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DISCUSSION OF THE OCRWM MISSION PLAN

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DISCUSSION OF THE OCRWM MISSION PLAN

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Forrestal Building
1000 Independence Avenue SW.
Room 1E 245
Washington, D.C.

GREENWOOD

PROCEEDINGS

MR. BROWNING: For the benefit of the people who don't know all the NRC representatives who are here, I would like to just walk through who is here.

On my right is Jim Wolf from our Executive Legal Director staff. To my left is Hud Miller who is the head of the Repository Licensing Branch under me; John Greeves who is the Branch Chief in the Engineering Branch and Chip Cameron from the Executive Legal Director staff.

The main purpose from our standpoint of this meeting is to make sure that if there are any questions related to the comments that we gave you on the mission plan that we discuss those enough so that there is no misunderstanding as to what those comments were about. My understanding is that based on the comments that you received from us and other interested parties during the process of revising the mission plan and in the latter part of the meeting, if it is appropriate, we would like to understand from you where you think you are headed based on the comments that you have received so far even though it may still be preliminary thinking, and to the extent we can we would be willing to give you observations or to take back any questions you have so that we could give you some insight into what our approach might be for those particular aspects that you plan to include in the Mission Plan.

The scope of this session will be limited to the repository part of the mission plan. Of course, the intent is consistent with the Commission policy as we have incorporated in our procedural roles to make ourselves available to you as necessary to make sure that any issues are raised early in the process, and hopefully, come forward with a mission plan that is understood by everybody on both of our staffs and is mutually agreeable.

On late Monday we received from you a list of questions that you specifically would like to pursue in this meeting;for the benefit of the people in the room who have not seen those questions, as we get into the discussion of those, we will indicate what the question was and what our response to the question is where we can actually give you a response today.

In some cases the questions that you raised are apparently related to what you are thinking about putting into the revised mission plan, and in that case we probably would like to hear from you as to what your thought process is or what the specific plan element would be in order that we can either respond to it in this meeting or be able to quickly respond to it once you issue the draft mission plan for comment.

In a manner similar to the practice that has been evolving as a result of our mutual dialogue on the site selection

guidelines we are going to, I guess DOE has made arrangements to have a transcript made of this, so that the public could see after the fact what it was that was discussed during this session. Also, in common with the practice there, I would propose that we open up the meeting to the observers in the audience to make any comments or observations they care to make upon completion of whatever it is we wanted to discuss, if that is acceptable to you.

I guess I would like to turn it over at this point to Hub Miller.

MR. BENETT: Could I make a couple of opening remarks first, and introduce the people here?

MR. BROWNING: Sure.

MR.BENETT: Let me first say that it is excellent timing for the meeting because we are in what we hope are the final stages of revising the Mission Plan to be in a position to put out a draft Mission Plan for public comment late this month or early in May, and the last i's are being dotted and t's are being crossed, and schedules are being drawn to put into that plan, that final review of that within the Department, and that is why some of the people you might have expected might have been here aren't here at the meeting because they are busy doing that, and I apologize for them not being here.

Let me take a second and introduce the people who

are here. Some of you may not know the people. I assume you do, but for the benefit of the observers, on my right, first, I am Bill Benett. I am the Associate Director for Geologic Repository Deployment in the Civilian Radioactive Waste Management Office. I am one of the people who have been acting for a while, and the Department has been criticized for struggling along with such poor leadership. Soon we will be in a position to rectify all that.

On my right is Mark Frei. Mark is the Acting Director of the Engineering and Licensing Division in my office and is another one of the acting people. On my left is Jay Rhoderick. Jay Rhoderick recent joined the Department from the Nuclear Regulatory Commission and works in Mark's Engineering and Licensing Division and on his left is Hank Bermanis who is the Licensing Manager for our technical support contractor, Weston. It is the technical support contractor to the Office of Civilian Radioactive Waste Management. I understand that what we are going to do is focus first on the questions that are directly in response to the comments you provided us on the previous draft and then get into the approaches we may be considering in the revised draft and that is fine.

As far as comments are concerned at the end, the only thing I would like to try to do is finish by two, and therefore make sure we finish in time to allow comments by two because I have to go to another engagement by two.

All right, so, I will turn it back to Hub.

MR. MILLER: We should, hopefully, be able to finish by then. We should try to finish before lunch, if we can do that.

Your list of questions included nine questions. The one that I think first goes to comments that we made in the letter to Lawrence on the Mission Plan was what time periods for in situ testing does NRC recommend for the various candidate sites, and I believe it might be useful to review again what was our comment.

Our comment was that we felt that while the draft Mission Plan did convey some uncertainty concerning the amount of time it would take to complete site characterization and more specifically to complete that phase of site characterization which is likely going to be on critical path, namely the in situ testing, we felt that it did not adequately reflect the uncertainties about technically what would be required as a part of in situ testing. We pointed out that in particular there was uncertainty with respect to what was going to be needed to deal with the thermal effects that will be a result of the emplaced waste and the bottom line really of this comment was that the resolution of this uncertainty depends upon the department laying out and making their case with respect to how important the near field, the host rock is to the performance of the repository, what portion of the load or

the performance of the site will be taken up by this near field, because it is the near field that in great measure is being examined through testing in this underground facility. So, your question here is at what time periods for in situ testing does NRC recommend? We have no specific number of years that we can recommend. We have over the past several years done a number of systematic studies which have been published in documents, such as the ones I am holding up here where we asked the question of what technical issues must be resolved during site characterization and specifically by testing in the underground facilities, and what we come away with is that not knowing how important that near field component is to performance one cannot be prescriptive at the beginning in terms of saying how long it is going to take.

I think that with that as a kind of a general response which you might want to react to, it might be good to have John Greeves walk through a few vugraphs or a few points that need to be understood about what in general is going to be needed for the licensing reviews, again, focusing on in situ testing because I think the reason why you have written the question this way is because in situ testing is on critical path for being able to submit a license application, but if we can beg your indulgence for a few minutes I think that --

MR. BENETT: Excuse me, what I have heard you say,

Hub is how much in situ testing is required is a function of the extent to which near field component is going to be relied on in the overall repository performance. Can you bracket that then? What if I tell you not at all on one extreme and a whole lot on the other?

MR. MILLER: I think we attempted to do that in our letter, and what we said was that we thought the estimates that you have in your Mission Plan were reasonable, that is the 8 to 27 months, I think is what you had. I am not sure if the 8 months necessarily is something that we feel comfortable with, but on the order of one year or two years if you are not going to take any credit at all for it, and I think that what John will get to is explain a bit more about what our basis for that is.

At the other end of the extreme, we, I would point out again that the letter that the USGS sent to you on the Hanford site where they alluded to testing that might take as long as 10 years, we have had contractors look at this question, and this is a report prepared for us by the Lawrence Burkey Laboratory where they talk about large-scale thermal tests that can take that long, but these are tests which are mainly aimed at understanding precisely what is happening in the near field.

If you determine that you don't need that level of precision because you can take up the load at other parts of the system, you can perhaps bound that. So, my answer is a

couple of years seems reasonable at one end, many, many years if it is highly critical to your case to know about in your field.

MR. BENETT: That was helpful.

MR. MILLER: I think it would be helpful to have John walk through these. What we are going to walk through, Bill, I should warn you is going to go to this question here, but it, also, goes to other questions that you have raised, and maybe I could read those off.

The fifth question was what level of repository design detail does NRC believe is required prior to the first SCP, prior to the exploratory shaft sinking, prior to the submission of the construction authorization application, and the sixth question you asked was to what level in the repository system does NRC believe that site specific system component performance requirements are needed, and when relative to the site characterization and design process, and I think these points here are points that are very important to the bottom line as we discuss any of these questions.

MR. GREEVES: Okay, what I would like to do is quickly go through a series of slides in these handouts and give you the background on where our comment was coming from in the mission plan and further explanation on that.

