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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BRIEFING BY DOE ON HLW PROGRAM

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PUBLIC MEETING

Nuclear Regulatory Commission  
One White Flint North  
Rockville, Maryland

Monday, June 6, 1994

The Commission met in open session,  
pursuant to notice, at 10:00 a.m., Ivan Selin,  
Chairman, presiding.

COMMISSIONERS PRESENT:

IVAN SELIN, Chairman of the Commission  
KENNETH C. ROGERS, Commissioner  
FORREST J. REMICK, Commissioner  
E. GAIL de PLANQUE, Commissioner

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## STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

JOHN HOYLE, Acting Secretary

MARTIN MALSCH, Office of the General Counsel

DR. DANIEL DREYFUS, Director, Office of Civilian  
Radioactive Waste Management, DOE

LAKE BARRETT, Deputy Director, OCRWM, DOE

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P-R-O-C-E-E-D-I-N-G-S

10:00 a.m.

CHAIRMAN SELIN: Good morning, ladies and gentlemen.

The Commission is pleased to meet today to receive a briefing from the Department of Energy on the Civilian High Level Waste Program. I'd like to welcome Doctor Daniel Dreyfus, Director of DOE's Office of Civilian Radioactive Waste Management, and Mr. Lake Barrett, the Deputy Director.

We were last briefed by Doctor Dreyfus on the program December 1993, soon after he was confirmed to take over on the job. We got a fairly thorough status report then on organization and management issues, but not much on the substance of the program and your approach to either continue or change the approach of some of the more difficult technical and managerial questions. So, we have heard about some significant progress and we also have some questions about some of the programs.

So, without further adieu, we'd be very interested in hearing your report. We welcome you here once again. Thank you for taking us up on the continuing invitation that we gave you last time.

Doctor Dreyfus?

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1 DOCTOR DREYFUS: Thank you, Mr. Chairman,  
2 members of the Commission.

3 I'm pleased to have another opportunity  
4 appear before you. As I indicated in our meeting in  
5 December, we had concluded then that work underway in  
6 the Civilian Radioactive Waste Management Program was,  
7 in several respects, no longer likely to achieve the  
8 legislative goals and the expectations of client  
9 groups and that we had to restructure the program. We  
10 are prepared this morning to give you further  
11 information on our plans to do just that.

12 To start out, as seems to be customary in  
13 these meetings, we do have a little bit of show and  
14 tell. As we said before, we did not intend to stop or  
15 suspend the program while we were doing what we had to  
16 do. We have not and we have about three photographs  
17 that will give you some feeling for the most  
18 significant activity that has gone on since the last  
19 meeting, if I can have them.

20 (Slide) This first photograph, this is a  
21 picture of the tunnel boring machine from the front,  
22 to which the actual boring head will be attached. It  
23 gives you some feel for the size of it. It has been  
24 shipped entirely from where it was built in Kent,  
25 Washington to the Yucca Mountain site and is being

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1 assembled on the site. That picture is probably two  
2 weeks old.

3 (Slide) Let me have the next one.

4 This is a little better feeling for the  
5 complexity and the size of the machine. It not only  
6 will bore the tunnel, but will place the tracks and  
7 the conveyor belts and the ventilating equipment as it  
8 goes. I think we have one more which provides a  
9 feeling for the proximity of the machine and the  
10 starter time. We hope over the next few months to  
11 complete the reassembly of the machine, to place it in  
12 the starter tunnel and to do necessary testing and  
13 shakedown to begin boring late this year. So, we have  
14 now practical expectations and progress to get  
15 underground at Yucca Mountain.

16 That's the show and tell.

17 Over the past few months, the Department  
18 has been evaluating its options for improving the  
19 program. We've identified three components to the  
20 problem. First we need to bring the program of work  
21 at Yucca Mountain into conformity with the resources  
22 that can be obtained and give the stakeholders  
23 realistic estimates of program and project scheduling  
24 cost. This includes the need to refocus the work on  
25 the mainstream scientific activities that are

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1 necessary for evaluating the suitability Yucca  
2 Mountain site. Program of work will have to be made  
3 consistent with the funding outlook that results from  
4 the congressional activity that is currently in  
5 progress.

6 Second, we need to confront the issues of  
7 waste acceptance, interim storage and transportation.  
8 Here too, the activities and progress have become  
9 inconsistent with expectations. We have to determine  
10 the real need of interim waste management, develop a  
11 strategy to address that need and obtain the policy  
12 direction and the resources required to carry out that  
13 strategy.

14 Third, we need to address the perception  
15 and the reality that the manner in which the program  
16 is being managed needs to be improved. Our Yucca  
17 Mountain office has already been reorganized to define  
18 and establish clear lines of responsibility and  
19 accountability that are related to our current project  
20 goals. Our headquarters organization is being revised  
21 to place emphasis on the major management needs,  
22 primarily of overall program integration. The  
23 contractor establishment will also be restructured to  
24 reflect the same philosophy.

25 We've already made considerable progress.

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1 The Department is developing a restructured program  
2 for the work we have to do at Yucca Mountain. This  
3 program, we believe, will maintain the scientific  
4 validity of the required investigations and will be  
5 cost effective. It will not require amendment of  
6 Nuclear Waste Policy Act or changes in the regulatory  
7 framework other than those that will be associated  
8 with the new environmental standards that the EPA is  
9 already working on. If the program is funded as we  
10 have requested and if the site is suitable, we can  
11 expect to submit a license application by the year  
12 2001.

13 To address the waste acceptance, interim  
14 storage and transportation issues, the Department has  
15 encouraged efforts to develop a broadly based  
16 consensus on national policy for the near-term  
17 management of spent fuel. In support of this effort,  
18 we have issued a notice on inquiry to obtain formal  
19 views of the interested parties on the waste  
20 acceptance issues. We are also vigorously pursuing  
21 the multi-purpose canister initiative and the  
22 development of the transportation capability that will  
23 be needed as the Department's role in near-term  
24 management is further defined.

25 Finally, we are improving our management

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1 structure and capabilities. I believe the new  
2 organization at Headquarters and at Yucca Mountain  
3 allocates resources to serve the major program  
4 objectives of site characterization, waste acceptance  
5 and especially program integration. The secretary's  
6 independent financial management review of our  
7 program, which is now underway, will confirm or will  
8 lead us to further improvement in program management.  
9 We are strengthening the financial management  
10 controls, our human resource development, our contract  
11 administration.

12 (Slide) The Administration has proposed  
13 a funding outlook for fiscal year '95 and beyond that  
14 will support the restructured program. The FY '95  
15 Congressional Budget Request is shown Table 1, if we  
16 can have Table 1, and is attached to my statement for  
17 ease of viewing. It will make a greater portion of  
18 Nuclear Waste Fund receipts available to the program  
19 in the immediate future. The essence of this request  
20 or this proposal is it will make more than \$1 billion  
21 of additional funds available over the next five  
22 years, over and above a level program funded at the  
23 '94 level. The higher funding profile will facilitate  
24 much more effective use of the personnel and equipment  
25 at Yucca Mountain, leading to early determination of

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1 site suitability and reducing the total cost to  
2 license application.

3 Based on a benchmark of reality, given the  
4 kind of activity we had underway a year ago, this  
5 funding profile and this revised proposal will result  
6 in about \$2 billion savings in the amounts spent to  
7 the license application, or actually to the  
8 construction permit.

9 The restructured program, I believe, is  
10 responsive to the expectations of Congress that we  
11 make measurable progress at reduced cost and that we  
12 accomplish the objectives in Nuclear Waste Policy Act.  
13 The program changes will reflect some recommendations  
14 of the National Academy of Sciences in its report on  
15 "Rethinking High Level Waste," and a number of the  
16 views of the Nuclear Waste Technical Review Board  
17 regarding the need for effective management and a  
18 well-focused scientific program.

19 CHAIRMAN SELIN: Are you prepared today to  
20 address the recommendations that must made --

21 DOCTOR DREYFUS: I can address what --

22 CHAIRMAN SELIN: I mean as you go through  
23 there, is it --

24 DOCTOR DREYFUS: Yes, certainly.

25 CHAIRMAN SELIN: -- a fairly long report

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1 that's just come out? I'd be interested in your  
2 reaction.

3 DOCTOR DREYFUS: Yes, I can do that.

4 In addition, this demonstrates our  
5 intention to respond to input from stakeholders as we  
6 refine the program. My staff has recently discussed  
7 our preliminary proposal for the restructured program  
8 with the Commission personnel and has discussed with  
9 them our expectations for Commission support during a  
10 DOE/NRC management meeting on May 19th.

11 At Yucca Mountain we are proposing  
12 realignment of our site characterization activities  
13 within the existing statutory or regulatory framework  
14 to assure efficient progress. We believe that the  
15 framework currently provides the flexibility we need.  
16 We anticipate complying with the new environmental  
17 radiation protection standard for Yucca Mountain that  
18 is still being developed. we see no need to request  
19 the Commission's regulatory framework be changed.

20 The testing and design elements of our  
21 work, we'll place priority on those specific  
22 activities in the site characterization plan that  
23 address the issue of site suitability and permit us to  
24 make formal suitability findings in phases consistent  
25 with the availability of data. As the Nuclear Waste

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1 Policy Act intended, we will continue to carry forward  
2 the associated activities necessary to proceed  
3 immediately with a license application if the site is  
4 found suitable. We have revised our work scope, but  
5 will still complete the key test and design activities  
6 described in the site characterization plan. We will,  
7 however, modify the scope of some activities based on  
8 the information we have acquired and the analyses we  
9 have already completed.

10 For example, we now believe the design  
11 basis for license application will be sufficient for  
12 the Commission's findings if we submit Title I design  
13 for repository and Title II design for the waste  
14 package.

15 We intend to defer some activities to the  
16 performance confirmation phase of the licensing  
17 process. to provide the confidence for permanent  
18 closure decision, we plan to maintain retrieval  
19 capability for a period of up to 100 years after we  
20 start emplacement operations. Closure would be  
21 requested when the results of the performance  
22 confirmation provide adequate confidence.

23 This approach results in significant  
24 changes in the work. Subject to what we learn  
25 underground, we now plan to construct only enough of

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1 the exploratory study facility to permit access to  
2 begin thermal testing and tests to characterize the  
3 Ghost Dance Fault as soon as possible. We will  
4 complete the loop and additional drifts later in  
5 support of a license application. This will reduce  
6 the 13 miles of drifts originally planned.

7 We'll revise surface-based testing in a  
8 similar manner. For example, we will further  
9 consolidate testing into fewer deep drillholes to get  
10 data sooner. We are proposing to accelerate drilling,  
11 instrumentation and testing in the drill holes by  
12 bringing additional drill crews onto the job. We  
13 presently have three drill crews. We have just added  
14 a fourth. Hope to have eight drill crews operating in  
15 1995.

16 The license application and its amendments  
17 will present the results of relevant analyses that are  
18 bounding and conservative. they will include  
19 information on the long-term ability of the geologic  
20 repository to contain and isolate radioactive waste.  
21 The license application and its amendments will  
22 therefore provide the information the Commission will  
23 need at the outset to make findings required by law  
24 and regulation.

25 The key elements of the program are

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1 presented in Table 2, which again is attached to the  
2 prepared statement. The technical site suitability  
3 determination by the Secretary will be possible using  
4 an advanced conceptual design in 1998. Draft  
5 environmental impact statement is scheduled to  
6 accompany that determination and we plan to initiate  
7 the scoping activities for the environmental  
8 documentation in 1995. A final environmental impact  
9 statement is planned for the year 2000 and a site  
10 recommendation report to the President is planned  
11 later that year. A license application based on Title  
12 I repository design and Title II or final pre-  
13 fabrication waste package design can be completed in  
14 2001.

15 We must, in the immediate future, also  
16 resolve the waste acceptance issue and define the  
17 Department's role in the near-term management of spent  
18 fuel. On May 25th we issued a notice of inquiry to  
19 elicit the views of the affected parties on  
20 essentially three items: the Department's obligation  
21 to accept spent fuel in '98; the need for an interim  
22 away from reactor storage facility prior to the  
23 repository operation; and options for offsetting the  
24 financial burden that may be incurred by utilities in  
25 continuing to store spent fuel at reactor sites beyond

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1 the previously expected dates.

2 CHAIRMAN SELIN: That sounds like a much  
3 more open minded way of putting the questions than  
4 it's been reported in the press.

5 DOCTOR DREYFUS: I believe that the NOI as  
6 it was published is exceedingly open minded and the  
7 object of the exercise is to find out what people are,  
8 in fact, thinking and to assemble the views. It  
9 doesn't have a pre-programmed view of where we go  
10 next.

11 CHAIRMAN SELIN: In particular, you're not  
12 decided one way or another about the advisability or  
13 feasibility of continuing to look for an MRS?

14 DOCTOR DREYFUS: No. The position at the  
15 moment is that we are, of course, supporting the  
16 continued activities of the negotiator and we have  
17 invited the broadest range of comments about both the  
18 need for some interim storage and the options and  
19 specifically cited the NARUC report that has come out  
20 recently and requested further comments of other  
21 parties about the substance and findings of that  
22 report. So, it's a very open --

23 CHAIRMAN SELIN: I guess you'd wait for  
24 these comments before you took a position on the  
25 possibility of a privately -- you know what the

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1 Department's position would be on a privately funded  
2 independent spent fuel storage.

3 DOCTOR DREYFUS: The NOI again asks for  
4 comments on that. At this time, the Department's  
5 position is that it is not directly involved in the  
6 private activities currently underway. We have no  
7 need to have an involvement either way. So, we're  
8 entirely open to that situation. But this NOI does  
9 invite views as to what role the Department should  
10 have, if any, should a privately funded and privately  
11 licensed storage site come about.

