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NUCLEAR REGULATORY COMMISSION

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**Title: BRIEFING BY DOE ON STATUS OF HLW
PROGRAM - PUBLIC MEETING**

Location: Rockville, Maryland

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Pages: 1 - 48

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From: Sandra Wastler
To: WND1.WNP1.NKS
Date: 9/12/96 8:08am
Subject: Transcript of Commission Briefing

King

I got a call from DOE today wanting to know if a correction can be made to the transcript of Dr. Dreyfuss's testimony before the Commission on September 4, 1996? Evidently Dr. Dreyfuss's indicated that sampling of CL-36 was taking place every 200 feet in his testimony, but its actually every 200 meters. Could you let me know if this change can be made?

Sandi

CC: JOT

DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on September 4, 1996 in the Commission's office at One White Flint North, Rockville, Maryland. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected or edited, and it may contain inaccuracies.

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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

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4 BRIEFING BY DOE ON STATUS OF HLW PROGRAM

5 ***

6 PUBLIC MEETING

7 ***

8
9 Nuclear Regulatory Commission
10 11555 Rockville Pike
11 Rockville, Maryland
12

13 Wednesday, September 4, 1996
14

15 The Commission met in open session, pursuant to
16 notice, at 9:36 a.m., the Honorable SHIRLEY A. JACKSON,
17 Chairman of the Commission, presiding.
18

19 COMMISSIONERS PRESENT:

20 SHIRLEY A. JACKSON, Chairman of the Commission
21 KENNETH C. ROGERS, Member of the Commission
22 GRETA J. DICUS, Member of the Commission
23 NILS J. DIAZ, Member of the Commission
24 EDWARD McGAFFIGAN, JR., Member of the Commission
25

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1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

2 JOHN C. HOYLE, Secretary

3 KAREN D. CYR, General Counsel

4 LAKE BARRETT, Deputy Director, Office of Civilian

5 Radioactive Waste Management, DOE

6 DANIEL DREYFUS, Director, Office of Civilian

7 Radioactive Waste Management, DOE

8 STEPHAN BROCOUM, Assistant Manager, Suitability

9 and Licensing, Yucca Mountain Project, DOE

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P R O C E E D I N G S

[9:36 a.m.]

CHAIRMAN JACKSON: Good morning, ladies and gentlemen, Dr. Dreyfus and Mr. Barrett.

This morning, the Commission will be briefed by representatives of the U.S. Department of Energy on the status of the Civilian Radioactive Waste Management Program.

This continues a series of semi-annual briefings by DOE for the Commission regarding the status of the high-level waste program. Our last briefing by Dr. Dreyfus and his colleagues and staff was on January 30 of this year.

Since last January, there have been considerable developments in the high-level waste area. These developments include technical issues. For instance, elevated chlorine 36 concentrations were found at the exploratories, studies facility level. The developments include management issues such as DOE's issuance of a draft revised program plan. They also include operational issues such as the progress of the tunnel boring machine which, I understand, has been substantial. And, finally, they include legislative and judicial issues that affect the future direction of the nation's high-level waste program.

Dr. Dreyfus, Mr. Barrett, the Commission looks forward to hearing from you today on the status of DOE's high-level waste program and how the DOE is responding to

1 the various developments. You are on film today, I should
2 tell you, if you hadn't figured that out.

3 Do any of my fellow commissioners have any
4 comments? If not, Dr. Dreyfus, please proceed.

5 DR. DREYFUS: Thank you, Chairman Jackson, members
6 of the Commission.

7 I am pleased to address the Commission on the
8 status of the program. As is our custom, I would like to
9 start with a few photographs to give this a sense of reality
10 that sometimes is lost in the paperwork and if our media
11 people are ready, we will put the first one up.

12 This is a graph that depicts the tunnel boring
13 machine progress as of August 26. We remain well ahead of
14 schedule.

15 We were, along about June 13, 155 days ahead of
16 schedule but we re-benched the program at that time to
17 develop a metric more consistent with what we had been able
18 to achieve and since then, we are now again 25 days ahead of
19 the new schedule, so progress despite somewhat difficult
20 ground conditions and the necessity to take the time to do
21 the science has been substantial.

22 The next photo --

23 CHAIRMAN JACKSON: Does this include the progress
24 on the alcoves as well?

25 DR. DREYFUS: Yes, we are making progress on the

1 alcoves and in my statement I will summarize some of that as
2 we go and I've got some pictures I think that will show some
3 of that.

4 This is a photo of the tunnel boring machine taken
5 from the photo mapping gantry behind the main machine
6 itself. It probably looks much like photos you have seen
7 before but it is, in fact, a new photo that shows the
8 machine leaving the main drift and entering the turn into
9 the ramp to the south portal, where it will exit the
10 mountain, hopefully, early next year.

11 This progress, I think, signifies a shift in
12 emphasis. We are done excavating the main drift in the
13 repository formation and we will now be concentrating on the
14 scientific experiments in that tunnel and in the alcoves.

15 The next picture is a view of the -- and I am
16 going to make sure it is -- yeah, it's a view of the heater
17 test array in the thermal mechanical alcove. We are
18 beginning a single heater test. It began on August 26 and
19 it will give us information on thermal effects and
20 experience with the instruments. We will then proceed to a
21 much larger, multi-element drift test -- drift scale test
22 which will simulate a waste package and the heat from
23 adjacent waste packages.

24 In the center of the picture, you can see the hole
25 that the heater element has been emplaced in and you can see

1 the array of instruments that will measure the effect of the
2 heat on rock and the effect of the heat on moisture within
3 the rock.

4 The next photo is one of the heater element. The
5 heater element itself being emplaced in the bore hole. The
6 heater is five meters long and will put out about four
7 kilowatts and will heat the rock in the vicinity to about
8 200 degrees Centigrade.

9 The next --

10 COMMISSIONER ROGERS: How does that compare with
11 what you would expect a canister to deliver, roughly? About
12 the same?

13 DR. DREYFUS: Well, we are expecting the
14 temperature at the rock wall adjacent to a canister to be
15 above the boiling point, above 100 degrees. So this will
16 give us some feel for the immediate, near-term effects but
17 not a -- not a canister heat. That is the second test. We
18 will simulate an actual canister in place.

19 MR. BARRETT: The rock temperature should be
20 similar in both cases. So this will bring near-term rock
21 temperatures to what a repository would experience.

22 CHAIRMAN JACKSON: That implies a particular
23 thermal loading strategy, right?

24 MR. BARRETT: Yes.

25 CHAIRMAN JACKSON: Okay, are you going to speak to

1 that at all in your remarks?

2 DR. DREYFUS: A little bit. I'll mention it.

3 Okay, the next photo is the construction of the
4 northern Ghost Dance Fault alcove. The excavation has been
5 completed now to the planned length of 90 meters. At this
6 point, we will drill a discovery bore hole into the face of
7 that alcove to locate the fault. If we do not locate the
8 fault, then we will excavate further and again drill ahead
9 of the drift. The idea is to get some data from the fault
10 in a relatively undisturbed state before we actually drive a
11 drift through the Ghost Dance Fault for observation and
12 testing.

13 I expect that the penetration of the Ghost Dance
14 Fault will be a major source of data in resolving several
15 issues that we are now dealing with.

16 The next picture is a technician measuring
17 moisture in the heater alcove in the thermo-mechanical
18 alcove. Again, this is a measurement to get a level of
19 water content in the rock prior to heater tests. We will be
20 looking at the influence on the heater test on the moisture
21 content and moisture travel.

22 And the last photograph shows technicians
23 measuring the dimensions of the opening near the entrance to
24 the heater alcove to check mechanical stability. The
25 thermal effects on rock stability are another important

1 aspect of the heater tests.

2 Now, that concludes the graphics and I will
3 summarize very briefly my statement that you have had.

4 When I spoke with you in January, the program was
5 in transition. Now, during the past seven months, we have
6 revised the program approach both to manage our 1996 funding
7 reduction and to develop a new long-term plan which has been
8 presented in the Administration's fiscal year '97 budget
9 request.

10 The results of the effort are described in a
11 revised program plan which we released in June. We have
12 retained the objective that we adopted in 1995 to reach
13 early convergence on the major scientific and engineering
14 aspects of the investigation of the Yucca Mountain site.
15 Since January, we have also been able to regain target dates
16 for a formal site recommendation and for submitting a
17 license application to the Commission.

18 Our ability to achieve these targets, of course,
19 will continue to depend on funding in the future and upon
20 the adoption of a more focused approach to evaluating site
21 suitability. Our approach will be described in proposed
22 revision to our own siting guidelines that we will issue
23 shortly. It relies upon overall system performance as the
24 basic test of evaluating a site.

25 Simply stated, a site can't be judged to be

1 suitable in the abstract. The only logical measure of the
2 suitability of the Yucca Mountain site is that it be able to
3 host a repository design that will meet the applicable
4 standards to protect public health and safety. Attributes
5 of the site that significantly influence that capability
6 are, of course, important. Attributes that do not are
7 irrelevant.

8 The important attributes can only be identified
9 and evaluated within the context of an assessment of the
10 performance of a proposed, engineered repository in the
11 specific geologic setting as we now understand that setting,
12 based upon scientific investigations that have extended for
13 over a decade.

14 Our revised program plan also includes non-site
15 specific activities that will address the long lead time
16 requirements of interim storage and spent fuel
17 transportation. These activities are consistent with the
18 Administration's position on interim storage and the pending
19 legislation.

20 Despite the severity of the fiscal year 1996
21 budget constraints, we have made substantial progress in the
22 project since I met with you in January. At Yucca Mountain,
23 as the pictures have shown, we completed excavation of the
24 main drift well ahead of schedule and the tunnel boring
25 machine is now proceeding up the south ramp.

1 Funding constraints have reduced the progress from
2 time to time by reducing overtime on the shifts and things
3 like that but we have been able to maintain much of our
4 optimum progress on the tunneling. We expect to daylight
5 the tunnel machine at the south portal early in 1997.