Fundamentally this question of what is enough in site characterization must be approached from a general point

of view with at least these two points, that is we have got to get out and test a volume of rock and groundwater systems to make representative statements about the performance of that entire volume. The testing associated with that needs to be sufficient to get to the point where we can determine with reasonable assurance that the repository will meet performance objectives, and what this involves is conducting the site characterization program and getting out to a point where marginal additional effort would result in important information to apply to meeting those performance objectives.

Now, these two general points beg a number of questions.

MR. BENETT: Excuse me. This is probably going to show my ignorance, but I hear the concept of reasonable assurance said a number of times. What does that mean?

MR. GREEVES: Reasonable assurance is embedded in the regulation and it is the burden that is on the hearing board to come to the findings that are provided in Part 60, and Part 60 includes a number of subelements that will require findings as indicated in Part 31 and add all those up together and that is the point where one gets to reasonable assurance. I think that it would be illustrative for me to get to the next slide.

MR. MILLER: Also, Bill, before you get to that, the $64 question is always what is reasonable assurance, and

the Commission in the way it constructed the rule broke that down into quite a few specific findings that have to be made. You don't go into the hearing room and just flat assert there is reasonable assurance that public health and safety is protected. You don't make just that statement. You have got to face off against the EPA standard, against the requirements of the NRC with respect to components of the system and all the other siting criteria and design criteria in the rule, and so it isn't quite an all or nothing binary type of thing as one might get the impression if you just look at that phrase by itself.

So, reasonable assurance is what the DOE staff or the DOE will have to prove to the Board and the NRC staff as well, as we are finding on the same side as the DOE, but it won't be a simple binary thing. There are lots of elements that when taken together will have to be considered to make that kind of finding.

One other point here, the second point in that second bullet, and I am not sure if it is coming out here, what we are saying is you have got to get during site characterization to the point where additional investigation is only going to give you marginal returns in terms of reduction of uncertainty.

MR. FREI: Let me ask one other point to clarify what you had on that first slide? You say that it must be

completed prior to license application. Is that the application of the license to receive it in place or application for construction authorization?

MR. MILLER: Construction authorization.

MR. GREEVES: To further expand on those first two points and illustrate a concept, what we are trying to show here is generally the reduction of uncertainties as one proceeds through the process with time. Fundamentally we are out here in the beginning during siting studies, and at the appropriate point in time a site characterization plan, a series of site characterization plans would be submitted. At that point we would be going into an exploratory shaft and in situ testing mode, while we gain information on reducing these uncertainties during this time frame, and the point is as Hub mentioned earlier, in situ testing is fundamentally on critical path, and it is the type of activity that is required to get us this increasing knowledge and reducing uncertainties and getting us to the point where any additional effort would be a marginal increase in that level of knowledge and reduction in those uncertainties, and it is that point that the license application would be brought in.

MR. MILLER: I think the other points that are important to bring out on this slide are that this slide recognizes that even after the construction authorization is granted or after the license is submitted you are continuing

to do things and the words used in our rule would refer to these activities as performance confirmation, but the point is that during that period of time you are going to continue to reduce uncertainties. You are going to continue to learn. It is just that after the time when you submit an application it has got to be of the sort where you at least, knowingly you are not on the steep portion of this curve.

MR. GREEVES: Okay, let us move on to the next slide. Okay, all I want to do --

MR. BENETT: Were you going to comment at all on this map?

MR. GREEVES: Yes, the map will be --

MR. BENETT: You chose that just as a hypothetical example?

MR. GREEVES: Yes.

MR. BENETT: That is not some --

MR. GREEVES: No.

MR. BENETT: We didn't do it.

MR. MILLER: You are jumping ahead, Bill.

MR. GREEVES: That particular slide is out of order. We are going to get to that. Okay, all I really want to point to on this slide, as we started out, we want to focus on underground testing and why it is on critical path. Really in characterization there are two key parts, and that is understanding what is going on in the far field and then

determining what the performance needs in the near field are, and these first series of bullets here, the other parts of site characterization, including far field investigations, and the one we want to be focusing on in this particular discussion is the underground testing and what the relationship of the near field performance needs have to how extensive that is.

Each of these investigation approaches has innate capabilities and limitations, but they are all necessary, but none of them is sufficient by itself.

MR. MILLER: Again, if I could make a couple of comments on this, I think the point of this slide is really this. How much in situ testing, using rate measures dependent upon how much other kind of testing we are doing, if you do, if you characterize the far field rule through the surface investigations that were going on through the surface bore hole investigations that are going on, it reduces the amount of testing that one might require for the in situ underground testing. It is, also, again dependent, as I mentioned before upon how critical that host rock is. So, what we are trying to convey here is that NRC cannot be in a position of telling DOE, "You know you ought to put it into your mission plan. It ought to be two years or it ought to be three years or four years." You have to, knowing the answer to how much you intend to do in the far field and knowing how much credit you are going to take for the near field host rock decide and

propose and defend the answer to that question.

MR. FREI: Hub, when you say, "Repository performance," you mean the system performance objective that EPA is setting in terms of releases to the environment?

MR. MILLER: We are referring to that and the other performance objectives that we have to make findings on the rule making which would include performance of the engineer barriers.

MR. FREI: And the lifetime of the waste package.

MR. MILLER: Lifetime of the waste package and releases from the engineered system.

MR. GREEVES: This next slide conveys those components. There are multiple categories of barriers that you can rely on in the far field system, and more explicitly there are a number of them located within the near field, and some folks don't seem to understand that there are a number of these individual barriers that can be called upon and the rule is embedded in the multiple barrier concept. So, I just wanted to show this slide to identify what some of those components are.

What I would like to do next is quickly just run through some figures showing the scale, the relationship of some of the far field and into the near field and what we have here is just a regional scale layout that you can see right here in the center a repository of about 3 square miles, and

remember that in situ testing is just a dot in the center of that area of the facility and then the area or the accessible environment can go out to up to 10 kilometers in velocity up to 125 square miles of real estate. One would expect to be putting down investigations in terms of bore holes of inside and outside of the zone of the accessible environment and doing geologic mapping around the region to bring that information to bear on what kind of barriers, what kind of constraints do we have from the geology and how does that relate to the in situ testing.

MR. MILLER: Before you leave that, I think it is important to point out that we note here at the bottom this is for illustrative purposes only. People who are familiar with the current version of the EPA rule understand that the accessible environment is defined to encompass that amount of geology up to 10 kilometers. There is language in there concerning consideration of aquifers and in some cases on a site-specific basis it may be appropriate following again the EPA standard to have accessible environment much closer to the repository than 10 kilometers. We just threw this on here just for illustrative purposes. Some might argue that the Columbia River is something that is an important body of water and other aquifers and based upon a site-specific determination DOE might prove that it is 2 kilometers instead of 10, but the point is that this gives you a sense of the scale, the

relationship between the repository and the overall volume of rock that one has to characterize.

MR. GREEVES: Just trying to take a look at this in a section and just to indicate the relationship of what is going on in exploratory test program which would be at the bottom of an exploratory shaft and just the scale of that with the rest of the accessible environment that is going towards helping meet those performance objectives. Just taking a look at the scale of openings that we have down in exploratory test facility, you can characterize rock very well up to several diameters of that particular opening. This is where you can get into very precisely trying to understand what is going on in the near field, depending on what performance one is looking for out of the near field rock to meet those performance objectives.

I just wanted to put this up to show how those investigation techniques can be integrated. Remember in situ testing is right here at the bottom, an exploratory shaft, and there are a number of far-field techniques that would be utilized to define what performance one can expect from the far field as related to what you can do in the near field.

Fundamentally the bottom line really goes to you question of what is the duration. It is characterized on this slide. The first two types of observations really are conventional and don't take that much time. It is the third

bullet that has the greatest impact on cost and schedule, and that is state-of-the-art type testing similar to the types of things folks have done at the Colorado School of Mines tests, testing in blocks.

This is the area that causes the greatest uncertainty in terms of how long it is going to take, and this is the area that is dependent on DOE defining what is needed to, in terms of taking credit for the near field and, again, the bottom line is that this has the greatest impact on cost and schedule and what role do these long-term tests that folks have identified taking up to 10 years even, what role does that have to play in the test program?