12 CHAIRMAN SELIN: Well, the funding would  
13 really be the key question, whether the Department's  
14 position on allowing some funds either to be put in  
15 escrow or deducted from payments for storage would be  
16 limited to storage on site or whether that would  
17 possibly cover a separately sited storage. You  
18 haven't taken any position on this at all yet.

19 DOCTOR DREYFUS: No, we have not, and as  
20 you are aware, the question would be the suitability  
21 and the legal capability of using Waste Fund money to  
22 be involved in that. You would have to know a great  
23 deal more about exactly what was being proposed to  
24 even address the questions of Waste Fund money.

25 CHAIRMAN SELIN: Okay.

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1                   COMMISSIONER ROGERS:    When would you  
2                   expect to have your conclusions or wrap-up of the  
3                   results of the NOI?

4                   DOCTOR DREYFUS:   There's 120 day comment  
5                   period that is now running and that will give us the  
6                   input.  We have not predetermined what we'll do after  
7                   we get the input and it's fairly interesting to know  
8                   what the input will be.    So, we will publish the  
9                   results and its 120 day comment session.

10                   The Department's multi-purpose canister  
11                   initiative is relevant to both the waste acceptance  
12                   issue and the Department's role in near-term  
13                   management of spent fuel.  In support of this  
14                   initiative, we've completed a conceptual design,  
15                   incorporated this concept into the program technical  
16                   baseline, revised the conceptual design of the MRS  
17                   facility to accommodate that concept.  Request for  
18                   proposal for the design of the system was issued on  
19                   Friday, June 3rd.  Our goal is to seek certificates of  
20                   compliance authorizing the use of the multi-purpose  
21                   canister and the overpacks for storage and  
22                   transportation which would make these components  
23                   available to the marketplace beginning in 1998.

24                   CHAIRMAN SELIN:  It's not exactly clear to  
25                   me what the role of disposal is in this canister.  Is

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1 it basically a two function canister and we'll worry  
2 about disposal later or is disposal a prerequisite for  
3 the design? If so, what --

4 DOCTOR DREYFUS: The intention is for the  
5 canister to be capable of being used in the waste  
6 package, recognizing that there are substantial  
7 unresolved technical questions about what the waste  
8 package will be. I think that in thinking about this  
9 we can look at it this way. It is certainly possible  
10 to design a canister for storage and transportation  
11 which we know cannot be disposed of in a long-term  
12 geologic. We would hope to not do that. We would  
13 expect to design it so that to the extent of our  
14 knowledge at the time it can be utilized as a part of  
15 a waste package and with the expectation that it would  
16 be. That will require the resolution of some early  
17 questions, primarily probably the notion of how that  
18 will enter into corrosion resistance in the waste  
19 package. There's some questions of the thermal  
20 aspects of the container and, of course, criticality  
21 questions of terminal treatment.

22 So, what we are hoping to do here is to  
23 provide the strong probability that the canister can  
24 be used as part of the waste package and also taken  
25 into consideration, which otherwise it would not be

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1 done.

2 CHAIRMAN SELIN: But how does the  
3 statement of work handle the disposal function when  
4 you can't specify yet what the disposal process will  
5 be?

6 DOCTOR DREYFUS: Well, I think we know an  
7 awful lot about what it is has to be. I mean we know  
8 that it has got to provide criticality protection over  
9 a very long period of time and we know we can design  
10 a canister that can't do that. So, at a minimum we  
11 will not design a canister that we know can't do that.  
12 Now, when you play this back and forth against the  
13 waste package, then fundamentally what you've got is  
14 an engineering situation in which you make some early  
15 determinations, you design the canister. You can  
16 certainly have future iterations. I mean there  
17 certainly can be further generations of the canister  
18 design as you learn more, but then you take that into  
19 account when you design the waste package. Whoever  
20 designs the waste package will be confronted with a  
21 set of constraints and will utilize the -- will view  
22 the canister as one of those constraints until such  
23 time as it proves to be --

24 CHAIRMAN SELIN: So, in specifying the  
25 canister, you've made certain engineering

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1 specifications about corrosion, about heat resistance,  
2 et cetera, and then the canister that results will be  
3 a constraint that goes into the design of the waste  
4 package, unless it looks like it's crazy.

5 DOCTOR DREYFUS: To the extent that it can  
6 be rationally tolerated and if not, then we'll change  
7 the design of the canister in future generations. We  
8 may have to open a certain proportion of them. But  
9 the logic is that we should be thinking about that.  
10 It's illogical to not design in that regard at this  
11 point because the opportunity for savings and for a  
12 rational system is too great.

13 CHAIRMAN SELIN: Do you have some sense at  
14 this point about what the additional costs would be or  
15 the technical risk by having added these disposal  
16 characteristics to the design or do you think they're  
17 reasonably efficient transportation and storage  
18 designs that can also meet the disposal constraints  
19 without pushing the state-of-the-art too far?

20 DOCTOR DREYFUS: Well, I don't know if I  
21 can isolate the additional cost of the disposal  
22 considerations. It's clear that a multipurpose  
23 canister system is going to be somewhat more expensive  
24 than the lowest cost at reactor storage that you can  
25 put together. They will have to make it on system

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1 costs and the presumption would be that the additional  
2 requirements of storage should have commensurate  
3 system savings.

4 I don't know whether we have anybody in  
5 the group today that wants to speculate on what the  
6 increment for storage is --

7 CHAIRMAN SELIN: Well, while we're  
8 speculating, I have a more specific question to  
9 speculate. When this design is presented to us for  
10 certification, will the waste package have been  
11 designed or will we just be asked to certify the  
12 transportation and storage aspects of the container?

13 MR. BARRETT: You will be asked to certify  
14 the storage under Part 72 and the transportation under  
15 Part 71 and we need to work out details as far as the  
16 understanding of compatibility with 10 CFR Part 60.  
17 At the time that those would be submitted, there would  
18 not be a final waste package design, so we could not  
19 have a certificate -- certification of a Part 60  
20 requirement, but it will be a compatibility we would  
21 work out with your staff. Delivered a copy this  
22 morning to the staff of the RFP and it does have  
23 specifications for heat in that --

24 CHAIRMAN SELIN: But the specifications  
25 are written in engineering terms, not in performance

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1 terms.

2 MR. BARRETT: That is correct.

3 CHAIRMAN SELIN: Okay. So, it's something  
4 that presumably we could attest to. Whether it will  
5 be adequate for a disposal package or not remains to  
6 be seen, but at least we could -- you could attest to  
7 it and we could confirm the engineering  
8 characteristics over a long time of the --

9 MR. BARRETT: Correct, the stability of  
10 the package and the thermal aspects of the package.

11 COMMISSIONER de PLANQUE: Are you  
12 expecting to require a different type of transport  
13 vehicle for the multi-purpose canister?

14 MR. BARRETT: It would be standard rail.  
15 There would be the larger packages, 75 ton and 125 ton  
16 packages which are standard sizes.

17 COMMISSIONER de PLANQUE: So they could be  
18 carried on the type of a transport that's already  
19 available?

20 MR. BARRETT: Correct. It would be  
21 standard rail cars, six axle for the larger size.  
22 Similar to what's used today at the storage.

23 CHAIRMAN SELIN: You're doing pretty well.  
24 That's half my questions already.

25 DOCTOR DREYFUS: All right. Well, I can

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1 conclude, I think, rather quickly.

2 The restructured program, to summarize, if  
3 it is funded as we have requested, will permit us to  
4 continue to pursue policy goals that are in the  
5 Nuclear Waste Policy Act and that was our hope and  
6 intention. We can carry out the program without the  
7 amendment of the Nuclear Waste Policy Act and without  
8 changes in the framework of the Commission's  
9 regulations. What we have proposed does constitute a  
10 change in the plans the Department has previously  
11 presented to the Commission, but it's based on more  
12 than a decade of experience both in work in the field  
13 and interactions with the Commission. We believe that  
14 we understand better now what needs to be done in  
15 order to provide the appropriate amount of information  
16 at each step of the licensing process.

17 CHAIRMAN SELIN: Well, the key question is  
18 will you still be able to prepare the information that  
19 we need that has been agreed for the annotated outline  
20 or will some of the material that we'll need for the  
21 licensing process be delayed considerably from what we  
22 had expected?

23 DOCTOR DREYFUS: It is our intention to  
24 provide the necessary information to make the same  
25 determination at the outset that we have been

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1 anticipating right along, and we will be working at  
2 the staff level closely to be sure that we have an  
3 agreement on that as we go forward. The staffs are  
4 interacting more frequently as they must. We are now  
5 communicating electronically, as Commissioner Rogers  
6 has requested. We will need and we will look forward  
7 to having comments from the Commission on the  
8 restructured program as we are able to describe it in  
9 more detail. We'll need the support of your staff to  
10 review and provide guidance and comments on the  
11 documents that we will be submitting.

12 That concludes my summary of my statement.  
13 I'm prepared to deal with questions.

14 CHAIRMAN SELIN: Do you have a number of  
15 questions?

16 COMMISSIONER ROGERS: Yes.

17 Well, I think that what you've done is  
18 very interesting and obviously is a very hard look at  
19 the whole program from a new point of view. I wonder  
20 if you could give me a little help though. I'm having  
21 a little difficulty visualizing what's in this and  
22 what isn't in it that used to be there so that, in  
23 fact, you're going to be able to come in at an earlier  
24 date with an acceptable application and at less cost  
25 than originally planned. It's a marvelous

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1 accomplishment if it all comes off, but I'm having  
2 difficulty grasping more from a philosophical point of  
3 view what it is that's different in your approach  
4 here, other than that dates are going to be earlier  
5 and costs are going to be less in how you're going to  
6 approach providing the necessary information for the  
7 licensing application.

8 How much of this depends upon your  
9 approach of bounding analyses versus perhaps a more  
10 precise specific result? I can appreciate how  
11 bounding analyses might help there. On the other  
12 hand, what provision do you have if the bound doesn't  
13 come out right, one of the bounds turns out to be  
14 unacceptable? Then you're back into a more precise  
15 nitty-gritty approach to pinning things down than  
16 simply being able to set a bound that everything is  
17 within.

18 I wonder if you could just give me a  
19 little bit of the philosophy behind the new approach.

20 DOCTOR DREYFUS: There were several  
21 aspects of why this can happen and I would like to say  
22 at the outset we did not, in fact, begin with the  
23 premise that it could happen. We, in fact, began with  
24 a strategic planning premise that we would look at  
25 what we could do with regard to the existing act and

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1 the existing regs and the kind of funding that we were  
2 led to believe was possible. We also looked at what  
3 might be accomplished by changes in the act and  
4 changes in the regs and the expectation that it might  
5 be necessary to achieve anything like the goals that  
6 are in the act today.

7 We think that we can, in fact, do this  
8 within the existing regulatory framework and primarily  
9 by going back and taking a very hard look at the  
10 entire scientific program that's going on out there.  
11 I think what has happened over the years is that as  
12 the strategy for the science developed, when questions  
13 arose scientific approaches to resolve them  
14 conclusively arose with them.

15 When you go back now and take a look at  
16 what do you really need to know when you arrive at the  
17 Commission on a particular date or what you really  
18 need to know to make the internal DOE determination  
19 that the site is suitable and based on the fact that  
20 we've been out there now looking at that site for ten  
21 years and have much stronger feeling about what we're  
22 doing, some of that activity simply is not central to  
23 making those determinations. So, we're able to  
24 consolidate, we're able to streamline, we're able also  
25 to defer some activities to the confirmatory period.

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1           What we're basically doing here, I think,  
2           is getting back to the fundamental philosophy of what  
3           the process was supposed to be at the outset and we're  
4           finding that a lot of work is not central to that and  
5           it doesn't have to be done prior to the application.

6           The bounding aspect of the work is  
7           important. There's a difference here in the notion of  
8           the design -- the status of design, which is real at  
9           different stages. What we're basically doing is  
10          providing the amount of information necessary at each  
11          stage in the licensing. This is not different than  
12          what is done in reactor licensing and it's not  
13          different than the philosophy that is expressed in the  
14          regs. It's basically going back to that philosophy  
15          and looking at specific work that needs to be done to  
16          get the information necessary at each stage. I think  
17          it's just something that happens when you get into a  
18          complex job. You have a tendency to let the  
19          complexity carry you away. You, in a more informed  
20          way, can go back and resimplify.

21          So, a good bit of this has been told to us  
22          from outside. I mean the Review Board has been  
23          telling us for a couple of reports now that we ought  
24          to simplify the underground investigation and we're  
25          doing that. When we look back at it, we find that we

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1 can simplify it quite a little bit, which cuts down a  
2 lot on tunneling, which is both a cost and a critical  
3 path. We're still looking at the best way to get the  
4 early thermal work done underground quickly, early and  
5 with less tunneling. As we look at that, we find that  
6 we now can think of things we didn't think of before.  
7 So, we will.

8 CHAIRMAN SELIN: But very specific, the  
9 original idea was to answer the suitability and the  
10 licensing questions simultaneously and also to do a  
11 fair amount of the construction. I gather what you're  
12 saying is you're putting off the construction. But  
13 what about -- are you going to be doing suitability  
14 and licensing simultaneously or are you going to try  
15 to answer your suitability question first and then put  
16 together what you need?

17 DOCTOR DREYFUS: We are focusing the  
18 management of the job on the suitability question  
19 internally. Assuming that we get the funding that  
20 we've requested by Congress, we will carry forward the  
21 licensing and the NEPA process which are basically the  
22 other two major portions of this job simultaneously,  
23 which we must do if we are to comply with what the Act  
24 set forth as the application process because we have  
25 to have the EIS and we have to have the application at

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1 about the same time that we go to the President.