6 We have completed initial construction of thermal
7 testing alcove, began the small-scale heater test last week.
8 Initial construction of the first two alcoves that will
9 provide access to the Ghost Dance Fault also was completed
10 last week and we will begin the second alcove in October.

11 Several months ago, we reported to the Commission
12 the observation of a zone of more highly fractured rock in
13 the south part of the main tunnel. Preliminary information
14 indicates that the zone of fracturing does not penetrate the
15 overlying rock units. Although the existence of the
16 fracture zone was not apparent from surface-based studies, a
17 zone such as this is not unexpected given the geologic
18 history and characteristics of this site. Studies of this
19 zone as potential significance to repository performance are
20 continuing.

21 Isotopes are being used to date fracture fill
22 materials and pore water samples collected in the
23 exploratory study facility and from surface bore holes. The
24 data indicate that most of the water currently distributed
25 in the rock at the potential repository horizon is very old,

1 on the order of tens of thousands to hundreds of thousands
2 of years.

3 In April, however, we reported detecting elevated
4 levels of chlorine 36 in some rock samples collected from
5 the exploratory studies facility. These concentrations are
6 sufficiently above the background level for this isotope to
7 indicate that small amounts of water containing elevated
8 levels of chlorine 36 presumably generated by nuclear
9 weapons tests in the Pacific has traveled from the surface
10 in less than 50 years to the repository level, possibly
11 along preferential pathways. Additional samples are being
12 collected as the tunnel progresses and analyzed to confirm
13 the results and to provide information on new areas of the
14 tunnel. Additional studies will be performed to validate
15 and evaluate the significance of these data to repository
16 performance.

17 In January, I noted that we are making progress
18 refining our waste containment and waste isolation strategy
19 for the site and that we were within a few months of
20 providing a draft to the Commission. Although a condensed
21 version of the strategy was included in the revised program
22 plan, we have not yet completed the strategy in detail. The
23 continuing effort to arrive at that completion is, of
24 course, serving its primary purposes by requiring
25 integration of the work being done and the remaining work

1 needing to be done. I expect that a detailed version of the
2 strategy will be completed in fiscal year 1997, hopefully
3 early in '97.

4 In March, we published a report on the current
5 level of detail for the repository waste package advanced
6 conceptual design. This report gives us a new reference
7 design that will serve as the benchmark for development of a
8 repository designed to support our viability assessment in
9 1998.

10 In January, I informed you of our decision not to
11 proceed with the certification of a multipurpose canister
12 system for storage, transportation, disposal and commercial
13 spent nuclear fuel. The Administration's fiscal year 1997
14 budget request does not include funding for this system and
15 we do not intend to pursue its development beyond the
16 completion of current activities.

17 As you know, the congressional appropriation
18 action for '97 is not yet complete. The House has approved
19 an appropriation bill that, with certain contingencies,
20 would provide 382 million for the program. The Senate-
21 passed bill provides the full 400 million that we requested.

22 Our revised program plan is based on an increased
23 technical understanding of the repository for more than a
24 decade of scientific and engineering work done at the
25 mountain. Our site investigations and total system

1 performance assessments have allowed us to reach much better
2 informed judgments regarding specific aspects of the site
3 than are significant to performance. These judgments have
4 enabled us to reduce the work required to support regulatory
5 decisions and thereby to accommodate a substantial reduction
6 in future funding while retaining our target dates for major
7 actions with minimal slippage.

8 The revised plan defines three objectives that
9 will maintain the momentum toward a national decision on
10 geologic disposal. First, we will update a regulatory
11 framework in 1997 for evaluating the suitability of the
12 Yucca Mountain site. That is our regulations. Second, we
13 will complete the viability assessment in 1998 and, third,
14 we will recommend a repository site to the President in 2001
15 if the site is suitable, and submit a license application to
16 the Commission in 2002.

17 Consistent with this program plan and supported by
18 our increased understanding of the site, we have decided to
19 revise our siting guidelines. Guidelines will be revised
20 through a public rulemaking process initiated by a notice of
21 proposed rulemaking later this year. Our goal is to publish
22 a final rule in 1997.

23 As was done during the 1984 promulgation of the
24 siting guidelines, we will obtain the Commission's
25 concurrence with the revised guidelines and we will work

1 with your staff to facilitate that action.

2 Our near-term activities are focused on addressing
3 the major unresolved technical questions associated with
4 overall performance of the repository so that, by 1998, we
5 can make an assessment of viability of licensing and
6 constructing one. The viability assessment will include
7 four components, a package of more specific design work on
8 the critical elements of the repository concept and the
9 waste package.

10 Second, a total system performance assessment
11 based on that design concept and upon the scientific data
12 and analysis that will be available to us by 1998, which is
13 substantial. That performance assessment will describe the
14 probable behavior of the repository in the Yucca Mountain
15 site geologic setting.

16 Third will be an upgraded estimate of the cost to
17 construct and operate the repository in accordance, again,
18 with that design concept.

19 And, fourth, a plan and cost estimate for
20 remaining work required to complete a license application.

21 Based upon these components, the program can make
22 a measurably improved appraisal of the prospects for
23 geologic disposal at the site. The Administration has
24 stated its position that this appraisal should be available
25 to inform any decision concerning the site for federal --

1 the use of the site for a federal interim storage facility
2 for commercial spent fuel.

3 Pending legislation in both the legislation on
4 interim storage and the appropriation bills also recognize
5 the assessment as a significant benchmark in the program.
6 The work completed for the viability assessment will be an
7 integral step to reaching our central goal of submitting a
8 successful license application to the Commission.

9 From our perspective, the near-term interactions
10 with your staff should be concerned with reaching a common
11 understanding regarding the issues that are significant to
12 overall performance of the repository. Additionally, we
13 hope to reach agreement on the adequacy of our methodologies
14 and approaches to address important technical issues such as
15 criticality control and seismic design. The goal is to
16 reach a mutual understanding of the developing repository
17 concept that will provide a basis for the Commission's
18 preliminary comments on the sufficiency of our site
19 characterization analysis and design for inclusion in a
20 license application.

21 This is a departure from previous efforts to
22 progressively address individual issues related to specific
23 site characteristics in relative isolation from one another
24 or from a specific design concept. In my view, the lack of
25 a conceptual frame of reference for discussing repository

1 performance has been a source of discomfort in our
2 interactions with the Commission and even in these
3 briefings.

4 It seems to me that the sufficiency of site
5 characterization and analysis generally can only be
6 determined in relation to a coherent repository concept.
7 Therefore, we will concentrate first on developing the
8 overall concept for the repository system which I think we
9 are now knowledgeable enough to do and perhaps were not
10 several years ago and on communicating our progress to your
11 staff rather than our reaching agreement regarding
12 sufficiency and data analysis on isolated issues.

13 Although we were unable to proceed with work on
14 the licensing support system in fiscal year '96, our revised
15 program plan includes a budget and a schedule for system
16 development. We will begin again in fiscal '97.

17 Certification of licensing support system is
18 required six months before a license application is
19 submitted. Our current plans will allow us to have a
20 computer-based licensing support system in place and
21 available for certification in time to support our new
22 target dates.

23 Aside from the Yucca Mountain project, any future
24 scenario of interim storage or ultimate disposal will
25 require a national transportation effort. We have developed

1 a revised strategy that will enable us to acquire the
2 capability to accept, store and transport spent nuclear fuel
3 as rapidly and efficiently as possible when a federal
4 storage or disposal facility is designated.

5 We would contract with private industry to provide
6 equipment and services for delivering spent fuel to a
7 federal facility. The strategy is in accordance with the
8 Administration's objectives for re-engineering government
9 and greater privatization.

10 In July, we met with the interested parties to
11 discuss these plans and to receive comments to assist in
12 shaping the concept. We are also currently developing a
13 topical safety analysis report based on a non-site specific
14 design for the first phase of a phased interim storage
15 facility of the type that is contemplated in congressional
16 discussions.

17 That facility would receive spent fuel in
18 transportable storage casks or canisters. We expect to
19 submit this topical report in fiscal year 1997 to the
20 Commission. We believe that the staff's acceptance of the
21 report would reduce the time required and the complexity
22 required for a license application and time for staff review
23 of a site-specific design when that becomes possible.

24 Over the past seven months, both of our
25 organizations have been reacting to changes that are

1 directed in the high-level waste program both by
2 congressional edict, Administration policy and budget
3 constraints. During this period, in spite of funding
4 constraints on the scope of both our activities, I believe
5 the staff interactions have continued to become better
6 focused and more useful.

7 For example, a recent meeting on performance
8 assessments completed by the staff was constructive dialogue
9 that will improve both our understandings of subsequent
10 performance assessment work. Our interactions on the
11 methodology for evaluating seismic hazards has brought us
12 much closer to agreement on the associated issues.

13 I hope that we can continue to build on this
14 progress as we implement our new approach. I thank you for
15 the opportunity to brief the Commission and I am happy to
16 answer any questions that you might have.

17 CHAIRMAN JACKSON: Thank you, Dr. Dreyfus.

18 I will start. I will ask one or two questions and
19 then I will come back.

20 I note that the first key objective in your
21 revised program plan is to update the siting guidelines in
22 10 CFR Part 960 with Commission concurrence. Now, if you in
23 fact plan to issue this in 1997, how are you accounting for
24 EPA's schedule on establishing a site-specific radiological
25 protection standard?

1 DR. DREYFUS: I don't think that we necessarily
2 have to have that standard in order to have the siting
3 guidelines. The siting guidelines do, of course,
4 contemplate that the measure of success is the ability to
5 meet the standard but the standard doesn't have to be in the
6 guidelines. So I think we are not time-dependent on EPA to
7 do this.

8 CHAIRMAN JACKSON: How much time are you, in fact,
9 planning for NRC review of the amended siting guidelines
10 before Commission concurrence?