MR. MILLER: Back to numbers again, though, the number of years, we get a lot of feedback from folks who either have read our comments or have heard about our comments that goes along the following lines. NRC is, are you guys saying that 10 years worth of testing is required? Of course, that is not what we are saying. Also, when people hear us press so hard on the need for DOE to evaluate explicitly these thermal effects and to address how they are going to deal with that technically and when we press hard on the need for DOE to establish component performance requirements, at least on a tentative basis starting at the beginning of this whole process, I think the impression gets formed that we are saying that long time and testing is needed.

Back to what I said earlier, Bill, the first two bullets, as John said are what basically I think you had in mind and was the assumption upon which your estimates of 8 to 27 months were based in your draft mission plan, and those don't look totally unreasonable to us, but if you get into this third category of things, large-scale thermal tests you are talking about perhaps much longer periods of time. So, I think that hopefully that has answered Question No. 4. It is a little longwinded, but there are a lot of precise points that I think are important to understand.

MR. GREEVES: The other slides are there in case we need to get into that particular area.

MR. MILLER: Does that help?

MR. FREI: Not having read your comments on the BWIP draft exploratory shaft test plan, would you say that the scope of the tests that are in that plan currently only cover the first two bullets on that last slide or do you see some of the state-of-the-art testing you are referring to?

MR. MILLER: Let us go to another vugraph here. This is a segment from a letter that we sent to DOE, Richland commenting upon the plan that they had laid out for exploratory testing at that site, and basically what we commented on was that we did not see that the plan addressed this question of how much testing is needed in the way of this third category, this state-of-the-art type of testing, coupled thermal tests, and

we commented that, you know, we have pressed on this for several years now. We went on to say under what conditions would we find it acceptable to restrict yourself just to the first two types of testing, in other words, the conventional type of tests. The direct answer to your question is we thought it was treating only the first two types of testing, conventional type of tests. It was not addressing this third category one way or the other.

We laid this out to say,"All right, we would find that acceptable, provided you do the kinds of things that are talked about here, that you are not taking any credit for that near field in terms of performance, that you have characterized well the portions of the natural system that you are going to take credit for," and it appears that it is important to digress here for a moment. Frequently when I say or we say, "Don't take credit for the near-field host rock," people think we are saying, "Put the burden on engineer barriers," and of course, you get into the trap of making it sound like you are going to engineer around deficiencies in a site, and that is you are going to get into the thing that people have been suspicious about in the siting guidelines, that is that DOE would put all the burden on engineered barriers instead of the natural system, and that is not what we are saying at all. We are saying that you still have to characterize the far field of the rest of the natural system beyond that near-field

component, and then you have toworry about engineered system performance. Your question a moment ago, Mark, was are we concerned only about the overall system performance objectives, and you worry about that, but yœu, also, have to make a finding on releases from the engineered system and performance of the cannister, and you have got to be able to demonstrate that the tests of your cannister materials, of the waste package are conservative with respect to the kinds of hydrothermal conditions that you can expect with the emplaced wastes.

In other words, you are not going to be able to ignore the thermal effects question entirely. You still have to deal with it, but you have to -- again, is that helpful?

MR. BENETT: Yes, very helpful, to me.

MR. MILLER: Maybe we can go to the fifth question which is what level of repository design detail does NRC believe is required prior to the first SCP, prior to exploratory shaft sinking and prior to the submission of the construction authorization application?

Again, I will beg your indulgence for using a slide, but I think it is helpful to have the words on the screen. There is a longwinded answer, and there is a short answer. The short answer is shown on the slide, and I know it might be frustrating to some to get the short answer, but I think that is where we have got to start. We need enough

detail on the SCP in order to be able to determine whether the plan that you are laying out for site characterization is sufficient. You cannot identify how many tests and what sort of tests you need unless you know what you are trying to prove with respect to the design, and a second element of concern here is we need to have enough detail on your design and particularly those that are associated with your exploratory shafts to determine that the things that you are going to do are not going to compromise the site. A question of how you construct the shaft, the mode of shaft construction, whether you blind bore a shaft or construct it with a drill and blast technique can have a significant impact on the ability to seal that shaft when you are done.

With respect to the construction authorization stage the short answer is we need enough detail to be able to make the kinds of findings that are required by our rule and to go through the adjudicatory, the rigors of the adjudicatory process.

Now, again, people don't tend to find those definitions very satisfactory, but they are the ones that you have to return to. We have no fixed notion that it is Title 1 or Title 2 or any other type of definition that I think may have some currency within the DOE program. It may or may not be that some of those kinds of concepts can align themselves very neatly with these two general definitions, but what we

have found over the past several years is we have had to answer this question in our interactions with the various sites and that you have got to get down to specifics. With these two points in mind in order to answer the question, we have got some examples of the kinds of information that we could see falling under these, and if you would like we could walk through those.

MR. FREI: Yes, please, that would be helpful.

MR. MILLER: Just illustrative, and again, this is not all encompassing, but obviously enough detail to know how many shafts you are talking about and what are the sizes of those shafts? What is the mode of shaft construction, the planned sealing materials. I should point out here that over the past year we have sent letters to each of the projects identifying a list of specific questions which we feel need to be addressed, if I could just expand on that first bullet where we have identified specific things that we think need to be addressed by DOE in their site characterization plans or in fact, beforehand, if you find yourself in a situation where the long lead times for planning of exploratory shafts has you making decsions well before well before the SCP's are submitted. We want to take up with you what are your --

MR. BENETT: Excuse me, I looked away for a second, and that list of examples went away. Can you put that back up?

MR. MILLER: Yes, I am taking this first item here, Bill.

MR. BENETT: Oh, you are going to come back to it?

MR. MILLER: I am going to come back to it.

MR. BENETT: Okay, good.

MR. MILLER: I think this is one that is very timely now, particularly going to your first three questions which gets into several shafts for site characterization and so on. Regardless of how many shafts you have, this list conveys the technical questions that we think must be addressed, and I won't go through all of these, but what we are concerned about is that many times the argument is made that the exploratory shaft may not be a part of the repository, and that is true, but it is probably more likely that it will be a part of the repository than not, and so what one has to deal with is assuming that the exploratory shaft would be a part of the repository, one has to worry about the ability to seal it and so it gets us into addressing these questions right from the very beginning.

We, also, in addition to the question of sealing and compromising the site, we are, also, concerned about weighing the alternatives as they may impact your ability to characterize the site. If you go one mode of shaft construction you may limit your ability to gather information about the rock layers that overlie the host rock, and you just have to

consider and weigh and balance and make trade-offs, of course in deciding on a shaft construction mode. These are the concerns that we are raising, the kind of details that we are looking for.

Back to this one, we need to have a sense of the general layout. What do these rooms look like that you are proposing for emplacement of waste, and if you are talking about, for example, placing waste in horizontal bore holes drilled between drifts that are hundreds of feet apart you have got a different kind of test program than you might have if you were talking about bore holes for waste emplacement that are drilled into the floor. The second and third bullets are kind of related.

The fourth point really is the point that we made, that we felt important enough to make as a separate point in our letter to you on the Mission Plan, and it is the thing we keep talking about, and it is that we are looking for you at this stage to identify how are you breaking the system down in terms of components both with respect to the natural system and engineered barriers and for each of those components what credit are you planning to take.

The geochemists and the hydrologists are always stumped when you ask them what kinds of thest are enough. They always throw back at you, how important is this to overall performance, and you simply have to define that. Waste package

you have got to come forward with some knowledge of what the materials are. Obviously you don't know what kind of tests, what failure mechanisms to worry about in identifying information needs if you don't have some concept of that.

Construction authorization and here we just -- I am not sure how much help this slide is going to really be. WE have the word "detail" there and of course, the question is how much detail is enough, and here I think you just have to go back to consideration of that general point which is the bottom line here.

I have found, Bill, that when the project people are meeting with the technical staff it is fairly easy once the staffs get together and sit down and look at specifics, applying those general rules to come up with some pretty good agreement on it. That is way too much detail. That is a net compared to the kind of site suitability and findings that you have got to make at the time of construction authorization. That can be put off.