2 Between now and '98, however, bi-  
3 management measure of activity will have to do with  
4 the secretary's technical finding of suitability. I  
5 intend to track that path, but we will carry the  
6 licensing work forward and it will be done in time so  
7 we can go ahead --

8 CHAIRMAN SELIN: As I understand the  
9 schedule, in order to make the schedule, you said the  
10 licensing schedule, you have to in effect assume the  
11 site is suitable. In other words, you'll be  
12 collecting information that you probably wouldn't be  
13 collecting if you had really major doubts about the  
14 suitability of the site. Of course --

15 DOCTOR DREYFUS: Yes, we'll have to,  
16 certainly. We'll be carrying forward, for example,  
17 the NEPA work which would be irrelevant if we found  
18 the site to be not suitable.

19 CHAIRMAN SELIN: Exactly.

20 DOCTOR DREYFUS: But it also is relevant  
21 to the suitability. We'll need a draft EIS to make  
22 the suitability determination. So, there is work that  
23 if one abandoned the notion of the license application  
24 and the formal representation immediately after site  
25 suitability, then one could do work serially that we

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1 are now doing in parallel. That would be our  
2 contingency plan if we don't get the funding because  
3 that would be all we could do.

4 CHAIRMAN SELIN: Other than compressing  
5 both the size and the -- I mean both the diameter and  
6 the extent of the drilling, to go back to Commissioner  
7 Rogers' questions, are there other things that had  
8 been in last year's plan that are out of this year's  
9 plan, other --

10 DOCTOR DREYFUS: Yes. We are  
11 consolidating surface work as well. We will drill  
12 fewer deep holes. We have explored -- had been  
13 exploring and again these are things that were  
14 suggested by reviewers, consolidating tests in one  
15 hole that would have been done in several. We are  
16 doing that. We are consolidating surface work and we  
17 are simplifying some of the analytical work by looking  
18 at bounding conditions as opposed to more detailed  
19 projections. So, there's consolidation and  
20 simplification throughout the surface work, the  
21 underground work and the analytical work as well.

22 COMMISSIONER ROGERS: I wonder if you  
23 could say a little bit about how you view the details  
24 of the design as related to site suitability. It  
25 seems to me that the design and the suitability of the

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1 site really are linked together. It's not an abstract  
2 question of what the design is when you're looking at  
3 the site suitability, the site suitability for what,  
4 for at least some variety of designs if not one  
5 specific design. There are some questions about the  
6 design that I think you're leaving quite late.  
7 Particularly the thermal loading issue, it seems to  
8 me, is being left rather late, but maybe I'm wrong on  
9 that.

10           Could you say something about how you see  
11 the interaction of the design with the site  
12 suitability findings?

13           DOCTOR DREYFUS: Well, obviously the  
14 design does, in fact -- the site suitability has got  
15 to be suitable for a particular design concept. We  
16 have to keep in mind that we are doing underground  
17 work here. Unlike a reactor where one can design the  
18 reactor and then state at the outset that if I build  
19 it this way I know what I've got, we won't know what  
20 we've got until we build this thing. Whatever else we  
21 may think, there's nothing homogeneous about geology.  
22 So, when we actually do the tunneling for the  
23 repository itself, we are going to find things that we  
24 have only inferred from the original investigation.

25           So, I think we have to understand that the

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1 design will happen as we construct in this. To some  
2 extent, that's not different from reactor work, but I  
3 think the degree to which we are the victims and at  
4 the mercy of the geology is a little bit different  
5 than the degree to which engineering work goes  
6 forward.

7 CHAIRMAN SELIN: We usually like to know  
8 within a factor of two how big the reactor is going to  
9 be before we license it, first.

10 DOCTOR DREYFUS: Well, I think we'll know  
11 within a factor of two how big the repository will be  
12 and we will have presumed and just from our inference  
13 from the work that we've done that there is, in fact,  
14 that much repository there. But when we actually  
15 excavate the repository, we may have to change designs  
16 even at that late stage.

17 We will do conceptual thermal loading work  
18 prior to the site suitability. We'll know what it is  
19 we're trying to accomplish. We're doing that now. We  
20 are doing iterative performance evaluations,  
21 performance assessments that begin to narrow the range  
22 of thermal loading strategies that we might use.  
23 We're learning quite a bit about that. By the time we  
24 do the site suitability, we'll have closed on a  
25 strategy within fairly narrow bounds. Now, we'll be

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1 probably holding some flexibility in thermal loading  
2 strategies well into the design phase, well into the  
3 construction phase, but we will have come close enough  
4 to be able to make determinations about it.

5 COMMISSIONER ROGERS: Well, Part 60  
6 requires the Commission to make a finding about the  
7 geologic description for the construction  
8 authorization. So, just how do you -- how much  
9 flexibility do you think you're going to have there?

10 DOCTOR DREYFUS: In thermal loading, you  
11 mean?

12 COMMISSIONER ROGERS: No, no, no. On the  
13 geologic description.

14 DOCTOR DREYFUS: Well, I think what you  
15 will find is that when you license a reactor you say  
16 that yes, if you build it the way you said you were  
17 going to build it, then we have the confidence that it  
18 will be safe, if you build it and operate it that way.  
19 In this case I think you're doing the same thing. We  
20 will have a theory of the structure of the mound and  
21 a theory of the behavior of the mound in a loaded  
22 situation which we will present to you. You will make  
23 a determination, I think, very much about whether our  
24 methodology convinces you that that theory is correct.  
25 But when we excavate the repository, we will find out

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1 whether our theory of the structure of the mountain is  
2 accurate and, of course, the current regs provide a 50  
3 year confirmatory period during which time we'll learn  
4 more about whether the behavior of the geology under  
5 thermal loading is, in fact, what we thought it was.  
6 This approach, we are suggesting that that period  
7 probably ought to be -- we ought to contemplate at  
8 least a longer period.

9 But it is a fact of life that in the  
10 beginning you will not have an engineering design to  
11 be constructed in factories, you will have a theory,  
12 an inference about the geology of the site based on  
13 underground exploration and drilling, not actual  
14 hands-on investigation of the drifts that we use for  
15 emplacement and that's where we will be. So, we will  
16 be confirming in the construction phase not only that  
17 we do what we said we were going to do, but that we  
18 guessed right about what the internal structure of the  
19 mountain is, where the repository will be. And we  
20 will in the behavioral confirmatory phase be  
21 confirming that our theory of behavior of the  
22 hydrology and the chemistry of the mountain under the  
23 heat load is correct. I think that has always been  
24 the philosophy of the regs, as I read them, that's  
25 recognized in the current circumstance and I think

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1 what we have here in this proposal is, as I say, going  
2 back to basics and restating that we need to overtly  
3 do it that way.

4 I think to some extent in recent years  
5 people have lost site of that and have begun to think  
6 in more deterministic terms that somehow at the outset  
7 we would give you a proof that you could accept or  
8 reject about the future. That simply is not going to  
9 be the case here no matter how much work we do prior  
10 to filing an application.

11 COMMISSIONER ROGERS: Well, that's very  
12 realistic and that's the way the real world does  
13 operate. But is it conceivable that someplace along  
14 the way that as the construction proceeds that there  
15 isn't a way around a new difficulty that arises as you  
16 uncover and discover more about the site through the  
17 construction phase that would materially affect the  
18 entire concept or at least the scope of the concept  
19 such that the basis on which the construction  
20 authorization was granted would no longer be entirely  
21 valid, that there would have to be rethinking of  
22 perhaps even the scope of the concept if something was  
23 discovered that just simply wasn't event either from  
24 the surface or from the other studies that have been  
25 conducted.

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1 DOCTOR DREYFUS: Yes, I think it's  
2 conceivable. I think it's got to be accepted that  
3 it's conceivable in this kind of an undertaking. We  
4 believe we have designed an exploratory effort here  
5 that will reveal most of those kinds of critical  
6 failures, but it being an underground activity I think  
7 that there are possibilities that we could find  
8 structural problems in the construction phase that,  
9 for example, reduce the useable area of the  
10 repository. I mean, that's one of the trivial but  
11 possible things that could happen to you.

12 COMMISSIONER ROGERS: Well, I think it's  
13 been very helpful that you've answered these things in  
14 quite as straightforward a way as you have.

15 I have just a few little detail questions  
16 that maybe we could just go through very quickly.

17 CHAIRMAN SELIN: Can I just follow-up on  
18 that?

19 COMMISSIONER ROGERS: Yes, please.

20 CHAIRMAN SELIN: What I hear you saying,  
21 and I just want to make it clear, you don't expect a  
22 certificate that says this geology is appropriate.  
23 What you expect is a certificate that says, within  
24 what we know, provided that we don't find X, Y, and Z  
25 from here on in, it appears to be appropriate and X,

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1 Y, and Z are not known to be true at the time that  
2 this happens. And then there would be a kind of  
3 reporting back, a progress report that says as the  
4 construction goes forward the repository still is  
5 within the envelope that was -- on which a  
6 determination was made, or it's outside of the  
7 envelope and here's why either it's not fatal or what  
8 steps will be taken to reduce the effect of what has  
9 been happening.

10 DOCTOR DREYFUS: Well, I think the regs  
11 contemplate that we continue to report certainly  
12 through the construction phase and well beyond it and  
13 that the Commission's decisions at each stage would be  
14 qualified by what has happened in the interim. And  
15 I'm not terribly familiar with reactor licensing, but  
16 I would be surprised if the Commission granted a  
17 construction permit that did not include a  
18 considerable amount of --

19 CHAIRMAN SELIN: Reactor licensing isn't  
20 like this because, at least in Part 52, we approve an  
21 envelope. If they're outside the envelope, they don't  
22 have a license and they have to start over again.

23 DOCTOR DREYFUS: Oh, I see.

24 CHAIRMAN SELIN: So here you're saying,  
25 no, this really would be more of an evolutionary stage

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1 where the envelope could be redefined as --

2 DOCTOR DREYFUS: Within reason. I'm not  
3 sure what you're thinking in terms of the envelope.

4 CHAIRMAN SELIN: Well, I'm getting to the  
5 next question, which is probably a favorable one. I  
6 don't see that this is all that different from the  
7 status quo ante, that you're really not proposing a  
8 different kind of approval process but a more  
9 efficient way of getting to the same process that  
10 either was foreseen or should have been.

11 DOCTOR DREYFUS: A redetermination,  
12 essentially, as to what work needs to be done at each  
13 stage in the licensing process, no change in the basic  
14 approach.

15 COMMISSIONER ROGERS: Well, if I could  
16 just go to a couple of little detail questions, one  
17 relates to your Table IV. I notice that in the waste  
18 design package on the second page there is no  
19 performance confirmation mentioned there. I think you  
20 early on in your remarks indicated that if the  
21 multipurpose cask design isn't entirely suitable for  
22 use in the repository that you might have to go for a  
23 new design and actually remove some of the material.

24 For other reasons, the waste package  
25 design may have some failures. One expects some early

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1 failures just from the usual bathtub curve  
2 expectations for anything new. Have you got some  
3 provision for early failures of some of the canisters  
4 in here? What is the performance confirmation? How  
5 is that issue being dealt with for the waste package  
6 design for this particular site? I see that there's  
7 nothing in the performance confirmation column on  
8 waste packaging.

9 DOCTOR DREYFUS: Let me see if we have  
10 somebody who wants to -- Steve, will you address this  
11 in some detail?

12 MR. BROCOUM: Steve Brocoum, Assistant  
13 Manager, Suitability and Licensing at the Yucca  
14 Mountain Site Characterization Office.

15 I think if you look at the very top line  
16 under the waste package design, it says "operations  
17 confirmed." What happens, we're not far enough along  
18 in the design of the waste package to have the  
19 details. This table is a preliminary table that is  
20 evolving and I think there is a full expectation to  
21 confirm the waste package and to allow for potential  
22 changes in the design in the future.

23 DOCTOR DREYFUS: But basically what you're  
24 looking at here is you're looking at a Title II design  
25 and possibly a prototype and license application.

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1 MR. BROCOUM: That's correct.

2 DOCTOR DREYFUS: Behavior in use is  
3 something else again. You won't have that until --

4 COMMISSIONER ROGERS: That's what I'm  
5 talking about, because you have -- in the performance  
6 confirmation, which is after you've started to load up  
7 the repository for many of these other items, that's  
8 not addressed with respect to the waste package  
9 design. Do you expect in that period to be addressing  
10 the performance confirmation aspects of the waste  
11 package?

12 DOCTOR DREYFUS: Yes.

13 MR. BROCOUM: Yes. This table just isn't  
14 complete as of this time.

15 COMMISSIONER ROGERS: Okay. Fine.

16 Just while you're here, what is the  
17 difference between final and confirmed with respect to  
18 performance confirmation? What's the difference in  
19 the significance between final and confirmed in the  
20 use of those terms?

21 MR. BROCOUM: Well, we've had a lot of  
22 debate on the word "final." Final means for the  
23 intended purpose. Things are really never final,  
24 certainly in the earth science area. When we talk  
25 about the earth science area, you can always find

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1 something new. It's final for the intended purpose  
2 and at the time that we submit an update to the  
3 license, a closed repository, it will be final for the  
4 intended purpose of a closed repository based on all  
5 the information we know at that point. Some of us  
6 have a lot of debate internally about whether we  
7 should be using the word "final."

8 COMMISSIONER ROGERS: Okay. So you're  
9 still debating it, in a sense?

10 MR. BROCOUM: Yes, there is still debate  
11 within the scientific staff.

12 COMMISSIONER ROGERS: All right. Fine.

13 CHAIRMAN SELIN: There's a pro final  
14 school and a pro confirmed school.

15 COMMISSIONER ROGERS: I understand. And  
16 one half of this is still alive, I take it.

17 In your Table 1 on just the Yucca Mountain  
18 resources, Yucca Mountain Site Characterization  
19 Project, just that itself aside from all these other  
20 items that are ancillary to the overall-- to that, or  
21 related but not part of it, how much of that budget is  
22 actually technical versus infrastructure and how has  
23 that changed? That's been a criticism of the project.  
24 There's too much infrastructure, too much overhead.  
25 How do you see that changing? And could you say

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1 something about where the LSS fits into this whole  
2 thing? Is it in the Yucca Mountain Site  
3 Characterization Project or is it someplace else at  
4 this point?