11 DR. DREYFUS: We have had some interactions with
12 your staff on that and we have looked back at what happened
13 the last time and we do have, of course, a contemplated
14 schedule but we are obviously not in control. Let me see if
15 it is going to be quicker for me to find the schedule or ask
16 for assistance.

17 Six to eight months that we had allotted in our --
18 and I have it here -- came out about even. So we are
19 looking at about six to eight months.

20 Of course, this took considerably longer the last
21 time but that was with a brand new act and a complete new
22 concept and I think this is a revision.

23 CHAIRMAN JACKSON: How large a scope do these
24 proposed revisions have?

25 DR. DREYFUS: This is a very concise document. It

1 has great significance but not much volume. It is a much
2 simpler approach than the previous one.

3 CHAIRMAN JACKSON: Okay, and let me ask one last
4 question. You have noted that a phased peer review of the
5 assessment, of the performance assessment results will be
6 initiated later this year. Have you decided who will, in
7 fact, conduct that peer review and what's going to be its
8 role in 1996 and early '97 before, in fact, the results of
9 the total system performance assessment are determined?

10 DR. DREYFUS: Well, the object of beginning early
11 is to get a review group familiar with the process and the
12 assessment that we have already done so that we can, in
13 fact, have relatively rapid turnaround when we have the
14 actual numbers. That's why we are starting early.

15 Do you want to comment on that?

16 MR. BARRETT: I suggest that Dr. Brocoum would be
17 better.

18 DR. DREYFUS: Dr. Brocoum, who is our regulatory
19 assistant manager and is directly involved can tell you
20 about the status and planning.

21 DR. BROCOUM: The peer review will go on for
22 several years, starting with the review of the 1995 TSBA and
23 then the review of all the steps we go through for the other
24 one. The exact composition of the peer review panel has not
25 been determined. It will probably be either contracted

1 either by a technical support contractor if we have one in
2 place or the MNOs but we have that -- we're still working on
3 that so --

4 CHAIRMAN JACKSON: Okay.

5 Commissioner Rogers?

6 COMMISSIONER ROGERS: Well, just on this same
7 general part of your presentation.

8 Can you just give me a little bit of a feeling of
9 how the performance conformation program is going to relate
10 to the performance assessment program starting and
11 finishing? I know the performance conformation program will
12 go out very long in time to all the way out to closure of
13 the facility, presumably.

14 But when does it start and how does it relate to
15 the performance assessment program? Is there an iterative
16 process there that involves performance assessment,
17 performance confirmation and then back to performance
18 assessment again?

19 DR. DREYFUS: I think the performance assessment
20 will be an iterative process that doesn't stop. And, of
21 course, the way that the regulations are set up, and with
22 the built-in provision for extended retrievability, we are
23 going to be gathering data. The construction of this
24 repository contemplates something like 100 miles of tunnel
25 which, obviously, is an immense amount of information

1 underground that we don't now have which will either confirm
2 or modify our understanding as we go. So we are looking at
3 a learning process.

4 Now, it is incumbent upon us to make the safety
5 case up front based on performance assessments associated
6 with the data available at the time of license application.
7 But the performance assessment process will continue to be
8 used to deal with incoming information, I would imagine all
9 the way through closure if not beyond.

10 COMMISSIONER ROGERS: It is the performance
11 confirmation program that I don't understand enough about.
12 That's -- I mean performance assessment program I
13 understand. The performance confirmation program is the one
14 I am really asking about.

15 DR. DREYFUS: Well, shall we ask Dr. Brocoum to
16 come back and talk about that one? Because the metaphysics
17 of that are basically in his area of expertise.

18 COMMISSIONER ROGERS: That's what I am having
19 trouble with.

20 DR. BROCOUM: This year, we are conducting or
21 completing a systems analysis on performance confirmation
22 that focuses, from the engineering side of the house so the
23 design that Dr. Dreyfus talked about can go on.

24 Next year, we will continue the performance
25 confirmations that will focus more on the site so there is a

1 systems engineering study looking at all aspects of
2 performance confirmation, both the engineering side and the
3 scientific side. And we expect performance confirmation to
4 start, individual performance confirmation tests to start
5 about 1998, that time frame.

6 COMMISSIONER ROGERS: Not before 1998?

7 DR. BROCOUM: About. Probably not before, yes.

8 COMMISSIONER ROGERS: All right.

9 How would you characterize the difference between
10 performance assessment and performance confirmation?

11 DR. BROCOUM: To do a performance assessment, you
12 develop -- the scientists collect data, you develop models,
13 what they call process models that model a particular
14 aspect, for example hydrology or saturation zone. Then you
15 take and you abstract those models to use in performance
16 assessment, then you run the performance assessment, so it's
17 all steps.

18 The performance confirmation, you focus on those
19 process models and the data that went into them to make sure
20 that if you collect -- that the bounds you put on the
21 various parameters that feed those process models are, in
22 fact, what you thought they were. So, you know, you collect
23 more information. Maybe as you construct the repository,
24 you know, you take more tests and samples and so on.

25 COMMISSIONER ROGERS: It doesn't seem to be a

1 really bright line that separates these processes; it is
2 just that one confirmation tends to focus more on questions
3 that reducing uncertainty bands and things of this sort, is
4 that --

5 DR. BROCOUM: That's correct. I would say, in
6 general, the performance confirmation focuses on the models
7 that input into the performance assessments.

8 COMMISSIONER ROGERS: I know my fellow
9 commissioners have probably got a lot of questions too, so I
10 will try not to ask all my questions but, first, I wanted to
11 say that your new approach that takes a total system
12 approach is something I think we have all been looking for
13 for a long time and I think it is a major step forward in
14 our ability to deal with you in totality, which is really
15 the thing that I think our staff and I think the Commission
16 has been asking for for some time and I think this is very
17 good to see the new direction in which you are going.

18 I will tell you, though, I do have a concern and
19 that is that in your written statement starting on page 10,
20 the bottom of page 10, going on to page 11, just what the
21 implications of the sentence on page 11 that says, "It is
22 appropriate for us to complete the technical work, develop a
23 concept and satisfy ourselves of its ability to adequately
24 protect public health and safety before we seek approval
25 from outside parties."

1 Approval is one thing but what about dialogue? Do
2 you -- it seems to me that that is really important, that
3 you have the benefit of dialogue with outside parties and,
4 presumably, we are an outside party from your point of view.
5 I wonder if you could just indicate to what extent you do
6 intend to continue dialogue with NRC staff on issues even
7 though it is important for you to get your whole act
8 together? I mean, that is what you are saying you want to
9 do here.

10 DR. DREYFUS: Well, we, of course, I think
11 probably the best evidence of that is in practice. We are
12 doing it. We certainly don't intend to stop.

13 I think the focus of attention, the notion of what
14 is on the agenda of management meetings and that sort of
15 thing, may change to some extent but the intensity of the
16 interaction should continue and in fact increase and in my
17 judgment, from what I hear back from the staff interactions,
18 the quality is improving and has improved immensely, in the
19 sense of being on point and on what is important.

20 I don't foresee any less interaction in any
21 respect but as I say, rather a change in emphasis in the
22 agendas. We have, of course, Technical Review Board which
23 is always with us and which we meet with regularly and days
24 at a time and on every aspect of the program and they pretty
25 much make their own agenda so we are not the arbiters of

1 what will be talked about in any of these interactions.

2 What we hope to do is get the thought process
3 channeled into the concept which provides a frame of
4 reference. For example, your staff and contractors to do
5 independent analysis. It has hard to do independent
6 analysis if you don't know what of. That, I think, is the
7 difference.

8 We, ourselves, I think, can no longer be in the
9 position of at this stage in this program and considering
10 the history of having every option remaining open and no
11 focus, no ability to tell people what the proposal looks
12 like.

13 CHAIRMAN JACKSON: I think we are going to have to
14 go on to Commissioner Dicus but if Commissioner Rogers will
15 allow me, I had a slight follow-on to his question and that
16 is, a lot it seems to rest with what you are calling your
17 conceptual frame of reference.

18 On the one hand, you said that you will define a
19 repository concept. This is on page 10, that includes a
20 facility and waste package design consistent with the
21 characteristics of the Yucca Mountain site. And then on
22 page 11 you go on to say that you want a coherent repository
23 concept that includes both a design and an assessment of its
24 performance and that you will concentrate first on
25 developing the overall concept for the repository system

1 rather than on reaching agreement regarding the sufficiency
2 of our data and analyses to address isolated issues related
3 to specific site characteristics in advance of a concept.
4 But you have said that the concept has to do with design
5 related to the characteristics of the site but then you're
6 saying you don't want to be spending your time reaching
7 agreement on what you would call isolated issues related to
8 specific site characteristics in advance of such a concept.

9 Can you kind of put those together for me?

10 DR. DREYFUS: Yes.

11 Basically, the way this program has proceeded is
12 in the beginning of the program when there was -- there was
13 still a question of winnowing out sites, looking at many
14 sites and comparative analysis among the sites, those who
15 were involved at the time, and without a lot of data on any
16 of the sites, sort of meditated over what would be an
17 important consideration and came up with some notion of how
18 one would evaluate a site, largely in order to see if it was
19 a better prospect than another site.

20 We have now, for some time, had only one site and
21 that site is not a very typical one. It is a dry site,
22 which is a unique site, globally. So a lot of the generic
23 stuff, thought process is irrelevant or certainly not
24 appropriate directly to Yucca Mountain.

25 Where we are now is we have -- this is a perfectly

1 adequate scientific approach. We went out and collected a
2 lot of data without very much focus because it was a
3 question of what do you think about this site. Then it's a
4 question of what are my systematic beliefs about this site,
5 we've got hydrology, with regard to seismic, with regard --
6 now you have a conceptual notion of the site.

7 Somewhere along the way, you have to bring this
8 thing together and say, here is how I would build a
9 repository in this setting and then you say, oh, now I know
10 this is very important and maybe it's something that is on
11 that original checklist and maybe it's not and maybe
12 something on that original checklist turns out to be pretty
13 irrelevant to what you intend to do.