So, I think while I am not giving you an answer here in terms of specifics, the ability to do that with those general ground rules I think is there. So, that goes to Question No. 5, and here I just ask you, has that been helpful?

MR. BENETT: Not as helpful as the first, the answer to the first question.

MR. FREI: It appears that in terms of alignment

of our design phase buzz words to what we saw in your vugraphs the conceptual design we plan to do pretty well meshes with what you are looking for at the SCP stage. I guess it is rather fuzzy what detailed means. We envision doing a Title 1, followed by a Title 2 design, and the Title 2 design comes up with your construction drawings and specs that you can give to the construction manager and he goes and builds your facility. Is that what you mean by detailed? Can you give us a feel? Is it a construction level detail or not quite that?

MR. GREEVES: The level of detail, and we don't want to get trapped into using the terminology that you use for budget constraints and all these ad nauseum graphs and charts that you can put together in a five-volume Title 1, Title 2 design. The level of detail that we are looking for would be within Title 1, Title 2, but not necessarily all of it. I would, also, point you to, Mark --

MR. BENETT: Somewhere between the two, is that what you just said?

MR. GREEVES: You have got Title 1, Title 2 design document for lots of other reasons, isn't that correct?

MR. BENETT: Not at the same time.

MR. GREEVES: No, consecutively. There is a little bit of overlap towards the end of Title 1 and Title 2, and the charts that I have seen show you having a Title 1 type of series of documents available prior to construction authorization

application. The types of details that were met in that drawing are buried in that document.

MR. MILLER: I think the reason why we are reluctant to give you a quick answer, yes, Title 1 is it is because there are a lot of things that are in Title 1, but for your other purposes you have in there that we may not require it. As well, there may be some things in Title 1 by the definitions that you have come up with after many, many years of building facilities and for other purposes, and they may not contain all of the things we are looking for. I would point you to the portion of the rule which goes into some detail on this question of design information needs, and I wouldn't propose here to read sections, but it is the section that talks about safety analysis report. It is 60.21c, and in that section there is a fairly extensive discussion of functionally what we are looking for and what we think is needed to make those findings.

MR. GREEVES: It includes the relationship to the peformance objectives of that design.

MR. MILLER: For example, let me just read a few excerpts from it. It talks about the need for the principal design criteria and the relationship to the performance objectives, the design basis and the relationship of the design basis for the principal design criteria and on and on. It has got some things which I think you should be considering

carefully.

MR. BENETT: Clearly you are not making a final decision, but what I am hearing you say is at the construction authorization time it is more or less Title 1. There might be some items that are required to meet the 10 CFR 60 findings that would not be in our typical Title 1, but it is more or less Title 1.

MR. BROWNING: Where in the process do you envision we can be more specific on that?

MR. MILLER: As I said, I think, in the way it has worked the past several years is that in the consultations that we have been having with the projects on site-specific issues this question comes up. There is probably not a workshop that it doesn't come up, and I think that where in the process this gets ironed out is through these sessions. To get more specific you have to get down in terms of looking at specific types of design detail, take a look at a design package or a waste package design for example or a description of room configuration and the technical people who are going to be reviewing the application have to, I think convey those kinds of specifics. We have tried several times, for example, in the standard format content guide for site characterization plans. There have been a number of meetings over the past several years, and they always get hung up on this point, and each time we go through those meetings we come out and both

sides conclude that you have got to get down to exchanging examples, and we have always taken the position of availing ourselves to the DOE to, in fact, consider examples and to where they have got question, rapid turnaround give you specific responses.

MR. BROWNING:Let me just say something and see if it fits the concept. Somewhere between the time of the site characterization plan that you submit with the conceptual design and the time you come in for a license application somewhere in between that time we ought to mutually be able to identify what aspects of the design we need more detail than Title 1. The question is where in that time frame does that get pinned down so that it won't be a situation where you come in with the license application, and we say, "Now, we want to see all these additional items"? We want to try to avoid getting into the get me another rock syndrome here.

MR. MILLER: Here is where we are counting on DOE to tell us when it becomes critical path for them. DOE knows better when these decisions have to be made one way or the other, and the only position I think we can take, Bill, and let me have you react to this, is that as you are going about your business of preparing the designs, as you see that you start to cross a bridge you bring it to us, and we, I don't think there is a case where if there has been a question that we have not been able to quickly -- now, I think what Bob, also,

is asking is how can we generalize on some of this, and I think we ought to be alert to perhaps through technical position, perhaps even through rule making, if that is appropriate, to establish this more specifically, and we are, also, willing to do that, so, we are not ad hocing the thing so much that you don't get the benefit of what is happening at one site at the other sites.

MR. FREI: Let me raise one additional point on your comments and your detailed comments. You indicated that we should acknowledge that a conceptual design is necessary at the time of the SCP and that is required by the Nuclear Waste Policy Act. Our reading of the Act is that a completed conceptual design for a given candidate site is required prior to shaft sinking, exploratory shaft sinking and that necessarily does not have to coincide with a first site characterization plan. Is your reading different?

MR. MILLER: Yes, I have to defer to the lawyers here, I guess for a precise answer to that question. But our rule in the contents of the SCR or the SCP we took the position that we needed a conceptual design. Again, here I have experienced a lot of confusion over what does conceptual design mean in the sense that we had it in our regulation and this very fixed term that you folks in DOE, in the whole DOE program have of what a conceptual design is; it is very possible that the conceptual design as you have defined it

goes beyond what is required in order to address the basic question. These are the criteria we will always come back to.

In face, I think the experience has been, hasn't it, John, that what you folks have in the way of conceptual design does contain perhaps more information.

MR. GREEVES: It goes beyond what is needed to make assessments of what tests are needed to bring to bear on the performance objectives. It goes into things like facilities for the handicapped, budgets, things like that that aren't required to help us understand what kind of tests are needed, what parameters need to be measured. So, it does go beyond our needs in terms of your standard canned definition of what a conceptual design is.

MR. BENETT: So, what I am hearing is what we call a conceptual design may be more than what you need at the SCP, initial SCP state. What we call a Title 1 may not be enough at the construction authorization stage.

MR. GREEVES: To the extent that it doesn't go after these main points here, yes. We have gone into a draft of the conceptual design information needs. As Hub said, this has been a confusion factor in the past, and have put out copies of that for comment, and we are revising that. It should be out shortly.

MR. MILLER: As I said, most of the confusion arises from the fact that DOE has these very well-defined

concepts of conceptual design, Title 1, Title 2 and so on, has built drawings and when people start trying to match those up literally with our requirements, it causes a lot of confusion. We always return to these two points.

MR. FREI: Could we get a copy of these slides?

MR.MILLER: Sure. One other point we need to make about our comment on your Mission Plan. We did not say that we thought what was in the mission plan was wrong. There were several places where it was not possible to -- it wasn't real clear what you were intending, particularly at the later stage. So, don't get us wrong. We did not say, and we tried to make this clear in the letter that what you have got is all wrong. It is just the point that we think we have had experience, for example, in our workshops of situations where program people have thought that information on the waste package, for example, was not needed at the SCP stage or in fact, even in cases where individuals have thought that the determinations of performance of the waste package was not a finding that you have made a construction authorization, and it was kind of with that background we felt it important enough to make that kind of comment, just to make sure there weren't wrong assumptions on those points.

MR. FREI: All right.

MR. MILLER: We can go on to the next point. To what level in your repository system does NRC believe that

site-specific component performance requirements are needed and when relative to site characterization and design process, and just as a talking point, again, I will go back to the one slide where we broke this think down into components.

The short answer is that you folks determine how you are going to design the repository, and you folks determined how you break everything down in terms of components. Obviously you have to at least deal with the natural system at the level of near field and far field because that is going to be the key to answering your Question No. 4 on what is needed for in situ testing.