5 DOCTOR DREYFUS: Yes, it is. It's in the  
6 infrastructure as we used to define it. That term  
7 "infrastructure" I try not to use anymore.

8 What we basically have got out there is  
9 we've got -- there are three components you can talk  
10 about. One is the actual technical scientific work  
11 that has a technical scientific product associated  
12 with it. One is sort of a compliance group of costs  
13 that have to do with quality assurance and the  
14 environmental compliance. And then there's  
15 administration. If you look at it that way, then  
16 basically in 1994 56 percent of the cost is technical  
17 and there is about 30 percent in compliance. These  
18 are costs that basically are not easily controlled by  
19 management. They are things that we must do in order  
20 to maintain the quality of data and in order to comply  
21 with the requirements of environmental regulations,  
22 that sort of thing. And then 14 percent of it we have  
23 calculated to be administration costs or true  
24 overhead.

25 Now if we get the budget that we've

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1 requested, then in '95 we would be able to apply 64  
2 percent -- this is Yucca Mountain-- 64 percent to  
3 technical. The compliance costs would be somewhat  
4 less because we are managing them and they would go  
5 down to 25 percent, and administration would be 11  
6 percent. The higher budget will permit us to get more  
7 work done on the ground without commensurate increases  
8 in the overhead. Part of that is, of course, the  
9 notion of running equipment three shifts and that sort  
10 of thing, which makes a big difference in efficiency.

11 COMMISSIONER ROGERS: And then those  
12 percentages would roughly stay the same from there on?

13 DOCTOR DREYFUS: Well, we're doing a great  
14 deal to try to get the administration costs down and  
15 we hope to do that through efficiencies and through  
16 contract administration, but the key to it is that  
17 there is an uncontrollable amount of occupying the  
18 site kinds of costs and to the extent the budget goes  
19 up almost all of the increase goes into increasing the  
20 amount of scientific work done in a year.

21 COMMISSIONER ROGERS: Just on that  
22 compliance question, have you thought of any possible  
23 ways in which NRC's interaction with you could be  
24 improved to reduce the compliance costs?

25 MR. BROCOUM: Well, one of the things

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1 we've instigated, at NRC's suggestion actually, staff  
2 has the bimonthly management meetings where we get  
3 together with the managers on both sides and address  
4 issues and potential barriers that keep us from moving  
5 forward and I think that might help make us more  
6 efficient and help control the compliance costs.

7 DOCTOR DREYFUS: Some of these -- these  
8 are not -- we're not suggesting to any extent that  
9 these costs are not appropriate, but simply that when  
10 one lumps all of this into something called  
11 "infrastructure," you get the appearance of putting  
12 half the money in the job and the rest of it somehow  
13 is being spent on pencils and travel. It's not quite  
14 that kind of a situation. I think we are trying to  
15 educate our reviewers to the fact that that's not that  
16 kind of a situation, that the QA on our documentation  
17 is not something that should be viewed as sort of an  
18 irrelevant uncontrolled cost. It's not. It has to be  
19 recognized as part of the job.

20 COMMISSIONER ROGERS: In Table 3, you have  
21 an issue resolution item, issue resolution  
22 documentation. Can you say why the volcanism issue  
23 isn't on there? Isn't that an important issue to be  
24 resolved?

25 MR. BROCOUM: It's a very important issue

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1 for us. We're not at the stage yet to come in with  
2 either a topical report or some other report that's  
3 going to make a suggestion how to resolve it. These  
4 others that we have in the list are almost imminently  
5 on their way in. That's the point there.

6 COMMISSIONER ROGERS: Are there any other  
7 significant issues that are in that category?

8 MR. BROCOUM: Another one that will be  
9 coming in is our approach to substantially complete  
10 containment. That ought to be coming to the staff in  
11 the next couple of weeks. We think that that issue is  
12 resolved.

13 COMMISSIONER ROGERS: I just want to --  
14 I've got to turn it over to my fellow Commissioners.  
15 I'm sure they have some things that they'd like to ask  
16 about. But I just want to say that we have been very  
17 interested and I particularly have been very  
18 interested in the status of the LSS and I'm very  
19 appreciative that you have discussed your plans to  
20 transfer that out to Las Vegas with us before you did  
21 it and I think that's indicative of a good working  
22 relationship there. I hope with it having moved out  
23 to Las Vegas that we can continue the same kind of  
24 free dialogue and open relationship about major  
25 decisions effecting the LSS, because I think there

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1 still are questions, significant questions that have  
2 to be answered about how it's all going to come  
3 together.

4 DOCTOR DREYFUS: Yes. I understand that  
5 there are and we will continue to work on it. We will  
6 do everything we can and Mr. Brocoum is here to affirm  
7 to that, to prevent the transfer from in any way  
8 interrupting the ongoing work.

9 COMMISSIONER ROGERS: Well, thank you very  
10 much. I appreciated your remarks.

11 CHAIRMAN SELIN: Commissioner Remick?

12 COMMISSIONER REMICK: Thank you. Some of  
13 my questions have been asked. For clarification, you  
14 stated in page 3, and you need not refer to it, the  
15 statement is "we anticipate complying with the new  
16 environmental radiation protection standard for Yucca  
17 Mountain that is still being developed." I assume  
18 that's the National Academy of Science study that's  
19 being referred to.

20 DOCTOR DREYFUS: Academy of Science  
21 followed by the EPA determination, yes, sir.

22 COMMISSIONER REMICK: Right. If that's  
23 the case, then the next sentence I didn't follow. It  
24 says, "We see no need to request that the Commission's  
25 regulatory framework be changed." If I couple those

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1 together, at least I anticipate that we might have to  
2 change our regulation.

3 DOCTOR DREYFUS: Yes. In the longer  
4 statement I think it's clarified. Basically we  
5 recognize that that is an ongoing process, but that  
6 process exists and we know that you'll have to do what  
7 you have to do with that.

8 COMMISSIONER REMICK: Now have you  
9 factored into your planning any guesstimates of what  
10 that might do either to schedule or to your own work?

11 DOCTOR DREYFUS: Well, we are of course  
12 using the previous standard as a surrogate for  
13 purposes of what we are doing now.

14 COMMISSIONER REMICK: Right.

15 DOCTOR DREYFUS: The schedule, yes, the  
16 schedule is certainly a question. Assuming that the  
17 Academy and EPA proceed apace and everything happens  
18 reasonably in accordance with the schedule, then we'll  
19 have to factor it in late in the game. It's clearly  
20 an uncertainty of some consequence. The standard  
21 could very well be a problem.

22 COMMISSIONER REMICK: Has any thought, any  
23 conjecture been given on if a dose standard is advised  
24 by the Academy and EPA and NRC conformed that this  
25 would have any major impact on characterization?

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1 DOCTOR DREYFUS: Well, I don't think so.  
2 I think that the characterization is capable of  
3 contemplating that.

4 Do you want to discuss that, Steve?  
5 You've been working with the Academy.

6 MR. BROCOUM: One of the big issues, if  
7 it's dose, is the path to the environment and what we  
8 call the biosphere. And so one of the recommendations  
9 we have made is that there be a reference biosphere  
10 defined. If that's not the case, then we have to  
11 determine what that future biosphere might be. We see  
12 that may have a major impact on site characterization  
13 and the hearing which might be to try and debate what  
14 future size will be like at a hearing, so we would  
15 like to have that defined in advance so we know what  
16 we're working to.

17 COMMISSIONER REMICK: Okay. Thank you.

18 Dan, I think you also said something,  
19 you're following the work of the waste negotiator,  
20 when you were answering a question on the MRS. But if  
21 I recall, the waste negotiator's authorization ends  
22 sometime not too many months from now and you're no  
23 longer permitted to grant or make awards and make  
24 grants for a study. Is there any indication of  
25 possible success of that effort?

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1 DOCTOR DREYFUS: Well, I meet rather  
2 frequently with Mr. Stallings and he expresses some  
3 optimism that he could get something going in the time  
4 allowed to him. I have transferred funds to him. The  
5 Congress of course prohibited the funding of a II(b)  
6 grant which was a grant defined under a previous  
7 department approach and we would not do that, but we  
8 have transferred the funds to the negotiator for him  
9 to use judiciously to support the people he is working  
10 with so they can have the general ability to do the  
11 travel and the investigations and the things that they  
12 need to do in order to negotiate. He has a couple of  
13 activities underway that I am aware of and others that  
14 he has reported on that I have heard him speak to in  
15 public meetings, but I don't know whether there will  
16 be anything specifically come of that before the  
17 termination of that office.

18 COMMISSIONER REMICK: So you're not  
19 depending on that? You've proceeded with your notice  
20 of inquiry and are following that route?

21 DOCTOR DREYFUS: Well, a notice -- yes, a  
22 notice of inquiry essentially invites comments of all  
23 parties as to whether interim storage is required,  
24 what it should be if it is required, and what the  
25 departmental role should be in doing something about

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1 it. The circumstance that we are in is that under the  
2 Waste Policy Act we have no current authority that we  
3 could use to site interim storage. If the negotiator  
4 comes up with something, then he is invited to bring  
5 it to the Congress, which would be how that would be  
6 disposed of, and other than that there's nothing  
7 happening that would lead to a site.

8 COMMISSIONER REMICK: Along that line, I  
9 think in response to a question from Chairman Selin  
10 you said you weren't sure if there was a private --  
11 let me call it an ISFSI, independent spent fuel  
12 storage installation, contrasted from the MRS, on  
13 whether or not the Department would be able to pay for  
14 some of the storage costs, yet you are apparently  
15 considering the possible payment of storage costs on-  
16 site. I don't quite see what the difference would be  
17 where the site is. Now I realize you can't make a  
18 concrete commitment. There might be legal provisions  
19 and so forth or legal restrictions, but I guess I  
20 don't see any difference, if you would consider  
21 payment of -- refunding for storage on-site beyond  
22 1998, why it wouldn't be possible off-site.

23 DOCTOR DREYFUS: Well, of course, at the  
24 outset I don't know whether there is a difference.  
25 The theory, as I personally see it, and it may not go

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1 much beyond that since it really hasn't been  
2 addressed, is that the ratepayers of the nuclear  
3 utilities are intended to pay the entire cost of the  
4 system, and they pay that in basically two ways. They  
5 pay it at the reactor in the rates when it is at the  
6 reactor, and when we took possession of it they were  
7 to pay the costs from there on out through the waste  
8 fund.

9 I think there is a rational attitude that,  
10 if costs that were intended to have been borne by the  
11 system after waste acceptance get transferred to the  
12 reactor, that the waste fund is relevant.  
13 Specifically what we can and can't do with the waste  
14 fund is going to be a matter of legal determination  
15 and of course if we do anything much the Congress is  
16 going to correct our mistake quite rapidly if we make  
17 one because it will have to be done in appropriations.  
18 So if we go to a compensation approach then we would  
19 explore that, make some kind of a determination, and,  
20 as I say, the Congress would clearly review it. They  
21 do that every year.

22 Now when you say a private site becomes  
23 the way in which you handle that, could you similarly  
24 compensate the private site through some sort of an  
25 arrangement? Again, you'd have to have a site-

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1 specific situation, make a determination and see if it  
2 stood the test of the appropriation process, I  
3 believe, or else ask authority if you made the  
4 determination and it wasn't adequate.

5 The classic situation today of course, one  
6 that's alive and active, is the Mescalero approach.  
7 They have not at this point indicated that they want  
8 federal funding and I think when and if they indicate  
9 they want federal funding then we'll have to confront  
10 the question of the authority and the congressional  
11 attitude.

12 COMMISSIONER REMICK: I wasn't addressing  
13 so much the question of funding of that as much as  
14 reimbursement of possibly utilities for storage at  
15 such a site.

16 DOCTOR DREYFUS: That would be similar.  
17 I think there's a range of compensation that is likely  
18 to be authorized under the Act and, as I say, the  
19 Congress has abundant opportunity to correct a mistake  
20 if they think one has been made. We'll see what we  
21 get, what people think they want, what would help, and  
22 move on.

23 COMMISSIONER REMICK: Going back to the  
24 discussion on the MPC and your discussing its use in  
25 the repository as part of the waste package and the

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1 fact you do some kind of bounding type of  
2 considerations and hoping that the canister would be  
3 suitable, are you awaiting or do you need anything  
4 from the NRC along that line, any guidance or  
5 indications of regulatory positions?

6 DOCTOR DREYFUS: I think we do need to  
7 address issues of burn-up credit and criticality  
8 questions.

9 COMMISSIONER REMICK: Are you awaiting  
10 anything from us or are we awaiting --

11 DOCTOR DREYFUS: We are in discussions.  
12 Do you --

13 MR. BARRETT: We've had several workshops  
14 with the staff on this and we are proposing to have a  
15 topical report in on that subject this fall, so we are  
16 in weekly communication one way or another through the  
17 databases or whatever toward a topical report this  
18 fall to try to get closure on that subject.

19 COMMISSIONER REMICK: Okay. So the ball  
20 is in your court, basically?

21 MR. BARRETT: Right now the ball is in our  
22 court.

23 COMMISSIONER REMICK: Okay. And somewhere  
24 I have seen, maybe in your presentation out in Las  
25 Vegas then, if I recall, if you went ahead with a

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1 canister design for transportation and storage and you  
2 later on found that that was not adequate for the  
3 repository, that in the time that you'd be using those  
4 early canisters only a certain percentage of the total  
5 potential canister population would have been consumed  
6 and therefore either need to be revised or replaced.  
7 Am I correct there was --

8 DOCTOR DREYFUS: I think it would be kind  
9 of cavalier to suppose that we would lock something in  
10 and not have another generation of technology as we  
11 learn, so I wouldn't -- yes, I think it's entirely  
12 possible that if there were something come along in  
13 the waste package design that proved that we had to  
14 change a canister we'd change it and we'd deal with  
15 the ones that were out there one way or another. Of  
16 course, they can -- what that amounts to is you don't  
17 get the full benefit that you would like to get of not  
18 opening them up again, any of them.