14 I think we are at the point where we have to get
15 much more specific about what we intend to do. We have to
16 know that the technologies we are postulating in these
17 performance assessments can, in fact, be acquired. A
18 specification for a waste package has to be related to I can
19 build it and I can afford it, not just if there were, you
20 know, assume a can opener kind of stuff.

21 So that's what we are talking about, getting from
22 that first stage into the second stage and here is something
23 we know how to build for which technologies exist. Let's
24 see what the important considerations are for making that
25 thing work as opposed to, here are some considerations that

1 might be important and let's study them all until we are
2 conclusively sure we understand them.

3 CHAIRMAN JACKSON: Thank you.

4 I think, if I may, just for the record, I am happy
5 that you are in fact focusing this way and I would just note
6 that even long before I came to the Commission the
7 Commission's perspective has been that there really needed
8 to be a focus on waste isolation strategy including things
9 like engineered barriers, what your thermal loading strategy
10 is, things that would really focus you on a repository
11 design that would then be referenced to the specific site.
12 If that is where you are going, then I applaud you.

13 Commissioner Dicus?

14 COMMISSIONER DICUS: Thank you.

15 I have a couple of questions to begin with that
16 address the elevated levels of chlorine 36. The first part,
17 and maybe it's one question with two parts, but how do
18 preferential flow paths affect the waste isolation and then
19 what could be done to mitigate their effects?

20 And then I guess the second part of the question
21 is, could something like this become a show stopper?

22 DR. DREYFUS: Well, in the first instance, the --
23 there have -- first of all, what we -- we were looking for
24 this so it was not something totally unexpected. When we
25 took these samples specifically to look for evidence of

1 preferential flow paths or rapid movement of water in the
2 mountain, so that is not an unexpected situation.

3 It is -- the samples we got are actually
4 deposition in fractures, they are not water, though they
5 indicate relatively small amounts of water. We do not yet
6 know precisely what the path was that got them there,
7 whether it is a direct surface flow or some sort of flow
8 through the upper layers that collects but, in any event, we
9 have put that in perspective.

10 It need not be a critical problem but it could be,
11 because we are in fact assuming that the waste isolation
12 strategy expects there will not be a great deal of water or
13 moisture to deal with here, as an ambient condition in the
14 repository or as a path for radionuclides to get out and get
15 into the accessible environment. So we are planning for a
16 dry site.

17 How dry is dry? To what extent this is a
18 pervasive situation throughout the entire area, these we
19 don't have answers to yet. It is that kind of a situation.
20 So I don't -- I think at the moment it is a data point and
21 it is something that has to be accommodated first in the
22 performance models that they in fact do reflect that kind of
23 flow. They have expected there would be heterogeneous flow,
24 not just matrix flow. We can accommodate that in the models
25 but we have to be able to accommodate it in a way that

1 conforms to what we find. And then see if that gives a
2 design problem.

3 COMMISSIONER DICUS: Another question a little bit
4 along these same lines.

5 You found the fractured zone, you said that was
6 not unexpected, which leads you to believe that you expect
7 to find more of these zones and how could this influence the
8 repository?

9 DR. DREYFUS: Well, there are many different
10 aspects. One of the things that we found out with the
11 tunnel, which is something that you don't find out with
12 surface boring, is that we can build a tunnel in Yucca
13 Mountain. We have struggled with -- the tunnel is proven to
14 have a fair amount of heterogeneity in it and some different
15 rock conditions. We have wrestled with those rock
16 conditions and I would say that the progress we made with
17 the tunnel machine indicates we learned to work with them.

18 They are not easy conditions and yet we have
19 managed them and we are getting more sophisticated even now
20 with dealing with different kinds of support techniques. So
21 we have learned to deal with it and a whole lot more about
22 what the costs of repository construction would be.

23 So, as a structural matter, I think we can deal
24 with it. We learned that this particular situation is
25 something one -- given, you know, the volcanic

1 circumstances, one might expect it but I would rather not
2 have found it. On the other hand, on the other end of the
3 tunnel, we found better conditions than we might have
4 expected so you get some good breaks and some bad breaks.

5 Basically, as I said before, I have said that I
6 have better confidence now than I had before the tunnel
7 began. Now we've found some things that are problematic and
8 have to be dealt with, but there are a whole lot of things
9 that we didn't find that might have been down there and
10 reliance on very widely spaced drilling and seismic work
11 without underground references and that sort of thing is
12 pretty iffy.

13 So I think the tunnel has given us hands-on
14 knowledge of the thing and I don't think we have yet found
15 anything we can't work with.

16 COMMISSIONER DICUS: Just one follow up and then
17 we will pass, maybe, and then come back.

18 Given what you said about the importance of the
19 tunnel work, as you know, the Nuclear Waste Technical Review
20 Board briefed us I think it was toward the end of July and
21 they are very supportive, very positive about the program.
22 They also brought up a few things where they had some
23 concerns and one of them was this east/west exploratory
24 route west of the Ghost Dance Fault that the board tends to
25 think is important and I am not sure the program has

1 addressed.

2 Would you elaborate on that?

3 DR. DREYFUS: Well, simply put, I think that is a
4 decision that is not yet ripe. We have, in fact, budgeted
5 and anticipated additional underground exploration if it is
6 needed. I am not prepared to agree yet that it's needed and
7 I certainly am not prepared to buy into a specific drift
8 design before I see the Ghost Dance Fault.

9 When we get the information that we will get out
10 of the Ghost Dance Fault alcoves and out of the remaining
11 ramp of the tunnel and have had the time to think about it,
12 it may well be that we feel we have to do some exploration
13 but I don't know where and I don't know how much and I don't
14 have the input data upon which that decision should be
15 based.

16 So I am not disagreeing with the board. I am just
17 simply not as sure as they seem to be exactly what ought to
18 be done.

19 COMMISSIONER DICUS: Thank you.

20 CHAIRMAN JACKSON: This is actually a follow on.

21 There were five locations, I think you said, where
22 the chlorine 36 was above background. Were they spread
23 through the ESF, the Exploratory Studies Facility, or were
24 they concentrated in a particular area?

25 DR. DREYFUS: The sampling approach was to take a

1 sample every 200 ^{meters} ~~feet~~ and a sample where there were features
2 that were inclined to make you take a sample, discernable
3 fractures, for example.

4 We, in fact, found elevated chlorine 36 entirely
5 in samples associated with features, none was found in the
6 random or in the systematic, rather, sampling along the
7 tunnel. So the presumption is they are associated with
8 fractures.

9 CHAIRMAN JACKSON: I understand that but were they
10 still concentrated in a particular area or was it spread out
11 wherever?

12 DR. DREYFUS: Oh, along the entire tunnel? Well,
13 let's see. I've got a diagram here that starts at the Bow
14 Ridge Fault and goes to the Sundance.

15 MR. BARRETT: There are two types of sampling.
16 One was the periodic, okay, and then they also went to look
17 for any features where there might have been water at one
18 time, so where there was a precipitant in a crack. So they
19 also sampled in those places. Those were the places where
20 they found the elevated chlorine.

21 DR. DREYFUS: There was an elevated sample at the
22 Bow Ridge, so it is very close to the --

23 MR. BARRETT: Those were the ones, like the Bow
24 Ridge Fault was the first one and they had elevated at the
25 Bow Ridge Fault, as expected, very near to the surface.

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1 Then also at the drill hole wash area at the corner, they
2 also found it there as basically expected. The Sundance,
3 they also found it as expected. Then there were two other
4 locations that were not so discernable from any surface work
5 as to what that would be, but there were fractures at that
6 horizon where you could see precipitant.

7 Now, exactly where the water on those two came
8 from, and there were only two initial samples that showed
9 elevated chlorine 36 back in the original report back in the
10 springtime, so that is what we are exploring.

11 DR. DREYFUS: They seemed to be pretty much along
12 the entire length of this tunnel and we are not done yet
13 because we haven't finished the sample analysis for --

14 CHAIRMAN JACKSON: Are you doing isotopic analysis
15 for other radionuclides?

16 DR. DREYFUS: Yes, we are, but we don't have the
17 confirmatory data, yet.

18 CHAIRMAN JACKSON: You don't have that.
19 Commissioner Diaz?

20 COMMISSIONER DIAZ: I have no comments or
21 questions.

22 CHAIRMAN JACKSON: Commissioner McGaffigan?

23 COMMISSIONER McGAFFIGAN: In your testimony on
24 page 5 and orally, you talked about the House appropriations
25 bill and its contingencies and its funding cut. Could you

1 talk about what the implications of the \$18 million cut in
2 your budget for any of the work you need to do is, and the
3 contingencies, I expect, may have a larger effect on your
4 program and what the implication of those contingencies
5 would be for you?

6 DR. DREYFUS: Well, the \$18 million cut is
7 probably the easy one to work with. Eleven of that is
8 associated with funding of the states and counties. The
9 House Appropriation Committee directed that we not do that
10 funding in the statutory language and then remove the 11
11 million, so that part is a wash in the sense that if I -- it
12 was passthrough funding. So the net cut in program, if you
13 take the House bill as is, is 7 million.

14 We were directed to take that out of cooperative
15 agreements and program management. Cooperative agreements
16 have been cut by about two-thirds last year so it is going
17 to be very difficult to find much of it there; there isn't
18 much there anyway. So it's a program management problem.

19 I am not pleased with it, by any stretch of the
20 imagination, because we did some very severe cutting. We
21 took a 40 percent cut in '96 and there is not a lot of fat
22 left in anything so I think it is not -- it is not a good
23 thing but I don't think it would affect major aspects of the
24 programmatic stuff. It might make it difficult for me to
25 manage a program.

1 The contingency is, I hope, associated with
2 ongoing congressional action on the other bill and will be
3 resolved. I would imagine by the time that appropriation
4 bill becomes finalized, it will be clear what's going on in
5 the other legislation and that the Committee will, I trust,
6 in their judgment and wisdom, will not pursue that
7 contingency if the other bill is clearly dead.