Beyond that in direct answer to your question, what level do you break it down, that is up to you. Now, I think it is safe to say that consistent with where the Commission is coming out, and where I believe DOE is coming out on the siting guidelines, at least initially at this early stage you have got to plan on redundancy between natural system and engineer barriers. In other words, it would be inappropriate to plan on 50 percent of the load being put on natural barriers and 50 percent on waste package at this time, and we have tried to emphasize the word "tentative" when we talk about the need to prescribe performance requirements because obviously as you go along you may be able to sharpen your pencil. As you get more confidence in the site you may be able to cut back on the degree to which you are providing engineered

barriers, but the answer to the second part of your question, when do you have to do this, we say as early as possible. We think it is needed for us to be in a position to give you guidance at this SCP stage, emphasizing the word "tentative."

MR. BENETT: I think you are saying more than that though. You are saying that you think that is something that is crucial for us to determine early to get on with the program and make decisions in the direction we are going to go,and the whole program is siting investigations, the approach to waste package development and testing, besides what you require to be able to react back.

Finally, I am starting to understand the message you have been saying at different times and to appreciate it more.

MR. MILLER: Your fate is in your own hands on Question 4, and I think it is dependent upon your answering Question 6, which is really the bottom line.

MR. BENETT: Yes, okay, I won't summarize, but it sounds like what you said is if we want to take any significant credit for the near field, then we are going to have to do a long program, testing program at depth to prove that we can take that credit, and that length of time isn't consistent with the length of times we put in that mission plan.

Therefore, if we want to have any way of making that schedule in the Mission Plan, we cannot take credit for

the near field.

MR. MILLER: I think that is about right. If you want we can move on to 7 and 8 which are pretty narrow legal questions which --

MR. BENETT: Can we pursue that, so we can walk out of here and write a letter out to our projects and say that you cannot take credit for the near field? What happens for concerns about the waste package where we have to consider the interaction between the waste package and the near field? I can kind of conceptualize saying that as far as eventual release to the accessible environment we will take a position that says that we won't take any credit, and it goes instantaneously to the far field and we start from there. How do we deal with the waste package to show the release rate and the lifetime criteria are met? We cannot ignore the near field.

MR. MILLER: I did not want to muddy your waters a whole lot by putting a lot of caveats on my response to your restatement of our point. Obviously what we said earlier is true. What you are saying is it is a little bit of an oversimplification to say that you just don't take credit for the near field, and you cannot make the next statement that you can ignore the external effects. You somehow have to still deal with them, and you have to do some testing and pull together a technical story that will support a case that you have adequately bounded those effects on the waste package,

even if you don't take credit for the near field, because you are right, the heat and the reactions between the rock and the water and the waste package are going to be important when you are trying to make your case on the lifetime of the cannister and releases from the system.

MR. GREEVES: The question comes down to the precision with which you need to know what is going on in the near field, how precisely you need to know it. If you need to know it extremely precisely, you are looking at these long-term types of testing, and it is --

MR. MILLER: I think the point we are trying to get at here is that do you or don't you do this large-scale long-term type of test. That is the real question we are focusing on here because that is the thing that determines how long in situ testing lasts, and you have got a binary type of decision there. Do you do them or don't you do them. It is not yes or no, do you look at the thermal effects in a waste package. I think that the elaboration of what we are saying here is in the minutes of the meetings that we have had over the past year or so. I think the things we are talking through here are not new points. They are the points that show up in the record of the past year. So, I would refer you to those. We can give you a bibliography, and we have pulled the other bibliography.

In fact, I understand that you did not get a copy

of the letter that we sent about one week ago. We tried several times to send it over by telecopy and so on. The letter was sent to the Richland folks, and in that letter which I forwarded --

MR. FREI: We do have it, by the way.

MR. MILLER: Okay, you will see a list of documents that convey in more detail what we are saying here, and you will see in there the list referencing the meetings that we have had going through these points, and so that should be helpful to you if you have got more questions on it.

MR. BENETT: We have the facts. So, does the letter, but the attachment, of course, has more facts.

MR. MILLER: Okay, but I would just point you to that. Your Question No. 7, let me read it. Does NRC believe the Act and specifically Section 114A1D requires them to comment on DOE's final EIS or the draft EIS as a part of the Secretary's recommendation to the President? Does the Act require us to comment on the draft EIS and --

MR. FREI: The real question was your comments seemed to be implying that you felt the Act required you to comment on the final EIS. We, of course, plan on you commenting on the draft. The question was were you commenting on the final as part of our scretarial package to the President.

MR. WOLF: Your interpretation or what you propose to include in the plan would be a procedure in which NRC had

an opportunity to comment on the draft and DOE would be responsive to whatever our comments were and would include our comments and the response of DOE in the document that went forward.

MR. FREI: Yes, that is correct.

MR. WOLF: In the absence of any tremendous mismatch between, in our judgment between what was finally said and the final, and our comments, it seems that would be a reasonable way to read it although I would not want to say that if the Commission were very unhappy with the contents of the final EIS that it wouldn't wish to make some additional comments which we would anticipate would be included.

MR. BENETT: Couldn't that be covered under, I cannot find it quickly in here, but the other requirement accompanying the Secretary's recommendations and evaluation by the Commission of the abwlity to --

MR. WOLF: No, because there are other aspects of the EIS that would only appear in the EIS. It would not relate to the extent to which that site characterization analysis and the waste form proposal were appropriate for inclusion.

MR. BENETT: That wasn't what I was referring to. Isn't there something in here that says that --

MR. WOLF: One of the many things, the suitability for license applications.

MR. BENETT: Yes.

MR. WOLF: Even so, I don't think necessarily that is of as broad a scope as what our comments might be conceptually with respect to the environmental impact statement.

MR. BENETT: I just assumed you could use the same extension there that you used in the guidelines for the argument.

MR. WOLF: That would even be an easier extension to make. I am not sure that I accept the premise of your argument, but nevertheless. No, I think the way you expected it to operate is you would give us a chance to comment on the draft, and you would incorporate our comments. That seems like the simple way to read this. All I am saying is if we were really unhappy, I am sure the Commission would find some way to make its concerns noted.

MR. MILLER: I think the thing that may be made as a background statement here is that the Act while it does provide for the NRC to adopt the DOE EIS to the extent practicable, it does not remove from NRC an independent NEPA responsibility. Isn't that part of what is behind having to hedge a bit and saying we would never comment on the final. I think that is --

MR. WOLF: I think that is a fair statement.

MR. MILLER: The next question was should the construction authorization application, let me see if W have got this right here, be called the license application.

MR. FREI: What we are trying to do is make sure that we understand the terminology. We are not using incorrect terminology.

We refer to the, once we have completed site characterization and site designation as effective, submitting an application to you which will result in construction authorization, and we in the mission plan refer to that as the application for construction authorization. Your comments seem to be saying that we should be calling that the license application. Is that correct?

MR. WOLF: Yes.

MR. FREI: In effect so what do we call the thing we submit later to get the license to receive it in place?

MR. WOLF: The scheme provided for by Part 60 before the Waste Policy Act was enacted called for our DOE to submit the license application before commencing construction, and it was the license application that was to be as complete as possible at the time with some caveats. So, it was a license application, and that is the point technically we are making.

Now, we recognize that for ease of discussion and presentation in the plan, there may be some merit in having a term such as construction authorization application, particularly since that does appear in parts of the Waste Policy Act, provided that the relationship or whatever terminology you use to the Part 60 terminology is made clear somehow.

It can be in footnotes and so forth. You may choose to say you are talking about a construction authorization application. What is intended here is the document referred to in Part 60 as a license application. So, we encourage you to be clear in making your document a readable and understandable thing but nevertheless I think it is important that it be precisely tied in in some manner with the regulatory requirements to make sure that the two fit.

MR. BENETT: Could we call it something else in the Mission Plan to make it clear and understandable? We ought to have a footnote or some kind of asterisk that explains when we say this, we mean that thing in 10 CFR 60.

MR. WOLF: Right, okay, just a bit of housekeeping detail.

MR.FREI: Let me ask a related question on the license application or as we call it the construction authorization application? Does NRC intend to put out a standard format and content guide on that in the near future or is that something that is way downstream?