19 COMMISSIONER REMICK: If my recollection  
20 is correct, I think I saw somewhere an estimate of  
21 something like -- in that time before you know the  
22 design of the repository it would be ten percent or  
23 some percentage.

24 MR. BARRETT: It would be less than ten  
25 percent. It's a nominal 70,000 metric ton repository.

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1 If you start issuing canisters, sort of the pool  
2 overflow rate, let's say, around 500 metric tons per  
3 year. There's a 1,000, 2,000, 3,000. Less than  
4 7,000, which is the ten percent number. So, a small  
5 fraction would be out there at time. If you were to  
6 make a change to advances in technology or whatever,  
7 which is likely to be the case over that long a time  
8 frame, we would make changes.

9 COMMISSIONER REMICK: Wherever I've seen  
10 it, I thought that was very helpful to me as has your  
11 presentation. I join the others in thanking you for  
12 coming in and having these discussions. They're very  
13 helpful.

14 COMMISSIONER de PLANQUE: Fortunately, my  
15 fellow Commissioners have asked almost all my  
16 questions, but I do have one. Is my understanding  
17 correct that eventually there would be waste at Yucca  
18 Mountain in vitrified form? We've been talking only  
19 about spent fuel.

20 DOCTOR DREYFUS: Yes. Of course, there's  
21 the defense waste which is vitrified results of the  
22 reprocessing for weapons. There is intention that  
23 there be an allocation of that waste in Yucca  
24 Mountain.

25 COMMISSIONER de PLANQUE: Can you tell me

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1 a little bit more how that's being coordinated or how  
2 acceptance criteria would be developed for that?

3 DOCTOR DREYFUS: Well, the responsibility  
4 for creating the vitrified waste lies with the  
5 environmental management group.

6 COMMISSIONER de PLANQUE: Right.

7 DOCTOR DREYFUS: We work with them. We  
8 are following the evolutionary aspects of the  
9 production of that waste. There are some significant  
10 questions at this time about how that's going to be  
11 handled in terms of particularly the Hanford tank  
12 treatment.

13 So, it's a moving target, but we know  
14 something of the character of the vitrified waste.  
15 It's a different kind of a situation in the sense of  
16 we are taking, for example, taking into account the  
17 erosion and then solution of the vitrified material  
18 and studies of releases within the mountain.

19 COMMISSIONER de PLANQUE: Okay. There is  
20 coordination between your group and EM on this issue?

21 DOCTOR DREYFUS: Yes.

22 COMMISSIONER de PLANQUE: Okay. All  
23 right. That's all I have. Thank you very much.

24 CHAIRMAN SELIN: I'd like to come back to  
25 the LSS. We've been talking about grand national

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1 policy and strategy, but the LSS is our  
2 responsibility. We are moving towards avoiding what  
3 would really be a duplication of spending, but we  
4 would give up some logistical independence. In other  
5 words, we would depend on DOE's going ahead with info  
6 streams and in one of the models actually operating  
7 info streams as a subset of the LSS or devoting it  
8 to -- are we going to get your support on that?

9 DOCTOR DREYFUS: Yes. As I understand it,  
10 there are -- the current significant action has to do  
11 with resolving some stakeholder issues about how your  
12 people can maintain control over our information  
13 system. There's a legal question, a procurement  
14 question that is alive and actively being pursued. I  
15 don't know within a couple of days what the status of  
16 that is. I don't know whether somebody in the room  
17 does. But it was a question there of trying to  
18 arrange something in an administrative way where the  
19 external stakeholders would be assured that your  
20 control over this was adequate and would still fit  
21 within our procurement regulations. I know that's an  
22 issue being resolved. Beyond that, I don't know of  
23 any issues.

24 CHAIRMAN SELIN: There's no further  
25 complication by moving this program to --

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1 DOCTOR DREYFUS: No, sir. I think we can  
2 deal with those. I would point out that it's  
3 budgetary consideration, like everything else is, and  
4 depending on how this situation resolves itself in the  
5 Congress, we'll be looking at the pace of the  
6 activity.

7 CHAIRMAN SELIN: Well, if there's no LSS,  
8 there's no license. So, I assume that the incentives  
9 will be mutually reinforced.

10 DOCTOR DREYFUS: Oh, we understand the  
11 critical nature of it, yes.

12 CHAIRMAN SELIN: In fact, the spending on  
13 LSS had, in fact, run ahead of the needs of the  
14 program in the past. We do look forward to your  
15 participating in the advisory -- what's the proper  
16 name?

17 MR. HOYLE: LSS Advisory Review Panel.

18 CHAIRMAN SELIN: In the fall, so that at  
19 least the stakeholders will have the best information  
20 available as to how support will be assured and  
21 independence will be maintained along the way.

22 DOCTOR DREYFUS: Yes, sir.

23 CHAIRMAN SELIN: I did ask you a little  
24 bit about your advisory group's recommendations. Most  
25 of them had to do with relying more on sort of

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1 commercial sources for both additional drilling  
2 machines, if you need them, and additional drilling.  
3 Do you have a reaction to that?

4 DOCTOR DREYFUS: Well, I have asked the  
5 Review Board to be a little more specific. We have  
6 gotten several times from them remarks to the effect  
7 that we ought to use conventional tunneling practices  
8 and that we ought to use contracting arrangements that  
9 are conventional. I have asked them to clarify  
10 specifically what they mean because basically all  
11 we've got is the one liners.

12 Now, there is a consideration. It is  
13 this. If I wanted a tunnel under the river out here  
14 and I knew where I wanted it to go in and come up, I  
15 think I could go out and contract for one each tunnel  
16 and I could logically assign risk to the contractor  
17 and I could bet with him and his contingency planners  
18 as to how much I could hang it on him. What we are  
19 doing out there is a great deal different. We do not  
20 at this point know what tunnel we are going to drill.  
21 We are changing the approach in real time. We will  
22 decide what additional drifting needs to be done when  
23 we get down there and when we do that we will affect  
24 the operation of the primary tunnel machine because  
25 we'll be working in the tunnel and redesigning as we

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1 go. We'll be mapping as we go. We'll be doing  
2 scientific work as we go. We'll have scientists in  
3 the tunnel while they're working.

4 This is not your normal tunnel program.  
5 Now, when you go to a contractor and say, "Hey, how  
6 about building me this tunnel and I'll tell you  
7 exactly how this is going to work, and we have all  
8 these uncertainties, now give me a price," what he  
9 will do is he will carry the risk and he will put it  
10 in the contingency. Somebody, somewhere has got to  
11 pay the cost of the uncertainty.

12 What we've done in our approach is we have  
13 an award fee kind of a basis. So, we do, in fact,  
14 have monetary consideration for doing things better  
15 rather than worse, but we have not tried to unload the  
16 risk of the changes on the contractor. My own  
17 judgment is that it would have been irrational to do  
18 so. I don't know that very many people would have  
19 wanted to bid that job. If they did, they would have  
20 gotten a pretty good percentage for doing so.

21 So, I don't think there's anything unusual  
22 about what we've and I don't think conventional tunnel  
23 practice has got a whole lot to do with what we're  
24 trying to accomplish here. So, unless the Board can  
25 come back and tell me specifically what it is they are

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1 trying to get at, I can't be anymore specific.

2 Who buys the tunnel machine? What we did  
3 is we had participation in the specifications, but we  
4 bought the tunnel machine. That essentially reduced  
5 the number of commissions we paid on buying the tunnel  
6 machine. We could have let the subcontractor buy the  
7 tunnel machine and then we would have been criticized,  
8 I'm sure, as we have been criticized elsewhere that we  
9 paid too many overhead cuts on the way up. So, there  
10 I'm not convinced it's a clear issue. I understand  
11 the difference. I understand that there is some value  
12 in letting the operator design and buy the machine.  
13 I understand there are also other considerations. So,  
14 I'm not convinced that's a clear issue.

15 What we will do if we buy another tunnel  
16 machine, I do not know. We will probably buy a  
17 smaller tunnel machine along the way in order to do  
18 side drifting. We will again revisit the question of  
19 what is the appropriate way to buy that machine. It  
20 will probably be a purchasing question rather than a  
21 technical one.

22 CHAIRMAN SELIN: It sounds like the  
23 opportunity to securitize tunnel boring differential  
24 derivative that can be sold to somebody.

25 Okay. You've talked a lot about

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1 stakeholders. What role do the stakeholders,  
2 particularly the state and local people, have to play  
3 in your plans going forward? Is this a fait accompli  
4 or is it just an idea that's on the table and you now  
5 have to bring the stakeholders along?

6 DOCTOR DREYFUS: Well, that again is an  
7 iterative process. There is an idea on the table and  
8 it began with a -- the initial dialogue was simply  
9 that we could not, in fact, do what we had said we  
10 were going to do. We have gone to the Congress with  
11 the concept that we can do what the Act requires if we  
12 have the funding profile. In order to get there we  
13 had to make an initial determination in a very, very  
14 broad brush way that we could deliver something that  
15 represents what the Act wants within the kind of  
16 funding profile that the Administration was willing to  
17 let me ask for. To that extent we did that.

18 We are now trying to describe at the  
19 detailed level how we're going to go about doing that.  
20 We are discussing it with the broadest range of  
21 constituent groups. We will take into account their  
22 responses. We will change the program in order to  
23 accommodate what needs to be accommodated and if need  
24 be we'll report back to the Congress and tell them  
25 that it didn't work.

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1 CHAIRMAN SELIN: Is the NOI the main  
2 vehicle for this conversation? Are there other --

3 DOCTOR DREYFUS: No. The NOI largely  
4 deals with this unanswered question of what is the  
5 Department's role going to be between now and the  
6 availability of repository. It's that other issue.  
7 The discussion of this plan has been we had a  
8 stakeholder meeting in Las Vegas a couple of weeks ago  
9 for an entire day with a broad range of stakeholders.  
10 We had briefed the TRB, we have briefed the state and  
11 the counties individually. We will continue to do  
12 that at every opportunity and we will accommodate --

13 CHAIRMAN SELIN: Basically you'll listen,  
14 but then you'll report to the Congress yourself and  
15 say, "Here's what can be done."

16 DOCTOR DREYFUS: Yes. Well, we'll have to  
17 confirm when we go back to the Congress next year,  
18 depending on what they have told us. In the interim  
19 we'll have to confirm what we now know or believe we  
20 can do. It will reflect the feedback that we get on  
21 this plan.

22 CHAIRMAN SELIN: Fine. Let me go back to  
23 Commissioner Rogers' question, but I'll ask it more in  
24 terms of resources. From your point of view, are the  
25 NRC's resources adequate, prodigal, too lean to keep

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1 to the schedule that you have set them?

2 DOCTOR DREYFUS: Well, I'd rather defer  
3 that to somebody who has had more day to day  
4 involvement with the NRC. So, I'll ask Lake and --

5 MR. BARRETT: Go ahead, Steve.

6 MR. BROCOUM: At our last DOE -- which is  
7 our first DOE/NRC management meeting, we raised that  
8 concern of with a lot of submissions we will be making  
9 to the NRC staff over the next several years that they  
10 have adequate resources to review them. For example,  
11 about a year ago we submitted to the NRC a topical  
12 report and it's another -- and we're still awaiting  
13 comments, a review from the staff on that.

14 MR. BARRETT: I could also add for the MPC  
15 and the certificates in t he '95 and '96 time frame,  
16 to keep to the schedules will be a substantial work  
17 load for the NRC staff with that. So, that is an area  
18 that will be coming. It's not here today, but will be  
19 in the '95, '96 area be a substantial load to the  
20 staff.

21 CHAIRMAN SELIN: Okay. Commissioners?

22 Doctor Dreyfus, thank you very much for  
23 this presentation. It was really quite illuminating  
24 and at this rate of improvement the next one should be  
25 just spectacular.

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Thank you.

(Whereupon, at 11:25 a.m., the above-entitled matter was concluded.)

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TITLE OF MEETING: BRIEFING BY DOE ON HLW PROGRAM

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: JUNE 6, 1994

were transcribed by me. I further certify that said transcription  
is accurate and complete, to the best of my ability, and that the  
transcript is a true and accurate record of the foregoing events.

Carol Lynch

Reporter's name: Peter Lynch

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

BY

DANIEL A. DREYFUS, DIRECTOR  
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT  
U.S. DEPARTMENT OF ENERGY  
JUNE 6, 1994

Chairman Selin and Members of the Commission:

I am pleased to have this opportunity to appear before you again. As I indicated at our meeting in December, we had concluded then that the work under way in the Civilian Radioactive Waste Management Program was, in several respects, no longer likely to achieve legislative goals and the expectations of client groups, and that we had to restructure our program.

Over the past few months, the Department has been evaluating its options for improving our program. We have admitted that this is a problem that has three components:

- First, we need to bring the program of work at Yucca Mountain into conformity with the resources that can be obtained and give stakeholders realistic estimates of project schedule and cost. This includes the need to refocus work on the mainstream scientific activities necessary for evaluating the suitability of the Yucca Mountain site. The program of work will have to be made consistent with the funding outlook that results from the Congressional budget decisions now in progress.
- Second, we need to confront the issues of waste acceptance, interim storage, and transportation. Here too, the activities in progress have become inconsistent with expectations. We have to determine the real needs of interim waste management, develop a strategy to address those needs, and obtain the policy direction and resources required to carry out that strategy.
- Third, we need to address the perception and the reality that the manner in which this program is being managed needs to be improved. Our Yucca Mountain office has been reorganized to define and establish clear lines of responsibility and accountability related to project goals. Our Headquarters organization is being revised to place emphasis on the major management needs of overall program integration. The contractor establishment will also be restructured to reflect the same philosophy.