8 CHAIRMAN JACKSON: Actually, I am not going to --
9 I am going to come back to you in a second but this brings
10 up an issue that relates to that.

11 The Commission is going to be appearing tomorrow
12 before our House Oversight Committee and high-level waste
13 funding is an issue that I may address. So how is DOE
14 preparing to respond to any new direction from the Congress
15 on the high-level waste issue? You alluded to some of it in
16 your testimony and how will that response impact NRC, if you
17 are willing to offer such an opinion?

18 DR. DREYFUS: Well, of course, should there be an
19 interim storage bill, the world changes considerably and
20 we'll all be looking to see what priorities are and how to
21 deal with it. The program plan that we have on the street
22 has in it an ability to address something like the large
23 authorization bills but it anticipates in accordance with
24 the Administration's position that that doesn't happen until
25 1999.

1 On the other hand, that lays out a framework for
2 how we would propose to deal with such matters as licensing
3 an interim storage facility or doing transportation but we
4 assume the starting gun in 1999, as the President has
5 proposed.

6 With regard to Yucca Mountain, the large bill
7 changes some aspects of the process but no aspects of the
8 program and in fact designates the program plan as the basis
9 for going forward.

10 The appropriation bills both cite the new program
11 plan and essentially lock in a viability assessment as one
12 aspect of Congressional expectation, which I think is
13 consistent with the Congressional attitude that they want
14 some more concrete evidence of viability earlier, so I think
15 everything that is going on in the Congress consistent with
16 the program plan that we now have, with the exception of the
17 time element on interim storage which the President of
18 course has opposed any immediate steps on interim storage.

19 Appropriation-wise, of course, the major question
20 is the contingency. If the contingency were to greatly
21 restrict the available funds for the program, then I think
22 we have serious problems and we have made the Congress aware
23 of that and so has the OMB and I am sure that you share our
24 concern.

25 CHAIRMAN JACKSON: Commissioner McGaffigan?

1 COMMISSIONER MCGAFFIGAN: No other questions.
2 Thank you. I discovered the problem of asking questions
3 last.

4 [Laughter.]

5 CHAIRMAN JACKSON: Has DOE formulated a position
6 on how it will implement the Court of Appeals ruling in July
7 about DOE's obligation to start taking utilities' spent fuel
8 no later than January 31st of '98?

9 DR. DREYFUS: No, we have not.

10 Of course, the immediate question is one of appeal
11 and the lawyers in both Justice and DOE are looking at the
12 implications of the court decision, but we have not.

13 CHAIRMAN JACKSON: Commissioner Rogers?

14 COMMISSIONER ROGERS: Just one question on the
15 interim storage facility area.

16 You are intending to contract with private
17 industry to provide equipment and services for delivering
18 spent fuel to an interim storage facility or a repository.

19 What is your view of any licensing issues that
20 might have to be dealt with? Are you going to leave those
21 all up to private contractors or have you thought about that
22 at all? There might be some. I don't know exactly what
23 they might be at this point, but if you are taking this
24 approach, are you just simply going to say, well, come to us
25 all licensed and offer us your services? Is that what your

1 approach would be to the private contractors?

2 DR. DREYFUS: Well, I want to be sure that we
3 separate the notion of an interim storage facility from the
4 notion of transportation.

5 COMMISSIONER ROGERS: No, I understand.

6 DR. DREYFUS: The market approach is to
7 essentially go and get the waste from the reactors and move
8 it to a Federal facility. We would rely upon the contract,
9 that is, select technologies, to do that. Those
10 technologies clearly have got to have the Commission
11 certification so their range of selection is pretty much
12 what you'd certified.

13 There will, I think, if this process goes forward,
14 be immense amounts of marketplace interest and probably a
15 desire to certify a good deal more technology over a very
16 short period of time, but our intention is to leave the
17 selection of technologies to the marketplace based on
18 specifications for what can be handled at the facility.

19 The contractor would indeed be seeking certified
20 technologies. I don't know of another licensing situation.
21 Our only involvement at the technology level will be to
22 pursue burn-up credit, which we will require in line with
23 the repository and we are of course actively engaged with
24 you on burn-up credit for actinides right now and we intend
25 to stay in that game. It would have some advantage to

1 equipment manufacturers but we are pursuing it for our own
2 purposes.

3 CHAIRMAN JACKSON: Commissioner Dicus?

4 COMMISSIONER DICUS: The licensing support system
5 is very important to you and to us if you are going to, if
6 the site is found suitable and a license application is
7 submitted at the proposed date. I was sort of wondering if
8 you feel pretty comfortable that the development and
9 completion of your licensing support system would proceed on
10 schedule according to this revised program plan that you
11 have.

12 DR. DREYFUS: Well, I understand that it has to
13 proceed on schedule in order to have a viable licensing
14 process. When we got the budget cut in '96 and when I was
15 here in January, we didn't know if we were going to have a
16 license application target in this program and we didn't
17 have at that time and it was only after the Administration's
18 new program went forward that we regained it, so we didn't
19 do anything in '96.

20 But on the other hand, the thought process did not
21 stop in any place. I think that the breather may have
22 advanced the cause because I believe that we have had
23 technology advantages coming out of that year of delay and
24 looking now on somewhat less elegant architecture and more
25 reliance on some things like Internet and that sort of

1 thing, so I think when we reconvene the user groups and
2 start doing this we may find we have gained some ground and
3 not really lost a year in terms of thinking about this
4 process.

5 We also are working on the corollary
6 considerations of decision documentation. We have a study
7 ongoing at Yucca Mountain of the existing documentation to
8 look for, those areas where it may be deficient, and to
9 improve the process, so we haven't stopped on that front.

10 Basically, I think we will find that we can do
11 this easier and better now.

12 COMMISSIONER DICUS: Okay. The total system
13 performance assessment in your testimony said evaluations
14 would be made under both normal conditions and conditions
15 likely to be imposed by potential disruptive events.

16 What are some of those events that you have in
17 mind?

18 DR. DREYFUS: The logical ones -- volcanic and
19 seismic --

20 DR. BROCOUM: Those are the two --

21 DR. DREYFUS: -- basically are the biggest ones.

22 COMMISSIONER DICUS: So you are including the
23 possibility of volcanoes?

24 DR. DREYFUS: Oh, yes.

25 COMMISSIONER DICUS: That was under discussion I

1 think at one point, that it wasn't being considered.

2 DR. DREYFUS: Oh, it is being considered. It
3 is -- there's been some considerable discourse as to how to
4 consider it, but never whether it would be considered.

5 COMMISSIONER DICUS: And one final question has to
6 do with the transportation system. This is just for my
7 own -- it's been awhile since I dealt with it, but at one
8 point in time I believe it said that rail cars would
9 generally be used for the transport of the casks. Is
10 that --

11 DR. DREYFUS: Predominantly.

12 COMMISSIONER DICUS: Predominantly, rail cars, and
13 there was some issue that the rail systems would be able to
14 handle the weight of these cars.

15 Has that been resolved and gone away or was that a
16 real concern in the first place?

17 DR. DREYFUS: I don't think it is a concern, but I
18 have an expert here with me.

19 DR. BROCOUM: We don't believe it is a major
20 concern. We're working with the American Association of
21 Railroads on the approval of the cars and the number of
22 axles. At one time the smaller casks were -- I think it was
23 240,000 pounds. It was free interchange for standard rail
24 cars. There are other standard for heavier rail cars and
25 that is what we are looking at for the casks that we would

1 probably be looking at now. At least the MPC was.

2 It is likely that most of the current technologies
3 would be that weight, the 125 ton weight, which is very
4 common. For example, the casks at Surry and in Palisades
5 and all of those are in that weight range.

6 CHAIRMAN JACKSON: Commissioner Diaz?

7 COMMISSIONER DIAZ: I will save all my questions
8 till the next time.

9 CHAIRMAN JACKSON: Commissioner McGaffigan?

10 COMMISSIONER McGAFFIGAN: I just have one comment
11 on one other event that occurred that may help you in the
12 licensing support system is in early '96, as part of the '96
13 Authorization Act for the National Defense, there was a
14 significant change made in how the Government can purchase
15 information systems.

16 Senator Cohen was the lead on that and I would
17 encourage you to use the full flexibility of that law and
18 use the DOE -- you know, get help from the DOE procurement
19 people because it's one area where obviously the Government
20 hasn't performed very well in the past across Government and
21 there is an opportunity now and I think Congress, speaking
22 in my old life, really intended to give you some
23 flexibility, the whole Government, but you in particular
24 some flexibility to go out and be more rational purchasers,
25 so I wish you luck.

1 DR. DREYFUS: We're using whatever flexibility we
2 can get.

3 COMMISSIONER MCGAFFIGAN: Right.

4 CHAIRMAN JACKSON: Actually, a related question,
5 you in fact stated that you would welcome changes, you know,
6 with respect to the licensing support system that would take
7 advantage of advances in computer technology and
8 connectivity.

9 I mean do you have any particular ones in mind
10 that you might wish to share?

11 I mean it's kind of related to Commissioner
12 McGaffigan's question.

13 Do you have any specific recommendations for the
14 Commission?

15 DR. DREYFUS: Well, I'm hesitant to get out of my
16 depth on computer technology.

17 CHAIRMAN JACKSON: Does anyone have any specific
18 recommendations they wanted to make to the Commission in
19 this regard?

20 DR. BROCOUM: I think a year or two ago we were
21 thinking of, you know, developing, actually developing the
22 system, writing the programs.

23 Now I think we are thinking of more off-the-shelf.
24 As technologies advance a lot of things are available off-
25 the-shelf so you don't have to reinvent the wheel so I think

1 the direction we would like to go in is use what is coming
2 out in the Internet and all of these areas as opposed to
3 contracting to develop a whole new system from scratch that
4 is unique.