MR. MILLER: The answer is it is downstream a bit, but the real format and content guide, the content guide for the license application is the SCP SCA process. If you look at what is the SCP, it is, in fact, a scoping document for what ought to go in the license application. Now, this is being a first of a kind type of thing and having not licensed

a bunch of repositories already, we are just not in a position like, I guess, the reactor people are after licensing 60 or so plants to know exactly what to put into them and to tell the next guy coming down the line. This free licensing consultation process which features this SCP as the key document is, in fact, the scoping of the license application.

Now, what we would expect is if not planning on a permit and content guide early on, it is because we think that after -- we don't want to write that until after we have gone through a few of these and then perhaps after walking through some site-specific cases we can generalize on some of these points. I think you understand what I am saying.

MR. WOLF: There is another point, also, and that is that the rule we have in place in Part 60 insofar as it is relevant at this point was done in two parts. It was done in the procedural rule and then a technical rule. As a result the procedures, the content of application part of the procedures and the requirements, the technical criteria in the back half of the rule may not fit as precisely and neatly as is desirable, and there has been some thought given to perhaps reviewing the content of application section to see whether or not the final technical criteria suggests any change in the content, and so if something is seen to be desirable in that area it, in turn would provide a means for communicating more clearly just what needs to be in the

application.

MR. MILLER: I think at this point we begin to get into questions which perhaps you ought to be restating because they get into the things that you --

MR. BROWNING: Maybe before we get into that, there was a lot of attention placed on our comment in the mission plan regarding the limited work authorization, and one of the things that got generated within the staff as a result of that was a paper prepared by the ELD people laying out what the rationale constraints are with regard to limit of work authorization. We are going to provide you copies of that so that you can understand if, in fact, that concept is continued to be pursued in some vein, you can understand better what the NRC thoughts were with regard to that concept.

MR. FREI: Good, that will be helpful.

MR. BENETT: Can I suggest we take a five-minute break?

MR. MILLER: Sure.

MR. BENETT: We will reconvene in about five minutes and then we will get into the fun stuff.

(Brief recess.)

MR. BENETT: We are ready.

MR. BROWNING: The first three questions that were included on your list of nine questions appear to relate to what we are thinking about in your revision to the

Mission Plan. So, I guess the first thing that would be helpful to us if you could sort of describe what it is. I gather since there weren't any questions on the limited work authorization, is that concept being pursued or --

MR. BENETT: Let me say a few things first. The approach we took in the preliminary draft was to lay out a scenario that would get us to an operational repository in 1998. We have gotten a number of comments on that approach and have raised concerns to us and not least of those comments was yours, saying that if you are going to count on an LWA like you are talking about, we have concerns. In retrospect we are not surprised that that was the case. Since then we have been actively exploring other ways, options for having an operational repository in 1998, and we are now incorporating these other ways as options into the Mission Plan that we are preparing now. So, it is not cast in concrete yet. It is getting cast that way as far as the draft that will come out in a few weeks is concerned, and what we would like to do is run through for you the approaches that we are considering for the mission plan that would get us to a 1998 repository and get your reaction to them, to the extent you can do it now, because if we are really off base on one of these approaches, we would like to know it now and consider that before we put another draft out.

So, Mark Frei will walk through the concepts we

have in mind.

MR. FREI: What I will say encompasses the three questions that we have on this. One of the approaches we are looking at in order to look at meeting 1998 is to shorten the construction time of the repository facility or to accelerate certain portions of it so, in fact, we can have a complete facility by 1998, so we can begin to receive and accept wastes, and when we analyze the construction schedule there are two key items on that schedule. One is the surface facilities and in particular the waste handling building where we will receive, inspect, cannister the waste and get it ready to send down the waste handling shaft, and the other item is the shaft's construction and the subsurface development of the underground.

The two approaches we are considering, one is the two-step licensing approach, and the second is a staged repository construction, two stages. Both are ways to take one or both of these items on critical path. Both approaches, the two-step and the two-stage construction approach use or include development or construction of a second exploratory shaft at our candidate sites and the shafts would be needed not only to maintain a prudent level of safety with the mining regulations and so forth, but we would size the shafts so that we can get some benefits so that those shafts can be used during repository construction. So, that is a key element of

both of these approaches, both the two-step licensing approach and the two-stage repository construction approach.

On the two-step licensing approach, what our game plan, if you will, for that is is as follows: Prior to the repository site designation becoming effective, according to the Act, we would apply to NRC for construction authorization for the waste handling building and any associated surface facilities we need to construct that building, and because we have not yet received designation of the selected site, we would be in essence applying an application that would encompass the three sites that are still in the running.

Now, this application would come in after the draft environmental impact statement for site selection, and we would have already completed the Title 1 design for that portion of the repository, the surface facilities. Once the site designation is effective, the application would be winnowed down to just the one site that has been selected so that the NRC review could focus on that one, rather than trying to review three different sites.

Then the balance of the construction authorization application would come in after site designation immediately afterwards, and that would cover the balance of the surface facilities, the shafts, including the exploratory shafts we have already sunk if they are to be used in construction and the underground facility and again that would be based on a

completed Title 1 design, and so following that sequence, we would expect basically two construction authorizations from NRC, one covering the first application of the waste handling building and then the second authorization covering the balance of the repository, and in that way we can finish the surface facilities by 1998, as well as the underground area.

Now, let me cover the second approach that --

MR. BENETT: Wait a minute. You have covered an awful lot so far.

MR. MILLER: I have a question about the time of those two submittals.

MR. FREI: Okay, the first submittal would come in after the draft EIS would be issues for public comment, agency comment. I believe the date is sometime in 1989, like September 1989. And then about one year later we would be in a position where it had gone through review of the draft EIS. We would issue the final EIS. We would make the recommendation package to the President, and the President would recommend to Congress, and then we would have site designation becoming effective. That period is about one year after that first application comes in.

MR. BENETT: Sometime early in 1991?

MR. FREI: It is late 1990, like August.

MR. MILLER: There is about a one year's difference between the first submittal and the second.

MR. FREI: That is right.

MR. MILLER: You would still be assuming three years for our action.

MR. FREI: That is correct.

MR. BROWNING: So, the idea is to get us something early in the process. We would be reviewed in parallel with other things that are going on rather than in series, is that?

MR. BENETT: Right. It would allow us three years after the submission of the first license application if construction authorization is granted then to be able to begin constructing the surface facilities and then three years after the submission of the second license application to be able to begin the shafts and the --

MR. BROWNING: We would look at three in parallel and then eventually would narrow it down to one.

MR. FREI: Approximately one year into the review it would be down to one.

MR. MILLER: I think the next question is what are you assuming in terms of our action on that first request, in other words you submit the full license application to us in let us say, 1990, and you have three years for us to act on that and get construction authorization. I presume that you are submitting the other one earlier in hopes that we would give you a partial instruction authorization before the full one or am I wrong on that?

MR. FREI: No, that is correct. We would like to get a construction authorization back on the first piece we submitted to you early.

MR. MILLER: This is important. How long are you assuming for that kind of review to be complete?

MR. FREI: Three years.

MR. BENETT: Basically getting about one year, if you back off from 1998, when do you have to start constructing the surface facilities?

MR. MILLER: Can we make some observations on this?

MR. BENETT: Please?

MR. BROWNING: Let me ask a question first. Is it your concept that the surface facilities would be fairly generic for each of the sites or would it be radically --

MR. BENETT: Fairly generic, that is correct.

MR. MILLER: The findings that the Commission has to make before giving any construction authorization are the findings that are described in detail in the rule, and you have got a system that is coupled, engineered and natural system type of -- it is a coupling of natural systems and engineered systems, and the basic kind of determination that has to be made is in site suitability, and the concern that you have to have as you pursue this option is can you decouple the issues? I think even in the first case to give authoriza-

tion to construct even the surface facilities we are still squaring off against the same kinds of -- we are squaring off against the performance objectives that go to the releases to the accessible environment performance of the system and so you have to ask yourself, and we would have to ask ourselves could we, either on technical grounds or as now written in our regulations parse the licensing in the manner that you would have to do in order to do what you would be wanting through this option, you know that the rule does provide for flexibility for trade-off insurance systems against natural systems and so in order to make that site suitability finding that has to be essentially made before a commitment to construction is made, you pretty much have to go through and square off against all of these criteria, and it is not clear that when you submitted an application in 1989,that you would have all the kinds of information that would be required of the sort that John kind of walked through this morning, and you see what we are saying. It is not clear that there is any advantage in terms of how long it will take us to complete our licensing review by submitting the surface facility part to us early.