We have made considerable progress: the Department is developing a restructured program for the work we have to do at Yucca Mountain. This program, we believe, will maintain the scientific validity of the required investigations and will be cost effective. It will not require amendment of the Nuclear Waste Policy Act or changes in the regulatory framework, other than those that will be associated with the new environmental radiation protection standard already being developed for Yucca Mountain by the Environmental Protection Agency. If this program is funded as we have requested and if the site is suitable, we can expect to submit a license application by the year 2001.

To address the waste acceptance, interim storage, and transportation issues, the Department has encouraged efforts to develop a broadly based consensus on national policy for the near-term management of spent fuel. In support of this effort, we have issued a notice of inquiry to obtain the views of interested parties on the waste acceptance issue. We are also vigorously pursuing the Multi-purpose Canister Initiative and the development of the transportation capability that will be needed as the Department's role in near-term waste management is defined.

Finally, we are improving our management structure and capabilities. I believe that our new organization at Headquarters and at Yucca Mountain allocates our resources to serve the major program objectives of site characterization, waste acceptance and program integration. The Secretary's independent financial management review of our program will confirm or lead to the further improvement of the program management component of our efforts. We will be strengthening financial management controls, human resource development, and contract administration.

The Administration has proposed a funding outlook for Fiscal Year 1995 and beyond to support our restructured program. Our FY 1995 Congressional Budget Request is provided in Table 1. The Administration proposal will make a greater portion of Nuclear Waste Fund receipts available to the program in the immediate future. The higher funding profile will facilitate much more effective use of personnel and equipment at Yucca Mountain, leading to early determination of site suitability and reducing total cost to license application significantly.

The restructured program is, I believe, responsive to the expectations of Congress that we make measurable progress at reduced cost and accomplish the objectives of the Nuclear Waste Policy Act. The program changes reflect some recommendations of the National Academy of Sciences in its report on "Rethinking High Level Waste", and a number of the views of the Nuclear Waste Technical Review Board regarding the need for effective management of a well-focused scientific program. In addition, it

demonstrates our intention to respond to input from stakeholders in our efforts to refine our program.

My staff has discussed our preliminary proposal for the restructured program with Commission personnel and our expectations for Commission support at our DOE/NRC Management Meeting on May 19, 1994. I will be sharing with you today our proposed changes in the Civilian Radioactive Waste Management Program and inviting your support in the many key areas in which both our agencies must work.

#### THE DEPARTMENT'S PROPOSED PROGRAM APPROACH

The Department's proposed program approach concentrates on evaluating the suitability of the Yucca Mountain site for development as a repository and on the Department's role in the near-term management of spent nuclear fuel. Both aspects of this program involve policy considerations for which we share responsibilities with the Commission. In our strategic planning, therefore, we placed considerable emphasis on ensuring that our approach is sensitive to the Commission's responsibilities. We believe that our program is consistent with NRC regulations.

#### THE PROPOSED YUCCA MOUNTAIN PROGRAM APPROACH

At Yucca Mountain, we have proposed the realignment of our site characterization activities within the existing statutory and regulatory framework to assure efficient progress. We believe that framework provides the flexibility we need. We anticipate complying with the new environmental radiation protection standard for Yucca Mountain that is still being developed. We see no need to request that the Commission's regulatory framework be changed.

In the testing and design elements of our work, we will place priority on those specific activities in our Site Characterization Plan that address the issue of site suitability and permit us to make formal suitability findings in phases consistent with the availability of data. As the Nuclear Waste Policy Act intended, we will continue to carry forward the associated activities necessary to proceed immediately with a license application if the site is found suitable for development as a repository. We have revised our work scope, but will still complete the key testing and design activities described in the Site Characterization Plan. We will, however, modify the scope of some activities based on information we have acquired and the analyses we have completed. For example, we now believe that the design basis for a license application will be sufficient if we submit Title I design for the repository and Title II design for the waste package. This is based on our improved understanding of what the Commission needs to make its licensing findings.

We intend to defer some activities to the performance confirmation phase of the licensing process. To ensure that performance confirmation information can be obtained sufficient to provide the confidence required for a permanent closure decision, we plan to maintain the capability to retrieve spent nuclear fuel and high-level radioactive waste from the repository for a period of up to 100 years after we start emplacement operations. Closure would be requested when results from performance confirmation provide adequate confidence to proceed with an amendment to close.

This proposed program approach results in significant changes in the work. Subject to what we learn underground, we now plan to construct enough of the Exploratory Studies Facility to permit access to begin thermal testing and tests to characterize the Ghost Dance Fault as soon as possible. We will complete the loop and additional drifts later, including some excavations in the Calico Hills unit, in support of a license application. This will reduce the 13 miles of drifts originally planned.

We plan to revise our surface-based testing program in a similar manner. For example, we will further consolidate testing into fewer deep drillholes. We are proposing to accelerate drilling, instrumentation, and testing in the drillholes by bringing on additional drill crews. We presently have three drill crews. We have just added a fourth crew and hope to have eight crews operating in FY 1995. This approach should accelerate acquisition of the focused data set. This data will form the technical basis for the performance assessment and the Department's decision on technical site suitability.

If the Yucca Mountain site is suitable, and an environmental impact statement is completed, the Department will submit a Site Recommendation Report to the President in accordance with the Nuclear Waste Policy Act. If that recommendation is approved, we will submit a license application to the Nuclear Regulatory Commission.

If our tests and analyses lead us to conclude that the Yucca Mountain site is not suitable, as directed by Congress in the Act, we will notify the Congress and the State of Nevada of our finding. We will terminate our site characterization activities at the site; and we will take the steps necessary to reclaim the site and mitigate any significant adverse environmental impacts caused by our activities. As the Nuclear Waste Policy Act provides, within six months we will provide the Congress with our recommendations for those actions we believe are needed to assure safe and permanent disposal of the Nation's spent nuclear fuel and high-level radioactive waste.



The initial focus will be on investigating the suitability of the site. I understand that you discussed this change with the Nuclear Waste Technical Review Board during their March 14 briefing. The proposed program approach will clearly distinguish between what is required to characterize the site and what is required to construct a repository.

This approach is based on the considerable body of information we have obtained since the Department published its Site Characterization Plan in December 1988. It involves evaluating the suitability of the Yucca Mountain site using either the Department's 10 CFR Part 960 or, possibly, amending that guideline as recommended by some participants at stakeholder meetings.

If the site is found suitable and the site recommendation is approved in accordance with the provisions of the Nuclear Waste Policy Act, our proposed program approach includes obtaining licenses to construct and operate a repository in accordance with the requirements of 10 CFR Part 60. The schedule we envision also requires that we initiate the process for complying with the requirements of the National Environmental Policy Act as soon as possible.

The Department's license application submittal for a construction authorization, license to receive and possess, and a license amendment for permanent closure will be based on conservative designs. They will include the conservative design of a waste package to provide high confidence in the safety of repository operations and in containment capability for at least a thousand years.

The license application and its amendments will present the results of relevant analyses that are bounding and conservative. They will include information on the long-term ability of the geologic repository to contain and isolate radioactive waste. The license application and its amendments will, therefore, provide the information the Commission will need at the outset to make the findings required by the law and regulations.

Our approach also includes the performance confirmation program required by the Commission's regulations. This program will provide the information required to confirm that the actual conditions encountered in the repository are within the limits that were assumed and that the natural and engineered systems are functioning as intended and anticipated. The performance confirmation program should also help to build confidence in the safety of the system.

The key elements of this program are presented in Table 2. A Technical Site Suitability determination will be possible using the Advanced Conceptual Design of the repository in 1998. A

Draft Environmental Impact Statement is scheduled to accompany that determination and we plan to initiate the scoping activities in 1995. A Final Environmental Impact Statement is planned for the year 2000 and a Site Recommendation Report to the President is planned later that year. A license application based on a Title I (preliminary) repository design and a Title II (final pre-fabrication) waste package design can be completed in 2001.

This proposed approach provides information to the Commission that is appropriate for use at each stage of the licensing process. The submittal outlined in our presentations on Issue Resolution and on DOE Documents and Priorities at our May 19, 1994, DOE/NRC Management Meeting are indicative of the type, timing, and considerable number of submittals for which we will need an NRC response. These are attached as Table 3. Our proposed program approach will lead to the differences in the level of detail of the information provided at each stage that are indicated in Table 4. These differences are, we believe, consistent with the intent of your regulations.

We are continuing to consult with our stakeholders and reviewers and developing greater detail on the proposed plan of work. We are also awaiting Congressional guidance on the funding outlook.

#### WASTE ACCEPTANCE AND SPENT FUEL MANAGEMENT

We must, in the immediate future, also resolve the waste acceptance issue and define the Department's role in the near-term management of spent fuel.

Nuclear utilities and officials of states in which reactors are located have maintained that the Nuclear Waste Policy Act and the Standard Waste Acceptance Contract oblige the Department to begin accepting spent nuclear fuel in 1998. Several utilities have informed the Department that they have made long-term waste management plans based on such an interpretation and some of them are, or will soon be, as a consequence, experiencing difficulties.

The timely development of a Monitored Retrievable Storage facility might have resolved some of these difficulties. To date, however, we have no voluntary host for such a facility and the Department does not have authority under the Waste Policy Act, as amended, to site one independent of the repository schedule. We need to address the equity and technological issues associated with continued storage of commercial spent fuel at reactor sites.

Although we expect to have a significant role in the strategy development and policy-making process, my Office alone, and even the Department of Energy alone, can not define the

strategy for interim management of spent fuel that should be pursued. The process of developing the broadly based consensus on the future national policy for the near-term management of spent fuel has already begun. The recent dialog sponsored by the National Association of Regulatory Utility Commissioners, the House hearing on interim storage, and a whole host of informal meetings and discussions attest to that.

The Department of Energy seeks to address the concerns of affected parties regarding the continued storage of spent nuclear fuel at reactor sites beyond 1998. On May 25, 1994, the Department issued a Notice of Inquiry that desires to elicit the views of affected parties on: (1) the Department's preliminary view that it does not have a statutory obligation to accept spent nuclear fuel in 1998 in the absence of an operational repository or a suitable storage facility constructed under the Nuclear Waste Policy Act of 1982, as amended; (2) the need for an interim, away-from-reactor storage facility prior to repository operations; and (3) options for offsetting, through the use of the Nuclear Waste Fund, a portion of the financial burden that may be incurred by utilities in continuing to store spent nuclear fuel at reactor site beyond 1998. While seeking these comments, the Department remains committed to pursuing the permanent disposal of spent nuclear fuel and developing a strategy to address its interim storage.

The Department's Multi-purpose Canister Initiative is relevant to both the waste acceptance issue and the Department's role in the near-term management of spent fuel. In support of this initiative, we have completed a conceptual design of the multi-purpose canister, incorporated this concept into the program technical baseline, and revised the conceptual design of the Monitored Retrievable Storage facility accordingly.

The multi-purpose canister design concept would support spent nuclear fuel storage at reactor sites or at interim storage sites if they are developed. It would facilitate transportation, and eventually disposal. Such a system offers the potential for reduced handling of spent fuel and enhances standardization and compatibility among storage technologies. The canister system can play a key role in any interim storage strategy that may evolve. If we are successful, overall waste management system costs, including the costs incurred by the utilities and the Federal government, will be reduced.

We expect to begin scoping in 1995 for an environmental impact statement for the fabrication and deployment of a standardized canister system suitable for storage, transportation, and disposal.

We intend imminently to issue a request for proposal for the design of a multi-purpose canister system. Our goal is to obtain

from the Commission in mid-1997 certificates of compliance authorizing use of the multi-purpose canister and overpacks for storage and transportation which would make these components available for deployment at reactor sites beginning in 1998. Resolution of the burnup credit and criticality control issues we have been discussing with the Commission Staff is important to our certification effort. We therefore request that your Staff plan to focus its attention on these issues in particular and on its review of the topical reports on these subjects we will submit for your consideration. To achieve our mid-1997 certification goal, we plan to submit the applications to the Commission in 1996.

Our plans for transporting spent fuel include the design and development of the required transportation packages and transportation overpacks for multi-purpose canisters. They provide for the development of high capacity legal weight truck casks for use at those nuclear power plant sites not designed to handle multi-purpose canisters with transportation overpacks.

The transportation plans also provide for the continuation of the activities required under the provisions of §180(c) of the Nuclear Waste Policy Act for training on procedures for safe routine transportation and for dealing with emergency response situations. They include the development of policy and requirements documents, operations plans and utility transportation site plans, and the cooperative development with stakeholders of routing policies, emergency response funding policies, and shipping protocols. They also call for our continuing efforts to work with stakeholders to address inspection, enforcement, training, testing, and pre-notification issues. The resolution of such issues is essential to increased confidence in our ability to transport spent nuclear fuel and high-level radioactive waste safely.

#### THE RECENT REORGANIZATION OF OCRWM

Management of the program has been criticized by formal review bodies and by State and local governments, electric utilities, and other affected and interested parties. We, ourselves, also recognized the need for improvement. The structure of our organization was not consistent with achieving the objectives of the program we are proposing.

In response to both our own evaluation and the criticisms received, we decided that we needed to assign resources to our two major projects and to emphasize the total integration of program activities. The new organization also needs to be more efficient, open, and customer- and product-oriented. We have developed a new organizational structure and have submitted our reorganization proposal to the Assistant Secretary for Human Resources and Administration for approval.

Figures 1 and 2 reflect the changes we have made at Headquarters and at the Yucca Mountain Site Characterization Project Office.