5 CHAIRMAN JACKSON: I wanted to ask you one last
6 question having to do with your overall repository concept.

7 It is not a question. It's actually a comment.

8 I think we understand where you are trying to go,
9 but I think it's important as you progress in the manner
10 that you have outlined here that you do interact with the
11 Staff in a way that we don't end up in a position in the
12 future where there may be agreement on approaches,
13 methodologies, and overall issues, but we are left with a
14 hole relative to the sufficiency of data and the analyses of
15 that data, you know, particularly as it does relate to total
16 system performance, because in the end we don't want to be
17 having you work along the line and we're doing our thing and
18 we have a major issue where one has to end up backtracking
19 in order to license repositories.

20 So I am just asking you to keep that in mind and
21 we are also asking our Staff to keep that in mind.

22 Unless there are any further questions or
23 comments, I would like to thank you very much, Dr. Dreyfus,
24 Dr. Brocoum, Mr. Barrett for this briefing on a very
25 important topic, not just for you and for us but obviously

1 for the nation, and as you know, we are briefed regularly by
2 our Staff as well as other organizations involved in the
3 high-level waste area, but hearing directly from you, the
4 DOE, on a routine basis is helpful to the Commission in
5 determining the status of your efforts and the direction of
6 the high level waste program and particularly as it relates
7 to what we have to do, and so I want to thank you for your
8 continued willingness to come and do this.

9 In your prepared statement and in today's
10 briefing, as we have been discussing, you have described a
11 revised program approach for the high level waste repository
12 and as I emphasized in January, it is important that we
13 continue, and I think this discussion is part of that, to
14 maintain clear communications between DOE and the NRC both
15 at the level of Commission briefings but especially in the
16 staff-to-staff interactions so that both organizations can
17 appropriately manage our high level waste resources, which
18 have various constraints attached.

19 Your statement in fact shows that DOE is
20 addressing a host of very difficult issues regarding our
21 high level waste management that span from chlorine
22 concentrations to transportation issues to court decisions,
23 and all of this is being done in an environment of reduced
24 budget appropriations -- but your draft revised program plan
25 is evidence that even with the reduced funding levels, DOE

1 is planning to move forward toward a national solution for
2 the disposal of high level waste.

3 So again I thank you very much for an informative
4 briefing, look forward to our next one, and unless my fellow
5 Commissioners have anything to add, we are adjourned.

6 [Whereupon, at 10:43 a.m., the briefing was
7 adjourned.]

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CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING BY DOE ON STATUS OF HLW
PROGRAM - PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Wednesday, September 4, 1996

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Christopher Cutchall

Reporter: Jon Hundley

**STATEMENT FOR THE RECORD
PRESENTATION TO THE U.S. NUCLEAR REGULATORY COMMISSION
STATUS OF THE CIVILIAN RADIOACTIVE WASTE
MANAGEMENT PROGRAM**

BY

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Introduction

Chairman Jackson and Members of the Commission:

When I spoke with you in January, the Civilian Radioactive Waste Management Program was in transition. During the past seven months, we have revised our program approach to manage our 1996 funding reduction and to develop the long-term plan presented in the Administration's fiscal year 1997 budget request. The results of this effort are described in the revised Program Plan released in draft form in June.

We have retained the objective adopted in fiscal year 1995 to reach early convergence on the major scientific and engineering aspects of the investigation of the Yucca Mountain site. Since January, we have also regained a long range plan that includes target dates for determining the site's suitability for recommendation for a geologic repository and, if the site designation is permitted to take effect, for submitting a license application to the Commission. Our ability to achieve these targets, however, will continue to depend on the funding we receive in future years and the success of our approach to evaluating site suitability. Our approach will be described in a proposed revision to the Department's siting guidelines that will be issued shortly. It focuses on overall system performance as the basis for decisions about site suitability and repository development.

Simply stated, a site cannot be judged to be "suitable" in the abstract. At this point in the program, the only logical measure of the suitability of the Yucca Mountain site is that it be able to host a repository design that will meet the applicable standards for the protection of public health and safety. Attributes of the site that significantly influence that capability are important. Attributes that do not are irrelevant. The important attributes can only be identified and evaluated within the context of an assessment of the performance of the proposed engineered repository in the specific geologic setting, as we understand that setting based on the scientific investigations done over the past decade. Criteria of suitability, therefore, have no logical significance in isolation from a system performance assessment.

Our revised program plan also defines a program of non site-specific activities that will address the long lead-time requirements of interim storage and spent fuel transportation. These activities are consistent with the Administration's position on siting an interim storage facility.

Recent Developments

Geologic Disposal

Excavation of the exploratory studies facility at Yucca Mountain continues at a satisfactory pace. The information gained from this exploration is enhancing our understanding of the site and of the characteristics important to its potential performance as a geologic repository.

We completed excavation of the main drift of the exploratory studies facility on July 2, well ahead of schedule, and the tunnel boring machine is now making the turn to proceed up the south ramp. As of August 27, the tunnel boring machine has completed 6,294 meters (20,643 feet) of the nearly 7,900-meter (nearly 25,800-foot) loop from the north portal to the south portal of the exploratory studies facility. Approximately 2,400 meters (7,800 feet) of this advance occurred since we met in January. Funding constraints in fiscal year 1996 have restricted progress on tunneling somewhat, but we expect to reach the south portal of the exploratory studies facility early in 1997.

We completed the initial construction phase of the thermal-testing alcove in April, and the main access and observation drift for this alcove was completed in May. We began a small-scale (single-element) heater test in a section of this alcove on August 26. Construction of the first of the two alcoves that will provide access to the Ghost Dance fault is well underway. The first phase of this excavation was completed to the planned distance of 90 meters (290 feet) from the main drift on August 23. Initial exploratory drilling in this alcove should begin this month. Construction of the second alcove should begin in October 1996.

Progress in constructing the exploratory studies facility provides our scientists the opportunity to study the geologic and hydrologic characteristics of Yucca Mountain at the depth of the potential repository. What we have observed is consistent with the general understanding of the geology of the site that we obtained through our surface-based studies. The structural features observed underground generally can be correlated with the faults observed at the surface. In addition, structures at the northern end of the main tunnel, such as the Drill Hole Wash fault, are generally less significant features at repository depth than expected. The information we have obtained indicates that there may be more area available for use at the northern end of the repository block than anticipated.

Several months ago, we reported the observation of a zone of more highly fractured rock that extends for about 1,000 meters along the southern part of the main tunnel. Preliminary information obtained from a nearby borehole indicates that the zone of fracturing does not

penetrate the overlying rock units. Although the existence of the fracture zone was not apparent from surface-based studies, such a zone is not unexpected given the geologic history and characteristics of the site. The lack of surface evidence for this structural zone indicates that it probably formed before the uppermost rock unit was deposited, more than 12 million years ago. The primary questions at this point relate to the extent and characteristics of the fracture zone and to the influence these characteristics may have on the repository layout and the flow of water to and through the repository. Studies of the geologic and hydrologic characteristics of this zone, and its potential significance to repository performance, will continue as construction of the exploratory studies facility proceeds.

Isotopes such as carbon-14, tritium, uranium-series elements, and chlorine-36, are being used to date fracture-fill materials and pore-water samples collected in the exploratory studies facility and from boreholes. This testing provides data on the age of the water at various locations and on the travel time of water through preferential flow-paths, such as faults and fractures. The data indicate that most of the water currently distributed in the rock at the potential repository horizon is old, on the order of tens of thousands to hundreds of thousands of years.

In April, we reported detecting elevated levels of chlorine-36 in some rock samples collected from the exploratory studies facility. Recognizing the possible existence of preferential flow-paths that could allow more rapid water movement, we conducted a comprehensive sampling program, collecting samples both systematically along the tunnel and at locations defined by specific features such as faults and discrete fractures. All of the systematic samples and most of the feature-specific samples contained background levels of naturally produced chlorine-36 that indicate ground-water ages of several thousands to several hundreds of thousands of years, consistent with results from other studies. Higher concentrations of chlorine-36 were detected, however, in some of the samples collected at five locations, all of which are associated with observable faults or discrete fractures in the rock. These concentrations are sufficiently above background to indicate that a small amount of water containing chlorine-36 generated by atmospheric testing of nuclear weapons has traveled from the surface in less than 50 years. Chlorine-36 levels above background appear to represent more rapid flow of water along preferential pathways. Additional samples are being collected and analyzed for chlorine-36 and other isotopes, to confirm the results and to provide information on new areas of the exploratory tunnel, including the Ghost Dance fault and the fracture zone. Additional modeling studies will be performed to evaluate the chlorine-36 data as they relate to our understanding of hydrologic processes at Yucca Mountain and our conclusions about repository performance.

In January, I noted that we were making progress refining our waste containment and isolation strategy for the Yucca Mountain site, and that we were within a few months of providing a draft to the Commission. Although a condensed version of our updated strategy was included in the revised Program Plan, we have not yet completed the strategy. A consensus view among Project participants could not be achieved without a fundamental re-evaluation of the need for some specific lines of scientific and engineering work. This, in turn, led us to re-evaluate the

fundamental assumptions supporting the core of the strategy. The dialogue has been intense, and has led to iterations in defining the strategy and planning the related work. The continuing effort to complete the strategy is, of course, serving its primary purpose by requiring the integration of the work being done and facilitating agreement on the remaining work proposed by Project participants. An expanded version of the strategy was made available at the Nuclear Waste Technical Review Board meeting on July 9 and a copy transmitted to your staff on July 19. I expect that a detailed version of the strategy, including the definition of longer term information needs and work yet to be done that is explicitly linked to our long-range planning, will be completed in fiscal year 1997.

In March, we published a report on the current level of detail for the repository and waste package advanced conceptual design. This report gives us a new reference design based on the work performed to date. The report depicts the major repository and waste package configurations, components, and operational concepts. It also identifies those areas of the design requiring further refinement. This design will serve as the benchmark for development of the design that will support the viability assessment in 1998.