MR. BENETT: What you are saying is if we have to have all the answers in to make the final kind of determination that you envisioned and you reflected 10 CFR 60, if that is the case, then we are not buying anything. I think what we

are getting at is we would want if this approach were adopted, we think that there would need to be a change in 10 CFR 60 and some lesser finding of determination would have to be made as a basis to start the construction of the surface facilities.

MR. MILLER: I think the easy thing to say here is that would require a change of part --

MR. BENETT: Yes, I think we recognize that.

MR. MILLER: But then you have to ask yourself the next question. It is one thing to change Part 60. It is another question to deal with the technical questions that have to be answered, and what you are really saying is that you would like to be permitted to start the surface construction and encumber those costs and make commitments prior to the Board finding, making it final.

MR. BENETT: Correct, in that case.

MR. MILLER: This is obviously again a policy matter that of course, would have to go to the Commission itself in order to get some sort of reaction.

MR. BROWNING: Let me just discuss that for a minute. There is a concept in some of the Commission actions of a so-called "topical report review," where you review something in a generic sense and then when it comes to site specific application you have to reassess does it still fit for that particular site. I gather that is the concept you

are talking about. Is that right? You are going to have a generic surface facility which you think you could decouple from a site-specific case, at least at one level, and you could allow to get review of that in parallel with other things and then separately address the site-specific aspects?

MR. FREI: Yes, in a sense. There may be some --

MR. BROWNING: The kinds of things you are talking about are the subsurface.

MR. MILLER: It is not quite -- they are questioning it a little bit differently. There is a concept of topical report and a lot of the pre-licensing consultations in fact, are, you know, very much like that. What they are saying though is they want to change the timing of NRC's authorization, that is to advance the point at which NRC would say that it is okay to go construct and to do that prior to making the finding of site suitability.

MR. BROWNING: Okay, you would actually be constructing something.

MR. MILLER: While the hearing process is going on.

MR. BENETT: On this schedule you would start construction of the surface facilities one year before you made the final finding on suitability of the site to allow us to proceed to construct the underground facilities and the shafts.

MR. MILLER: Jim has a comment.

MR. WOLF: Yes, first of all, I agree with your recognition that the proposal that you have tabled just doesn't fit with Part 60 as it is presently written. In addition, I would call to your attention, if you wish to pursue this the discussion in the state of the considerations on the proposed procedural rule that was the December 6, 1979, Federal Register, in which the Commission dealt with a concern about expenditures of funds before you knew everything you needed to know about the site and had an opportunity to go through the hearing process. I think you ought to address that policy concern in your own thinking, also, but as Hub says it is --

MR. BENETT: What was the site?

MR. WOLF: I think the most relevant section is Pages 70,410 and 44 Federal Register. I think that is probably where it comes out most clearly. It comes through the rest of it, but I think that is the --

MR. CAMERON: I think it, also, might be useful to point out that this is analogous to the LWA scheme.

MR. WOLF: The same kinds of policy concerns.

MR. CAMERON: Part 50 and you will see some of the policy concerns that the Commission has had over LWA procedures and what types of activities might be permitted before our initial licensing decision in the memo that we handed out, and I think it would be good to apply those types of consideration

also, to this the way you have it presented here.

MR. BENETT: Okay, clearly this is a unique situation. We will by that time, as far as investing in the sites concerned, we will by that time have invested over one-half billion dollars into the site that we would be proposing, independently, and so there will have been a big investment at that time at each site.

MR. MILLER: I think those are the kind of facts that I think you need to present, and what the Commission had considered at the time that it rather explicitly looked at this idea of what construction can occur when, that it perhaps did not have that kind of facts or figures before it and it certainly is not unreasonable to have the DOE at least propose it and to lay out facts that go to the kinds of considerations that are written down in that statement of considerations that Jim is referring to.

MR. CAMERON: I, also, think be aware of the fact that the expenditure of money for gathering information about the site may be okay in terms of your getting a benefit from that expenditure of money, whereas you may not be getting the same type of benefit in expending money to construct surface facilities, and I think that is another thing that comes out in some of the policy statements that were made in the statement of consideration, Part 60.

MR. BENETT: All right.

MR. FREI: Should we move on to the second approach which we call the two-stage repository construction?

MR. BENETT: Do you want to bring it up in this one, just bring up the second rule and say that it, also, was needed?

MR. FREI: Yes. As in the two-step licensing approach we would, again, be using or developing two exploratory shafts at our candidate sites as part of site characterization, the second one being size so that it could be beneficial in use in repository construction. Basically it can be used for subsurface development once we get the construction authorization from NRC. That, in essence, removes subsurface development off the critical path, and what is different about this approach then is what we do to get the waste handling building time, construction time shortened, and in the two-stage approach what we would do is following site designation we would apply for the construction authorization application, the full authorization for both surface and subsurface, and once we have that authorization, we would basically proceed in parallel on two construction efforts, at least for the surface facilities. One, the first stage would be a limited waste handling building which would be limited in receipt rates, for example on the order of 200 to 400 metric tons per year. and it would be limited to one waste form, namely, spent fuel. We would receive it bare in the shipping casks

and so forth and put the site-specific cannister around it, and again that would only be limited to spent fuel. We can build that facility fast enough so once we have the authorization, that facility would be operational, and we would be finished with pre-operational checkout and testing and so forth by the January 1998 date and at the same time the subsurface development and the shafts would be complete so we could not only receive the waste, we can then begin to emplace it at that time.

In parallel with that building, we would have Stage 2 underway which would be a full-scale waste handling building which would accommodate up to the 3000 metric tons waste acceptance we have been talking about in the Mission Plan, and that would provide the capability for disassembling and consolidating the spent fuel which is what our plans are for the waste packages and then putting the waste cannister around that. So, that is basically the two-stage approach. We build two facilities in parallel on the surface.

MR. MILLER: What you are really saying is that in this approach you are not trying to get to construction authorization faster, you are trying to minimize the time after construction authorization of getting the repository ready for receipt.

MR. FREI: That is correct.

MR. MILLER: I think that going back to conversations

that we have had over the past several years on reacting to various things, I think we have always said that this tends from our point of view, at least to make the most sense as to not take and try to parse the front end before licensing, get that decision out of the way but to look to --

MR.FREI: The application for construction authorization would include, if you will, both stages, and what we would need then is the license to receive it in place for the first stage of 1998, followed by the license for the second stage, the larger facility which would come on line perhaps three years later.

MR. MILLER: There are a number of relevant sections in the rule that we might point out to you to keep in mind as you raise this kind of option. The first section that I would like to point to, we talked about two shafts as far as site characterization. In the Subpart B under 6010 on site characterization there are words that go along the lines that first of all the rule and even the statement of considerations that surrounded the promulgation of the procedural rule recognize that site characterization would likely or very possibly include more than one shaft.

In fact, I think the kind of scope that was referred to in our statement of consideration was we expected that there would be several shafts with drifts in between. There is admonition in the rule, however, 6010D2 which talks

about limiting the number of bore holes and shafts to the extent consistent or practical consistent with what you need to obtain information for licensing. So, you have got to do a balancing, but in reaction to your concept of two shafts it certainly isn't inconsistent with what the rule is talking about.

Also, use of shafts, exploratory shafts and incorporation of those into the ultimate repository, again, it is a concept that is recognized and pretty explicitly in that section of our rule.