The Yucca Mountain Site Characterization Office is the successor to the former Yucca Mountain Site Characterization Project Office. It is based in Las Vegas, Nevada, is task oriented, and is structured along functional lines in the areas of suitability and licensing, scientific programs, engineering and field operations, environment, safety and health, public affairs, and administration.

Stationed in Las Vegas but responding to me will be a Chief Scientist to coordinate and oversee scientific investigations and address stakeholder concerns with the impartiality of science. This new office is designed to ensure that our attention is focused on the mainstream scientific activities necessary for evaluating the suitability of the Yucca Mountain site.

The Waste Acceptance, Storage and Transportation Office will be responsible for the portfolio of activities relating to near-term management of spent fuel. These include the functions associated with the development of the multi-purpose canister and transportation systems and the conduct of related regulatory and environmental activities, support for the Nuclear Waste Negotiator, waste acceptance and monitored retrievable storage-related activities, and related public affairs. This Office will carry out the functions that evolve as the Department's role in the near-term management of spent fuel is defined.

The Program Management and Integration Office is responsible for planning, program management, systems engineering, regulatory coordination and total integration of program activities. It is responsible for performing many of the functions previously performed by our Office of Systems and Compliance, Strategic Planning and International Program, and Program and Resources Management. We have identified overall program integration as a major shortcoming which needs increased attention.

The Human Resources and Administration Office is responsible for performing the whole host of human resource, information resource management, document control, and related functions required to support the technical program activities performed by the other offices. Increased attention will be given to training and career development to strengthen the depth of management capabilities within the program.

Finally, our Office of Quality Assurance, in addition to its responsibility for our Quality Assurance Program, also has been given oversight responsibility for our Environmental, Safety and Health, Management Assessment, and Self Assessment Programs.

## CONCLUSION

The Department's restructured program, if it is funded as we have requested, will permit us to continue to pursue the policy goals expressed by Congress in the Nuclear Waste Policy Act. We can carry out the program without the amendment of the Nuclear Waste Policy Act or changes in the framework of the Commission's regulations. It is a program, however, that will demand more effective management on our part. It will also place increased demands upon the Commission's staff.

What we have proposed constitutes a change in the plans the Department has previously presented to the Commission. It is based on more than a decade of experience gained in confronting the technical, social, and public policy challenges the management of high-level radioactive waste presents. We believe that our proposed program approach remains consistent with the Commission's regulations and sensitive to the Commission's responsibilities. It is an approach that will permit us to provide the information the Commission needs at each stage of the licensing process to make the findings required by the law and regulations.

The work we have proposed for Yucca Mountain and for our mid-1997 multi-purpose canister and overpacks certification goal is considerable. We will be developing and submitting a number of study plans and issue resolution documents which will require the timely attention of your Staff.

I am glad to state that our staffs are interacting more frequently, as they must. In addition to their normal means of communication, they are now communicating electronically as Commissioner Rogers has requested. This will facilitate the interaction process.

We will need, and look forward to having, comments from the Commission on the restructured program I have described. To implement that program, we will need the support of your Staff in reviewing and providing guidance and comments on the documents we will be submitting. This effort will be a challenge that we must meet together successfully.

Thank you for the opportunity to discuss our program with you.

# Table 1 OCRWM FY 1995 Congressional Budget Request

(Comparable Dollars in Millions)

Budget Element	FY 1993 (Actual)	FY 1994 (Actual)	FY 1995 (Request)	FY 1996 (Estimate)	FY 1997 (Estimate)	FY 1998 (Estimate)	FY 1999 (Estimate)
<b>Yucca Mountain Site Characterization Project</b>	242	260	381	470	510	511	515
<b>Advanced Technology for Near-Term Storage</b>							
- Spent Fuel Storage	16	15	30	29	32	50	68
- Transportation System	19	14	21	23	26	30	21
- Waste Acceptance	3	3	6	7	9	10	11
<i>Subtotal</i>	38	32	57	59	67	90	100
<b>Program Management and Compliance</b>	95	88	94	101	107	112	117
<b>Subtotal, Nuclear Waste Activities</b>	375	380	532	630	684	713	732
<b>Civilian Waste R&amp;D</b>	4.6	0.7	0.7	0.7	0.7	0.7	0.7
<b>Total Program (rounded to millions)</b>	380	381	533	631	685	714	733
<b>Funding</b>							
• <b>Nuclear Waste Fund</b>							
- Base Appropriation	275	260	255	265	276	287	298
- Special Account	==	==	148	236	279	297	305
<i>Subtotal</i>	275	260	403	501	555	584	603
• <b>Defense Nuclear Waste Disposal Approp.</b>	100	120	129	129	129	129	129
• <b>Civilian Waste R&amp;D (Energy Supply R&amp;D)</b>	4.6	0.7	0.7	0.7	0.7	0.7	0.7
<b>Total Program (rounded to millions)</b>	380	381	533	631	685	714	733

## Table 2 - Key Elements - Proposed Program Approach for Repository (continued)

### Key Elements

#### Licensing

#### Proposed Program Approach

- 2001 LA
- Design basis - Title I for repository, Title II for waste package

#### Technical and Scientific Studies

- Narrow the focus to technical issues most important to suitability and licensing
- Make effective use of required performance confirmation program



## Table 2 - Key Elements - Proposed Program Approach for Repository

### Key Elements

#### Site suitability evaluation

#### Proposed Program Approach

- Individual Interim findings
- Design basis - ACD
- Technical site suitability determination by Secretary - 1998

#### EIS

- Draft 1998
- Final 2000
- Final Supports site recommendation
- Final accompanies LA
- Design basis - ACD

#### Site Recommendation

- 2000
- Design Basis-Title I

**Table 2 - Key Elements - Proposed Program  
Approach for Repository  
(continued)**

**Key Elements**

**Retrievability**

**Proposed Program Approach**

- 100 years after start of emplacement operations or when results from performance confirmation provide adequate confidence to proceed with closure application

## Table 3

### DOE DOCUMENT SUBMITTALS TO NRC REMAINDER OF FY 1994 AND FY 1995

- SEMIANNUAL PROGRESS REPORTS

- STUDY PLANS:

LATE FY 1994 - 16  
EARLY FY 1995 - 8

- ESF DESIGN REVIEWS:

FY 1994 - 1  
FY 1995 - 6

- ISSUE RESOLUTION DOCUMENTATION:

- Seismic Hazards Topical Reports
- Ground Water Travel Time Approach (Letter)

### Table 3 (continued)

- **MGDS ANNOTATED OUTLINE FOR LICENSE APPLICATION**
- **SITE CHARACTERIZATION ANALYSIS OPEN ITEMS**
- **UPDATE OF THE WASTE PACKAGE IMPLEMENTATION PLAN (FY 1994)**
- **SUMMARY REPORT WASTE PACKAGE DESIGN FOR INTERIM REVIEW (FY 1995)**
- **TOTAL-SYSTEM PERFORMANCE ASSESSMENT FOR YUCCA MOUNTAIN - SNL SECOND ITERATION (TSPA-1993)**
- **INTEGRATED TOTAL-SYSTEM PERFORMANCE ASSESSMENT**

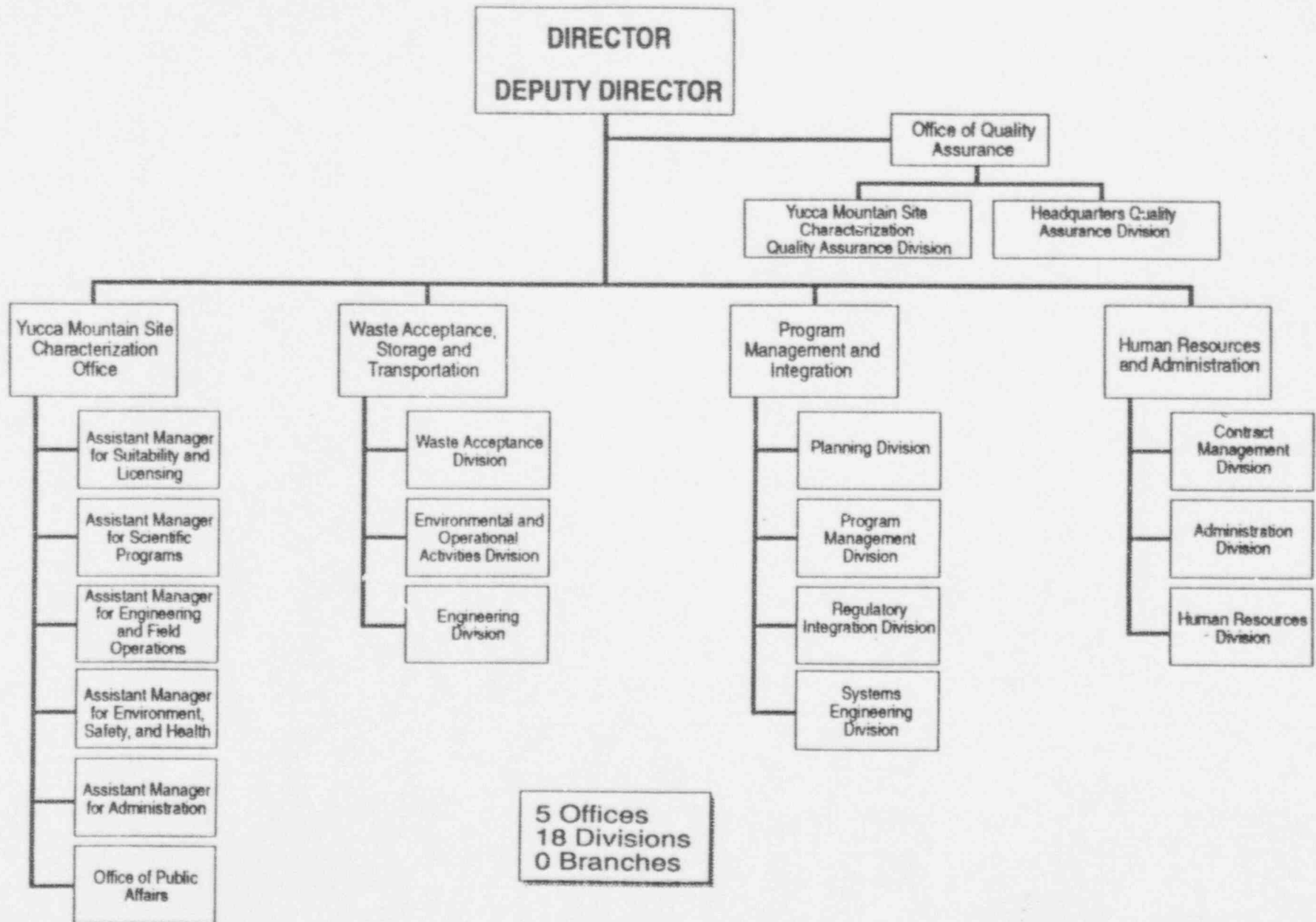
## Table 4 Information Levels Supporting Key Milestones

	TSS/DEIS - 1998	LA/CA - 2001	CA - 2004	ULA/R&P - 2008	L/R&P - 2010	Performance Confirmation
<b>NATURAL BARRIER EVALUATION</b>						
GWTT	Bounded	Substantially Finished		Final		
Scenarios	Bounded	Bounded		Substantially Finished		Final
Subsystem Analyses	Bounded	Substantially Finished		Final		Updated
TSPA Source Term	Bounded Model	Bounded Model		Complete		Confirmed
Post Closure TSPA	Bounded	Bounded		Substantially Finished		Final
<b>REPOSITORY DESIGN</b>	<b>ADC</b>	<b>Title I</b>	<b>Title II</b>	<b>Title III</b>	<b>Title III</b>	<b>Title III</b>
Backfill/Seals		Title I (Flex)		Demonstrated		Decision
Materials Interaction	Bounded	Bounded	Materials Selection			
Retrievability		Title I	Proof of Principle	Demonstrated		
Areal Power Density (ADP)	Bounded	Bounded		ADP Decision		Final APD
Emplacement Mode		Title I		Decision		
Preclosure P.A.	Bounded	Substantially Finished		Final		
Lag Storage	ACD	Title I	Title II	Title III		
Rail Spur	CD		Title I/II	Title II/III		