Waste Acceptance, Storage, and Transportation

In January, I informed you of our decision not to proceed with the certification of the multi-purpose canister system for storage and transportation of commercial spent nuclear fuel. The Administration's fiscal year 1997 budget request does not include funding for this system and we do not intend to pursue its development beyond the completion of current activities. The final design and draft safety analysis reports were completed by Westinghouse and delivered in August. We accepted the final reports and the work has been completed for Phase 1 of the contract. The results will be made available to other parties that may wish to pursue certification at their own expense. We believe that such certifications would be in the public interest and would enhance the range of options in the marketplace. The introduction of additional technology options would increase competition and provide a greater return on the public investment already made.

The Department recognizes that the multi-purpose canister technology may be useful in the management of the Department's own spent fuel. The Department's Office of Environmental Management has provided Westinghouse with \$1 million in fiscal year 1996 to update the large transportation cask design so it is consistent with the most recent multi-purpose canister specification. These modifications will provide an option for placing Department-owned fuel in interim storage in a form that is technically compatible with the current expectations for disposal.

Revised Program Approach

In December 1994, we published the *Civilian Radioactive Waste Management Program Plan*. That plan outlined our approach to accomplishing the Program's principal objectives with reasonable target dates and at substantially reduced cost compared with earlier estimates. I

discussed this approach with the Commission in December 1994 and June 1995. As noted in my comments before this Commission in January 1996, the decisions made in the fiscal year 1996 budget process made it impossible to continue that approach.

In response to the fiscal year 1996 appropriation and the Congressional direction to concentrate on the major unresolved technical questions regarding geologic disposal at Yucca Mountain, we released a revision to the *Civilian Radioactive Waste Management Program Plan* on June 12, 1996. Our revised Plan is supported by the President's fiscal year 1997 budget, which requested \$400 million for the Program in 1997, \$339 million of which would be allocated to the Yucca Mountain Site Characterization Project. Congressional appropriations action for 1997 is not yet complete. The House has approved a bill that, with certain contingencies, would provide \$382 million for the Program. The Senate has passed an appropriation bill that provides the full \$400 million requested.

We are still without agreement between the Administration and Congress on a new policy for the near-term management of spent nuclear fuel. Congress continues to consider legislation that would initiate an interim storage program. Just before it recessed, the Senate passed a bill that calls for construction of an interim storage facility near Yucca Mountain after the 1998 repository viability assessment and with additional provisions if the President decides the site is not viable. The Administration has restated its opposition to this bill and to the House Commerce Committee bill, reported last October, that calls for the immediate construction of an interim storage facility near Yucca Mountain. The outcome for the pending legislation by the end of this Congressional session is uncertain.

Various utilities and a group of states and public utility commissions sought a ruling from the U.S. Court of Appeals for the District of Columbia that the Department is obligated under the Nuclear Waste Policy Act to begin disposing of the utilities' spent nuclear fuel by January 31, 1998. In a decision issued in July, the Court agreed with the utilities, holding that the Act creates an obligation in the Department, reciprocal to the utilities' obligation to pay fees, to start disposing of spent nuclear fuel no later than January 31, 1998. The Court rejected the Department's position that it does not have an obligation in the absence of a repository or other facility constructed under the Act. The Court remanded the case to the Department for further proceedings, stating that it would be premature for a court to attempt to fashion an appropriate remedy, since the Department is not currently in default on the obligation. The Department is reviewing the Court's ruling to determine what steps it should now take.

Geologic Disposal

Our revised Program Plan describes a focused program that regains a target for a license application for a repository at Yucca Mountain, if the site is suitable. The revised program is based on an increased technical understanding of the repository from more than a decade of scientific and engineering work at Yucca Mountain. Our site investigations and total system performance assessments have allowed us to reach much better informed judgements regarding

the specific aspects of the site that are significant to performance. These judgments have enabled us to reduce the work required to support regulatory decisions and thereby accommodate a substantial reduction in future funding with minimal slippage in schedule.

The 1988 Site Characterization Plan for Yucca Mountain established the initial basis for our characterization of the site. Given the information then available on site conditions, the formative nature of the repository and waste package design concepts and the developmental status of our performance assessment capabilities, our initial approach to planning a site characterization program was to make it sufficiently comprehensive to minimize the potential for gaps in the information ultimately found to be necessary. As expected, our plans have evolved significantly since 1988 based on what we have learned from our scientific studies and design work. Beginning in February 1990, we have provided information on the nature and results of our site characterization activities in our semiannual progress reports.

Because of our enhanced understanding of site conditions, we have continued to refine our strategy for evaluating the site's ability to contain and isolate waste. Our understanding has made it possible for us to refine the remaining work scope needed to support our viability assessment, as well as our subsequent evaluation of site suitability, and preparation of a license application for submittal to the Commission. By 1998, we will have assembled and analyzed the wealth of scientific data that is available and updated our assessment of the performance of a repository at Yucca Mountain. We will also have developed a repository design and assessed the technical and economic feasibility of constructing the repository. If the repository appears to be viable based on our assessment of this information, we will complete the work necessary to determine the site's suitability and, if suitable, to make a formal recommendation of the site to the President in 2001 and submit a license application to the Commission by 2002.

The revised Program Plan describes the overall approach for the technical and regulatory changes that will bring the program into alignment with the direction received from the Administration and Congress, and with our current knowledge about the site and repository design. This plan defines three objectives that will maintain the momentum toward a national decision on the geologic disposal option:

- Update the regulatory framework in 1997 for evaluating the suitability of Yucca Mountain;
- Complete the viability assessment in 1998;
- Recommend the repository site to the President in 2001 if the site is suitable, and submit a license application to the Commission in 2002.

Update the regulatory framework for evaluating the suitability of Yucca Mountain

The regulatory framework developed after enactment of the Nuclear Waste Policy Act in 1982 was heavily influenced by the initial requirement of the Act to screen a number of candidate repository sites and select the most promising sites for further action. The 1987 amendment to

the Act directed us to evaluate only a single specific site. The Energy Policy Act of 1992 requires the Environmental Protection Agency to develop a site-specific radiation protection standard for a repository at Yucca Mountain. This requirement signals a broad change to the regulatory framework for repository development, shifting it from a generic to a site-specific basis for evaluation and decision-making. The Energy Policy Act also directs the Commission to revise its licensing requirements to be consistent with the site-specific standard.

To respond to the policy changes, and supported by our increased understanding of the Yucca Mountain site, we have decided to revise our siting guidelines (10 CFR Part 960). The guidelines will be revised through a public rulemaking process initiated by a notice of proposed rulemaking later this year. Our goal is to publish the final rule in 1997. As was done during the 1984 promulgation of the siting guidelines, we will obtain the Commission's concurrence with the revised guidelines, and we will work with your staff to facilitate this action.

Site "characterization" and site "suitability" initially focused on a set of hypothesized characteristics that were considered to be indications of greater or lesser probability that any site could successfully host a repository. These characteristics were selected based upon very preliminary comprehension of the technical factors affecting repository performance. Their selection was also influenced by the need to address generic conditions even though any particular characteristic might have very different significance when applied to sites in diverse geologic settings.

In the Nuclear Waste Policy Act Amendments of 1987, the program was directed to evaluate only the Yucca Mountain site. As a result, the comparative nature of the site characterization process lost its logical basis. Some of the generic characteristics specified for evaluation proved to be of limited utility in terms of evaluating performance in the unique geologic setting of the Yucca Mountain site, and in terms of the evolving waste isolation strategy for a specific engineered facility in that geologic setting. The appropriate measure of the suitability of the Yucca Mountain site, therefore, is the total system performance of a proposed repository design that can be implemented in that site-specific geologic setting compared to the applicable regulatory standards for public health and safety and environmental protection. That measure will capture the relevant attributes of the site. The revised siting guidelines will rely upon the radiation protection standard for Yucca Mountain as the ultimate criterion of site suitability for the evaluation of postclosure system performance.

We have been interested in your staff's recent discussions with the Advisory Committee on Nuclear Waste and with this Commission on their preliminary consideration of significant and possible site-specific changes to the Commission's licensing requirements. We are particularly interested in and support the consideration of changes that would result in a simple, risk-based rule, with a single quantitative criterion for postclosure performance. Any rule change should also recognize that site conditions cannot be evaluated in isolation from the assessment of performance and that probabilistic arguments will need to be used in demonstrating compliance with the Commission's technical criteria. We discussed our general views on changes in the licensing

requirements with your staff at our management meeting in July. We plan to continue our interactions with the staff during their preliminary consideration of the available options.

Complete the viability assessment in 1998

The near-term activities in our program plan for the Yucca Mountain project are focused on addressing the major unresolved technical questions associated with the overall performance of a repository so that, by 1998, we can make an informed assessment of the viability of licensing and constructing a repository. The work supporting the viability assessment will include four components: (1) a package of more specific design work on the critical elements of the repository concept and the waste package; (2) a total system performance assessment, based upon that design concept and upon the scientific data and analysis that will be available to us by 1998, which will describe the probable behavior of the repository in the Yucca Mountain geologic setting; (3) an upgraded estimate of the costs to construct and operate the repository in accordance with the design; and (4) a plan and cost estimate for the remaining work required to complete a license application.

The first component addresses design elements that are critical to determining the feasibility and performance of the repository and the engineered barrier system. We will evaluate the technological feasibility of the designs, but we will not yet have the detail needed for licensing. The designs will build on the Advanced Conceptual Design Report that we published in March. The emphasis will be on the aspects of the design that affect waste containment and isolation, and that are major considerations for repository cost. These aspects include management of the waste-generated heat and its effects, corrosion of waste packages, and the need for and feasibility of supplemental engineered barriers. The effort will address concepts for waste-retrieval operations, performance-confirmation requirements, safety systems, and other factors that significantly affect repository cost.

