route options.

In our opinion, this is a mistake and possibly a grave one. We are still in the process of completing our evaluation of the report prepared by DeLeuw Cather on the Caliente option. On past occasions I have briefed the board on our review of this component of the project. I am not going to apologize for being behind in completing our analysis. After all, we are talking about almost 600 miles of rail corridor just in the two options under consideration for the Caliente option and I have very strong feelings that it is a mistake for us to discuss route specific issues in too great a detail until we have not only studied those routes on paper but studied them in the field.

As the person who has personally traversed over 90 percent of those 600 miles just on the Caliente route I can tell you that it's very time-consuming and puts a great deal of wear and tear on one's body since some stretches of this route are hardly accessible even in a four wheel drive vehicle.

The two options under consideration as I said for the Caliente route are detailed in a report prepared early last Fall by DeLeuw Cather. The state had some preliminary evaluation of this route based on an earlier Caliente route

option but the option that was -- actually the two options which were described in the DeLeuw Cather report were significantly different from the original Caliente option, at least 50 percent different in terms of the length of the corridors involved.

We have a very intensive study ongoing at the transportation research center at University of Nevada, Las Vegas School of Engineering as well as reviews by other members of our staff and our contractors -- for example, our surface hydrology people are looking at the flood hazard requirements for construction of this route across active alluvial fans. Our seismic hazard people are looking at the earthquake issues. Our environmental people are looking at endangered species documentation issues -- literally down to the level of how many Parranaghat Valley voles will have to be trapped to determine whether they are truly an endangered species complication to one segment of the route and so forth.

At this point I plan to have a preliminary slide presentation on the Caliente report ready for the WIEB high level waste committee meeting that will be held in conjunction with the international high level waste conference at Las Vegas in mid-April. I believe that is an open meeting and certainly anyone who is interested could

attend there and I hope after that meeting to have that presentation available for other forums.

At the same time I hope to have a preliminary report out of our office by early May. It probably will be at the end of this calendar year before we have finished our detailed evaluation of the Caliente route.

At this point I would like to briefly summarize some of the issues that our preliminary review has identified.

First, while I am not prepared to say that this route is not feasible from an engineering standpoint, I would say that there are numerous complicated engineering feasibility issues which range from the desirability or the achievability of the maximum grade assumptions that the

Department has specified down to issues involving the types of structures that will be required to survive potential flash floods.

A second area is the projected cost and that is of course very closely related both to the length of the route, the engineering feasibility issues and issues such as right of way acquisition and the extent of environmental review and so forth.

I would note that in the department's own estimates the preliminary figure for the Caliente route, which was

published in a preliminary study in early 1990, was in the range of 600 to 700 million dollars based on the number of variations on the route, and in the most recent report the estimated cost has gone up into the range of $1.1 billion to $1.5 billion and our studies plus some additional information we received this week about the uncertainty about the actual location of the alignment suggests that the route could be considerably more expensive and there really isn't a very good handle on determining how much more expensive it might be.

I would say on a third issue in regard to avoiding shipments to populated areas, it's definitely one of the advantages of the Caliente route and indeed it produces many of the difficulties. The avoidance basically of all populated areas except for the city, highly populated areas I should say, except for the city of Caliente is certainly one of the positive features of this route.

I would add however that this does have the effect of ironically limiting some of the opportunities for potential economic benefits which might also be associated with the project.

The fourth area, environmental issues and endangered species, I would give the department high marks for the way that their consultants approached the issue of environmental

sensitivity in their studies. Indeed, I am forced to admit that they found at least one endangered species along that corridor that we weren't aware of. It's certainly something positive I can say about the level of effort that went into this study.

Unfortunately the result of those findings is that there will be major complications in the environmental review of the route.

The fifth area has to do with seismic hazards. Many seismically active areas are traversed by the route.

A sixth issue is flood hazards. Again, one estimate is that up to 70 percent of one of the options would be built on active alluvial fans.