With respect to -- yes, there is anotherpart of the rule which could be -- I don't think that we would say that this would prohibit what you are talking about in the way of beginning the operation of one piece of the repository before the full repository is operating, but I should call out 60.41 and Subsection A of that Section talks about getting into the phase of acting on requests for operations occurring after construction is substantially complete and it goes on to talk about surface and interconnecting structure systems and components and any underground storage space required for initial operation are substantially complete, and that is something that we need to look at. We would have to look at it in response to that. There is another point, also, yes, that is right, in connection with what the Commission requires the DOE to submit in their license application there are

words to the effect that the license application must evaluate the maximum capacity of the repository, and here I am pointing to 60.21(c). Again, I just point that out. It clearly argues against what you are doing, but you need to be sensitive to those kinds of, those points in the rule.

MR. BENETT: Maybe you have to change the rule for this one, too.

MR. MILLER: I point those out just to -- Jim, or Chip, are there any other points that we should observe?

MR. WOLF: I am a little bit surprised, but this is more a technical question. I am not sure I understand how this gets on the critical path that the surface facilities tend to be on the critical path that would provide a basic premise and need for the kinds of changes you are talking about, but presumably that would be spelled out and explained as to why that would be --

MR. FREI: The construction schedules that our various architect-engineers have developed for the projects through the conceptual design stages show in some cases very long construction times for a waste handling building that will have the capability to handle multiwaste forms and do disassembly and consolidation operations.

MR. BENETT: And in this approach you would build a little simple one in a shorter time while building the bigger complicated one to come on line three to four years later.

MR. CAMERON: And this would give you the capability to do what specifically?

MR. FREI: Begin to accept spent fuel from the utilities.

MR. WOLF: One problem you have to be aware of is the sensitivity about possibility that you would end up with just a fuel storage facility, and if there is one thing that is clear in the Act it is that repository location must not be an interim storage location or an MRS location, and while I am not suggesting necessarily that that is in any way implicated here, you need to, I think, be concerned about it and address it.

MR. BENETT: The intent would be to emplace the waste underground.

MR. WOLF: Sure, not receive it and keep it on the surface, but is the intent sufficient? You see, if you have an authorization actually to emplace the waste at the same time, then this issue doesn't arise, but unless you have made the findings necessary with respect to emplacement, then you have a concern about isn't this a storage facility.

MR. BENETT: I am sorry, we would want authorization to emplace.

MR. WOLF: Okay, all as part of the same --

MR. BENETT: Yes. We don't just want to receive it and keep it there. We want to receive and emplace it.

MR. MILLER: I think you may be getting into the last question, but one other point we should make in response to your question on the second shaft and this concept of it being a large diameter shaft, it appears that our technical people, at least in a preliminary look at it feel that you know, you have got to address those questions which I put on the screen before, but when you address those, it appears as if the diameter of the shaft has less impact on those questions than whether it is this mode of construction or that mode of construction. What I am saying is that their initial reaction is that with respect to how many shafts, I have already talked about that, but with respect to large diameter --

MR. FREI: For example, in salt we did a large diameter second shaft. We may, in fact, use conventional sinking techniques, rather than blind hole boring.

MR.BROWNING: All other factors aside, I don't know how many people would volunteer to go down a shaft to do work down in a facility like this without having some other means of getting the hell out of there.

MR. BENETT: That is the mine safety rules we are talking about.

MR. BROWNING: Yes. I think we have had discussions with the, was it Bureau of Mines that had that shaft? They sank just one shaft and did work down there. My understanding is that they said that they would never do that again.

MR. FREI: We are looking at the extent of underground development we are going to do in order to do our site characterization tests and couple that with the number of people we need under there to run and monitor those tests, and the length of time those tests will run. It just seems prudent from safety that we have a second means of escape in accordance with the MSHA regs.

MR. BENETT: But that doesn't in and of itself lead us to a big second shaft.

MR. MILLER: It looks like we have covered the first three points.

Any questions about No. 9?

MR. BENETT: What is the answer?

MR. MILLER: Why don't you tell us what you have in mind there?

MR. BENETT: One of the things we considered in the preliminary draft emission plan, I think we had it in there, and maybe it was just in our minds then was a several-year lag storage facility on the surface to have a number of functions, but principally to be sort of a buffer between being able to on one end continue emplacing waste at the operational rate while still having enough waste there on the surface to do it in the event some delays happened in bringing waste to the repository and then second to be able to continue receiving waste in the event something happened in the repository

that would have prevented us from emplacing waste, and we have not come up with -- you see, our concept up until we started thinking about that was size it so that if you have a problem shipping waste you have enough room to take whatever was in transit, and that is not very big, and we are looking at a bigger concept then which would have enough there to be able to continue receiving it at the guaranteed acceptance rates and still be able if you have a month's,approaching year's delay or problem in the repository to be able to emplace it and what we thought, bracketed that without having the studies was a couple of years worth of storage on the surface, and that was the concept we had in mind.

MR. FREI: That was the one that Bob Morgan had discussed at the information meeting.

MR. BENETT: Yes, and we are interested in reaction to that.

MR. MILLER: The concept here is given that the facilities whether underground or the other surface facilities, the more complex ones that you talked about may not permit you from the time of construction authorization to 1998 to get all that done. It would be to have at least the part that would allow you to bring waste on site to be able to receive waste if you did not get those other facilities done? Is that what you are saying?

MR. BENETT: That would be another way to look at

that it would be a way to receive waste ahead of the facilities being available, and that was what I think you were getting at, but I think the approach we are coming to now, we ought to have a bigger facility there to be that buffer for the two kinds of problems, problems in shipping so that we have enough there on the surface to continue operations and problems in emplacing waste so we don't have to stop taking the waste.

MR. GREEVES: It is the continuity question.

MR. BENETT: Yes, it is operational continuity.

MR. MILLER: I think there is nothing in the rule that puts limits on your ability to do this kind of thing. We recognized all along in all of the designs you have ever come up with there has been some provision for lag storage, and the need for it is obvious.

The real limitations that you face are the ones that are posed by the law that Jim referred to, and I guess what you are facing off against is concerns that if you did that this is an MRS or it is an interim storage facility, and there I guess you have to consider such things as if you are doing this after construction authorization, and you are actively building the repository I suppose you might argue that that is evidence that it is not an MRS or an interim storage facility, but that is the kind of thing you have to answer not to NRC but to your --

MR. BENETT: We understand that one. We are

concerned more about the NRC position.

MR. MILLER: Unless you have a different answer, there is nothing in our regulations that restrict the size of lag storage.

MR. CAMERON: No, I don't think there is. Of course, you would have to meet all the interim requirements that you ordinarily would have to meet.

MR. FREI: I am certain it would be part of our license application.

MR. WOLF: I think the bigger problem is primarily yours. I would not want to say that we would not have to face it at one time or another, but I think the concern is primarily yours.

MR. MILLER: Is there anything else?

MR. BENETT: I think we have finished the questions, the things we wanted to cover. Did you have anything else you wanted to point out?

All right, how do we want to handle the -- do we want to do the comments now or break for lunch and come back?

MR. BROWNING: I think we would just as soon do it now.

MR. BENETT: Does anybody have any comments or points they want to make?

MR. MILLER: Hopefully, Bill, this has been useful.

MR. BENETT: It has for me, yes.

You know that we appreciate you coming over and taking the time to do this, and we are going to reflect on what we have heard today in making the final changes to the draft that we will be putting out soon, and I am sure we will have more of these interactions.

I have been comfortable with the way the guidelines interaction has gone and this has gone, and maybe we have stumbled on a format that we can work to and involve the public and other people who want to listen. This seems to be fine to me.

MR. BROWNING: I guess we would appreciate getting some feel for whether what you have heard here is going to set you back in terms of your schedule on the Mission Plan. We would hope it would not.

MR. BENETT: I think the answer is no, for substantively. I don't think anything you said in the way we are presenting some of these things would cause us to make drastic changes in the way we are doing it.

MR. BROWNING: Okay, thank you very much.

MR. BENETT: Thank you. By the way, if anybody needs copies of anything we alluded to, let us know.

(Thereupon, at 12:24 p.m., the meeting was concluded.)