The second component is an updated total system performance assessment based on our design concept and the analyses of the available site and engineering data. The primary objective of this assessment is to evaluate the probable performance of the repository. An additional objective is to further refine our evaluation of repository performance under a range of both normal conditions and conditions likely to be imposed by potentially disruptive events. Sensitivity analyses will be performed to refine our strategy for the evaluation of waste containment and isolation. We will also identify areas where significant uncertainties exist and, where possible, the means to reduce these uncertainties for the license application or as part of a performance confirmation program. A phased peer review of our performance assessment results will be initiated later this year. Detailed planning for this review has already begun and work will start in October. The comments and recommendations available from the early stages of the peer review will be incorporated, as appropriate, in the total system performance assessment as it is developed for the viability assessment. The comments and recommendations from later review cycles will be incorporated into the assessment that supports the site recommendation and preparation of the license application.

The third component is the cost estimate for the repository system, which will cover activities through repository closure and decommissioning. The life-cycle cost estimate will provide information for policy decisions regarding the feasibility of continuing with licensing and construction of a geologic repository.

The fourth component is the license application plan, which will define the actions required and the scientific and engineering information that may be needed to complete a license application for submittal to the Commission. The preparation of the license application plan will also provide an opportunity to assess the adequacy of our revised approach to site characterization and design, and the effectiveness of updates to the regulatory framework.

The completion of these components constitutes a logical convergence point at which the program can make a measurably improved appraisal of the prospects for geologic disposal at the Yucca Mountain site. The Administration has stated its position that this appraisal should be available to inform any decision concerning the site for a Federal interim storage facility for commercial spent nuclear fuel. Pending legislation also recognizes the assessment as a significant benchmark in the program.

Recommend the site to the President in 2001, if the site is suitable, and submit a license application to the Commission in 2002

The goal of submitting a successful license application to the Commission remains central to the Program's mission. The work completed for the viability assessment will be an integral step on the path to a license application. That body of work, augmented in later years, will serve as the foundation for our evaluation of site suitability, an environmental impact statement, a Secretarial site recommendation to the President, and a license application to the Commission.

An environmental impact statement must accompany the Secretary's site recommendation to the President and the license application to the Commission. We published a Notice of Intent in the Federal Register in August 1995, initiating the public comment period on the proposed scope of the repository environmental impact statement. The public comment period closed in December 1995 and, as I noted in January, further action was deferred because of the reduced funding for fiscal year 1996. Our revised Program Plan now calls for resuming work on the environmental impact statement in fiscal year 1997, with publication of the draft statement in 1999 and the final statement in 2000.

If the site is determined to be suitable, a decision by the Secretary to recommend the site is expected in 2001. The Nuclear Waste Policy Act requires that the Secretary's recommendation consider the Commission's preliminary comments on the sufficiency of our at-depth site characterization analysis and waste form proposal for inclusion in a license application.

Under our revised Program Plan, a Project Integrated Safety Assessment will be prepared to integrate the technical elements of the program. This document will describe and integrate

information on site conditions, repository and waste package design, and performance assessment. The document will be provided to the Commission in 1999 for review as one basis for its preliminary comments on the sufficiency of information on the site and design for inclusion in a repository license application. The Project Integrated Safety Assessment will be used as the starting point for development of our license application.

Although we were unable to proceed with work on the licensing support system in fiscal year 1996, our revised Program Plan includes a budget and schedule for system development, with work beginning again in fiscal year 1997. The licensing support system is intended to meet the Commission's requirements for access to the comprehensive documentation required for the licensing proceedings before submittal of an application. We understand that the Commission is reviewing the current requirements for the licensing support system and may be contemplating changes to these requirements. Changes that will allow use of the significant advances in computer technology and connectivity (such as the World-Wide-Web) that have occurred since these requirements were last revised in 1991 would be welcome.

Certification of the licensing support system by the Commission's system administrator is required at least six months before a license application is submitted. Our current plans will allow us to have a computer-based licensing support system in place that meets the Commission's current requirements and available for certification by November 1999. Although our schedule is aggressive, we understand that the requirements may change and will continue to interact with your staff as it explores new approaches to system development. I commend the Commission for taking a leadership role in defining and implementing positive solutions to the problem of document availability, and urge you to continue your involvement in the process for development of the licensing support system.

Revised Program Approach to Licensing

Over the past seven months, both of our organizations have been reacting to the changes directed in the high-level waste program. During this period, and in spite of the funding constraints on the scope of our activities, I believe that our staff interactions have become better focused and more useful. I hope that we can continue to build on this progress as we implement our revised program approach.

The products associated with the viability assessment will facilitate a measurably improved understanding of the repository concept and a comprehensive appraisal of the prospects for licensing and constructing a geologic repository at Yucca Mountain. Although the information collected will not yet be sufficient for licensing, the work leading to the viability assessment provides a logical approach to developing a first-of-a-kind repository. In completing the work products associated with this assessment, we will define a repository concept that includes a facility and waste package design consistent with the characteristics of the Yucca Mountain site, and an assessment of the performance of this repository. We will examine alternatives and propose the best repository system that can be achieved within rational cost and

schedule constraints. It is appropriate for us to complete the technical work, develop a concept, and satisfy ourselves of its ability to adequately protect public health and safety before we seek approval from outside parties.

From our perspective, our interactions with your staff should focus on two objectives. First, we hope to reach a common understanding regarding the issues that are significant to the overall performance of a repository at Yucca Mountain. Second, we hope to reach agreement on the adequacy of the methodologies we are using and the approaches we are taking to address important technical issues such as criticality control and seismic design. The goal is to reach a mutual understanding of the developing repository concept that will provide a basis for the Commission's preliminary comments on the sufficiency of our site characterization analysis and design for inclusion in a license application.

This approach is a departure from previous efforts that focused on resolving individual issues related to specific site characteristics in isolation from one another or from a specific design concept. In my view, the lack of a conceptual frame of reference for discussion has been a source of discomfort in previous interactions with the Commission. The sufficiency of site characterization data and analyses generally can only be determined within the context of a coherent repository concept that includes both a design and an assessment of its performance. Therefore, we will concentrate first on developing the overall concept for the repository system, and on communicating our progress to your staff, rather than on reaching agreement regarding the sufficiency of our data and analyses to address isolated issues related to specific site characteristics in advance of such a concept. The staff's insights regarding these issues, however, would help ensure that there will be sufficient information in a subsequent license application. We expect that the staff will inform us of issues that are not being considered or that are not receiving appropriate emphasis from a licensing perspective as they review the results of our system performance analyses.

We will discuss our approaches and methodologies for dealing with specific technical issues. We expect the staff's feedback on the adequacy of our proposed approaches and methods for use in a licensing proceeding. We plan to continue development of a limited number of topical reports, with the goal of receiving staff safety evaluation reports that can be referenced in a license application as an appropriate means for resolving selected issues.

Waste Acceptance, Storage, and Transportation

In the portions of our revised program approach outside of the Yucca Mountain Project, we will continue working toward staff acceptance of our actinide-only burnup credit topical report. In response to your staff's comments, we are performing additional analyses using existing data from the nuclear industry, including foreign burnup credit experience. Our responses to the staff's questions on the topical report will be completed later this calendar year. We will also continue our work on the development and demonstration of the capability for dry transfer of spent fuel. We will complete a topical safety analysis report for a stand-alone dry transfer system

that could be used at both utility and federal sites, and submit it to your staff later this year for review and acceptance.

Any future scenario of interim storage, or ultimate disposal of spent nuclear fuel, will require a national transportation effort. Over the past seven months, we have developed a revised strategy that will enable us to acquire the capability to accept, store, and transport spent nuclear fuel as rapidly and efficiently as possible when a federal storage or disposal facility is available. The strategy is in accordance with the Administration's objectives for re-engineering government and greater privatization of Federal activities.

In the near-term, we will be concentrating upon two major activities:

- Develop a market-driven waste acceptance, storage, and transportation approach that relies on the private sector for implementation.
- Conduct non-site-specific design and engineering analyses for an interim storage facility to reduce facility licensing time, if such a facility is authorized.

In May, we published a request in the Federal Register and the Commerce Business Daily for expressions of interest and comments on our plans to develop a market-driven transportation capability. In July, we met with the interested parties to discuss these plans and to receive comments to assist in shaping the concept. Under the approach discussed, we would contract with private industry to provide equipment and services for delivering spent fuel to an interim storage facility or repository.

We are also currently developing a topical safety analysis report for the first phase of an interim storage facility based on a non-site-specific design for receipt and storage of spent fuel in transportable storage casks or canisters. We will submit this topical report in fiscal year 1997. We believe that the staff's acceptance of the topical safety analysis report for the initial phase of facility operations will reduce the time required for subsequent preparation of a license application and staff review of a site-specific design and related safety considerations.

The second stage of the strategy involves work that should be accomplished after a site is designated. Implementation of this stage is contingent upon Presidential and Congressional agreement on the necessary authority and funding. Our Program Plan assumes that agreement would be reached in 1999, consistent with the Administration's position that a siting decision should be based on objective criteria and informed by an appraisal of the viability of the Yucca Mountain repository.

Conclusion

In our revised Program Plan, we have begun to accommodate the significant changes that are needed to focus the activities and maintain the momentum of the repository program. If there

is an aspect of the site that contradicts our expectations about the performance of a repository at Yucca Mountain, we are likely to discover it by 1998 through the work performed for the viability assessment. If there are shortcomings in the available technologies or in our ability to implement the repository design concepts, they will be evident by then. With adequate funding and an updated regulatory process for the evaluation of site suitability and repository licensing, I am confident that, if the site is suitable, we can achieve our target date of 2002 for the submittal of a license application to the Commission. We have also developed plans and initiated activities that should enable us to respond efficiently and effectively to new authority on interim storage, once a conclusion is reached on the viability of the repository undertaking.

Thank you for the opportunity to brief the Commission. I would be happy to answer any questions you may have.

TUNNEL BORING MACHINE PROGRESS

2.86 % Ahead of Schedule

In terms of meters

25 Days Ahead of Schedule

In terms of calendar days

Performance Measurement Revised 6-13-96

Total Scheduled Progress in

METERS	FEET
6106.9	20,035.5

Total Actual Progress in

6281.6	20,608.7
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Data Posted on

8-26-96