A seventh issue, right of way acquisition, as past experience has shown, if permitting in Nevada appears to be complicated on the test site, I would assume that there will be many, many instances where there will be complicated environmental approvals associated even with what might seem to be relatively easy land transfers between federal agencies, particularly since much of the land traversed by the currently proposed option would be on lands owned by the Bureau of Land Management.

In many cases of course there are other users of those lands. I would just note anecdotally that in one

particularly difficult stretch of the route, which is a high mountain pass north of Timber Mountain, I ran that route two weeks before the DeLeuw Cather report came out and I ran it two weeks later and in that four week period it appeared to me that a large number of mining claims had been filed in or along the corridor.

Now whether those are people who have hot mineral prospects that have just been awaiting transportation infrastructure or whether those are people who plan to take advantage of the opportunities to extort sales of their mineral rights in order to benefit from the construction of this line, I can't fathom a guess at this point but we will be looking at all of those mining claims as part of our review.

There are similar problems in some stretches of this route where you have to go through some privately owned lands. Again I won't bother with the details.

The long and the short of this discussion is I anticipate a very major environmental scoping and environmental impact statement effort to be associated with the construction of any of the longer rail approaches to Yucca Mountain. I think the time requirements and the money requirements are likely to be considerably greater than the department's initial estimates and I think it is a terrible

mistake at this point in time when we are trying to develop other parts of the waste system and the transportation system to serve it to be under-funding what is perhaps the most important part of the transportation planning, the actual access to the site that is being proposed for the repository.

I think it is very important that DOE as soon as possible begin not just studying the Jean and Carlin alternatives but that they re-assess the alternative rail corridors. Perhaps Jean and Carlin are the two alternatives to study. Perhaps there are two better ones, but I think at the minimum they should have ongoing studies of -- they should be going into EIS scoping with studies of three potential corridors at the same level of detail that has been achieved in the Caliente report.

I think secondly because all of the rail access options that I am aware of are likely to be quite complicated, we need to look at some alternatives.

For example, the alternative of locating an internodal facility perhaps connected by a dedicated heavy haul road from a railhead in a sparsely populated area to the site.

Finally, I think we will need to continue studying an all-truck delivery system which certainly from many standpoints is not the most desirable way to route the large

number of nuclear waste shipments to the repository but as it stands now, there simply is -- there is not a convincing basis for an argument that rail transportation -- rail access will be available and that rail transportation will be feasible.

I think it is very important that we get on with some additional work to address these issues.

Thank you.

DR. PRICE: Any other comments or questions?

MR. FURBER: Conan Furber, CMF and Associates, representing the Association of American Railroads.

After that last statement, perhaps it's a moot question if we are not going to be using rail, however what I would suggest here is on your rail routing criteria that you contact the railroads and we are willing to work with you.

You are going to find it a big can of worms.

Accept the help before you get into it!

So that's the main thing is just the offer is there. It's been there. Accept it. Thank you.

DR. PRICE: I think that comment and then the one about involving the states as early as possible in a similar kind of a comment, which I believe is your basic principle but we

hear it over and over again and we certainly did hear it at WIPP when we were down there looking at their program and came to the conclusion at the end of those days we spent down there that that was the principal finding that we had to offer, was to get the principal people involved in the processes of route selection or whatever it is as early as possible.

That is not news to you, I know.

MR. CARLSON: No, that is not a new comment, I will have to admit.

DR. PRICE: Any other comments from the audience?

[No response.]

DR. PRICE: Thanks, Jim.

MR. CARLSON: On behalf of the Department, I thank you again for the opportunity to present the program and we'll continue to be in touch.

DR. PRICE: Thank you very much.

We want to express again our appreciation and we look forward to the next time and some substantial real progress and looking at these milestones that you have passed.

MR. MILNER: Thank you, Dr. Price.

[Whereupon, at 11:50 a.m., the meeting was adjourned.]