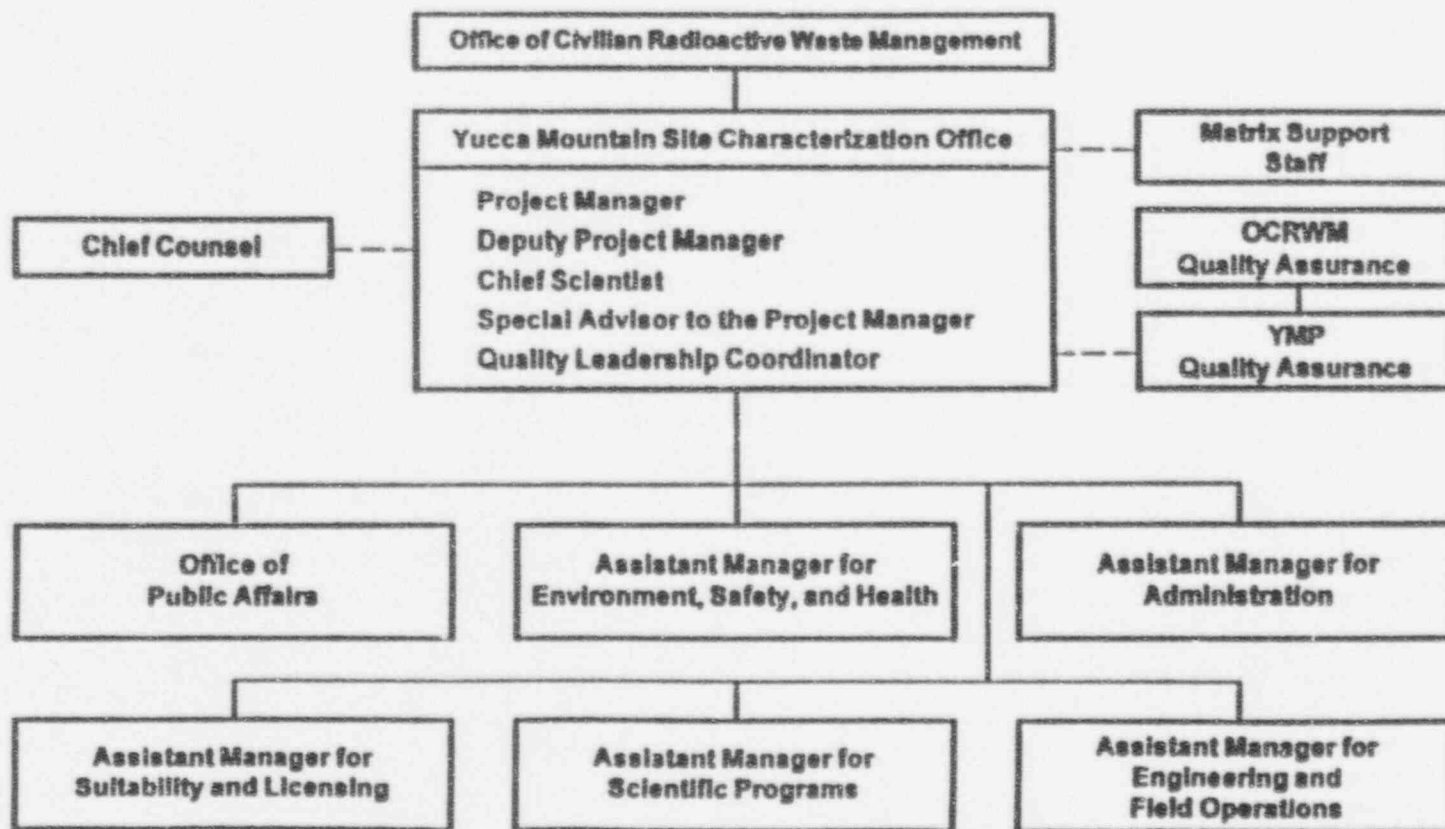
## Table 4 Information Levels Supporting Key Milestones

	TSS/DEIS - 1998	LA/CA - 2001	CA - 2004	ULA/R&P - 2008	L/R&P - 2010	Performance Confirmation
<b>WASTE PACKAGE DESIGN</b>	ACD/Title I	Title II Prototype	Full Scale	Prototype Tested/Title III	Title III	Operations Confirmed
Substantially Complete Containment		Complete		Updated		
Criticality Control		Complete		Updated		
Controlled Release	Bounded	Conservative Calculations		Complete		
Materials	Concepts	Determined		Test Complete		
Waste Form		Source Term Bounded		Final Source Term		
EBS Thermal	Concepts	Bounded				

# Figure 1 Headquarters Reorganization



## Figure 2 Yucca Mountain Site Characterization Project Office Reorganization





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

BY

DANIEL A. DREYFUS, DIRECTOR  
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT  
U.S. DEPARTMENT OF ENERGY  
JUNE 6, 1994

Chairman Selin and Members of the Commission:

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Over the past few months, the Department has been evaluating its options for improving our program. We have admitted that this is a problem that has three components:

- First, we need to bring the program of work at Yucca Mountain into conformity with the resources that can be obtained and give stakeholders realistic estimates of project schedule and cost. This includes the need to refocus work on the mainstream scientific activities necessary for evaluating the suitability of the Yucca Mountain site. The program of work will have to be made consistent with the funding outlook that results from the Congressional budget decisions now in progress.
- Second, we need to confront the issues of waste acceptance, interim storage, and transportation. Here too, the activities in progress have become inconsistent with expectations. We have to determine the real needs of interim waste management, develop a strategy to address those needs, and obtain the policy direction and resources required to carry out that strategy.
- Third, we need to address the perception and the reality that the manner in which this program is being managed needs to be improved. Our Yucca Mountain office has been reorganized to define and establish clear lines of responsibility and accountability related to project goals. Our Headquarters organization is being revised to place emphasis on the major management needs of overall program integration. The contractor establishment will also be restructured to reflect the same philosophy.

We have made considerable progress: the Department is developing a restructured program for the work we have to do at Yucca Mountain. This program, we believe, will maintain the scientific validity of the required investigations and will be cost effective. It will not require amendment of the Nuclear Waste Policy Act or changes in the regulatory framework, other than those that will be associated with the new environmental radiation protection standard already being developed for Yucca Mountain by the Environmental Protection Agency. If this program is funded as we have requested and if the site is suitable, we can expect to submit a license application by the year 2001.

To address the waste acceptance, interim storage, and transportation issues, the Department has encouraged efforts to develop a broadly based consensus on national policy for the near-term management of spent fuel. In support of this effort, we have issued a notice of inquiry to obtain the views of interested parties on the waste acceptance issue. We are also vigorously pursuing the Multi-purpose Canister Initiative and the development of the transportation capability that will be needed as the Department's role in near-term waste management is defined.

Finally, we are improving our management structure and capabilities. I believe that our new organization at Headquarters and at Yucca Mountain allocates our resources to serve the major program objectives of site characterization, waste acceptance and program integration. The Secretary's independent financial management review of our program will confirm or lead to the further improvement of the program management component of our efforts. We will be strengthening financial management controls, human resource development, and contract administration.

The Administration has proposed a funding outlook for Fiscal Year 1995 and beyond to support our restructured program. Our FY 1995 Congressional Budget Request is provided in Table 1. The Administration proposal will make a greater portion of Nuclear Waste Fund receipts available to the program in the immediate future. The higher funding profile will facilitate much more effective use of personnel and equipment at Yucca Mountain, leading to early determination of site suitability and reducing total cost to license application significantly.

The restructured program is, I believe, responsive to the expectations of Congress that we make measurable progress at reduced cost and accomplish the objectives of the Nuclear Waste Policy Act. The program changes reflect some recommendations of the National Academy of Sciences in its report on "Rethinking High Level Waste", and a number of the views of the Nuclear Waste Technical Review Board regarding the need for effective management of a well-focused scientific program. In addition, it

demonstrates our intention to respond to input from stakeholders in our efforts to refine our program.

My staff has discussed our preliminary proposal for the restructured program with Commission personnel and our expectations for Commission support at our DOE/NRC Management Meeting on May 19, 1994. I will be sharing with you today our proposed changes in the Civilian Radioactive Waste Management Program and inviting your support in the many key areas in which both our agencies must work.

#### THE DEPARTMENT'S PROPOSED PROGRAM APPROACH

The Department's proposed program approach concentrates on evaluating the suitability of the Yucca Mountain site for development as a repository and on the Department's role in the near-term management of spent nuclear fuel. Both aspects of this program involve policy considerations for which we share responsibilities with the Commission. In our strategic planning, therefore, we placed considerable emphasis on ensuring that our approach is sensitive to the Commission's responsibilities. We believe that our program is consistent with NRC regulations.

#### THE PROPOSED YUCCA MOUNTAIN PROGRAM APPROACH

At Yucca Mountain, we have proposed the realignment of our site characterization activities within the existing statutory and regulatory framework to assure efficient progress. We believe that framework provides the flexibility we need. We anticipate complying with the new environmental radiation protection standard for Yucca Mountain that is still being developed. We see no need to request that the Commission's regulatory framework be changed.

In the testing and design elements of our work, we will place priority on those specific activities in our Site Characterization Plan that address the issue of site suitability and permit us to make formal suitability findings in phases consistent with the availability of data. As the Nuclear Waste Policy Act intended, we will continue to carry forward the associated activities necessary to proceed immediately with a license application if the site is found suitable for development as a repository. We have revised our work scope, but will still complete the key testing and design activities described in the Site Characterization Plan. We will, however, modify the scope of some activities based on information we have acquired and the analyses we have completed. For example, we now believe that the design basis for a license application will be sufficient if we submit Title I design for the repository and Title II design for the waste package. This is based on our improved understanding of what the Commission needs to make its licensing findings.

We intend to defer some activities to the performance confirmation phase of the licensing process. To ensure that performance confirmation information can be obtained sufficient to provide the confidence required for a permanent closure decision, we plan to maintain the capability to retrieve spent nuclear fuel and high-level radioactive waste from the repository for a period of up to 100 years after we start emplacement operations. Closure would be requested when results from performance confirmation provide adequate confidence to proceed with an amendment to close.

This proposed program approach results in significant changes in the work. Subject to what we learn underground, we now plan to construct enough of the Exploratory Studies Facility to permit access to begin thermal testing and tests to characterize the Ghost Dance Fault as soon as possible. We will complete the loop and additional drifts later, including some excavations in the Calico Hills unit, in support of a license application. This will reduce the 13 miles of drifts originally planned.

We plan to revise our surface-based testing program in a similar manner. For example, we will further consolidate testing into fewer deep drillholes. We are proposing to accelerate drilling, instrumentation, and testing in the drillholes by bringing on additional drill crews. We presently have three drill crews. We have just added a fourth crew and hope to have eight crews operating in FY 1995. This approach should accelerate acquisition of the focused data set. This data will form the technical basis for the performance assessment and the Department's decision on technical site suitability.

If the Yucca Mountain site is suitable, and an environmental impact statement is completed, the Department will submit a Site Recommendation Report to the President in accordance with the Nuclear Waste Policy Act. If that recommendation is approved, we will submit a license application to the Nuclear Regulatory Commission.

If our tests and analyses lead us to conclude that the Yucca Mountain site is not suitable, as directed by Congress in the Act, we will notify the Congress and the State of Nevada of our finding. We will terminate our site characterization activities at the site; and we will take the steps necessary to reclaim the site and mitigate any significant adverse environmental impacts caused by our activities. As the Nuclear Waste Policy Act provides, within six months we will provide the Congress with our recommendations for those actions we believe are needed to assure safe and permanent disposal of the Nation's spent nuclear fuel and high-level radioactive waste.

The initial focus will be on investigating the suitability of the site. I understand that you discussed this change with the Nuclear Waste Technical Review Board during their March 14 briefing. The proposed program approach will clearly distinguish between what is required to characterize the site and what is required to construct a repository.

This approach is based on the considerable body of information we have obtained since the Department published its Site Characterization Plan in December 1988. It involves evaluating the suitability of the Yucca Mountain site using either the Department's 10 CFR Part 960 or, possibly, amending that guideline as recommended by some participants at stakeholder meetings.

If the site is found suitable and the site recommendation is approved in accordance with the provisions of the Nuclear Waste Policy Act, our proposed program approach includes obtaining licenses to construct and operate a repository in accordance with the requirements of 10 CFR Part 60. The schedule we envision also requires that we initiate the process for complying with the requirements of the National Environmental Policy Act as soon as possible.

The Department's license application submittal for a construction authorization, license to receive and possess, and a license amendment for permanent closure will be based on conservative designs. They will include the conservative design of a waste package to provide high confidence in the safety of repository operations and in containment capability for at least a thousand years.

The license application and its amendments will present the results of relevant analyses that are bounding and conservative. They will include information on the long-term ability of the geologic repository to contain and isolate radioactive waste. The license application and its amendments will, therefore, provide the information the Commission will need at the outset to make the findings required by the law and regulations.

Our approach also includes the performance confirmation program required by the Commission's regulations. This program will provide the information required to confirm that the actual conditions encountered in the repository are within the limits that were assumed and that the natural and engineered systems are functioning as intended and anticipated. The performance confirmation program should also help to build confidence in the safety of the system.

The key elements of this program are presented in Table 2. A Technical Site Suitability determination will be possible using the Advanced Conceptual Design of the repository in 1998. A

Draft Environmental Impact Statement is scheduled to accompany that determination and we plan to initiate the scoping activities in 1995. A Final Environmental Impact Statement is planned for the year 2000 and a Site Recommendation Report to the President is planned later that year. A license application based on a Title I (preliminary) repository design and a Title II (final pre-fabrication) waste package design can be completed in 2001.

This proposed approach provides information to the Commission that is appropriate for use at each stage of the licensing process. The submittal outlined in our presentations on Issue Resolution and on DOE Documents and Priorities at our May 19, 1994, DOE/NRC Management Meeting are indicative of the type, timing, and considerable number of submittals for which we will need an NRC response. These are attached as Table 3. Our proposed program approach will lead to the differences in the level of detail of the information provided at each stage that are indicated in Table 4. These differences are, we believe, consistent with the intent of your regulations.

We are continuing to consult with our stakeholders and reviewers and developing greater detail on the proposed plan of work. We are also awaiting Congressional guidance on the funding outlook.

#### WASTE ACCEPTANCE AND SPENT FUEL MANAGEMENT

We must, in the immediate future, also resolve the waste acceptance issue and define the Department's role in the near-term management of spent fuel.

Nuclear utilities and officials of states in which reactors are located have maintained that the Nuclear Waste Policy Act and the Standard Waste Acceptance Contract oblige the Department to begin accepting spent nuclear fuel in 1998. Several utilities have informed the Department that they have made long-term waste management plans based on such an interpretation and some of them are, or will soon be, as a consequence, experiencing difficulties.

The timely development of a Monitored Retrievable Storage facility might have resolved some of these difficulties. To date, however, we have no voluntary host for such a facility and the Department does not have authority under the Waste Policy Act, as amended, to site one independent of the repository schedule. We need to address the equity and technological issues associated with continued storage of commercial spent fuel at reactor sites.

Although we expect to have a significant role in the strategy development and policy-making process, my Office alone, and even the Department of Energy alone, can not define the

strategy for interim management of spent fuel that should be pursued. The process of developing the broadly based consensus on the future national policy for the near-term management of spent fuel has already begun. The recent dialog sponsored by the National Association of Regulatory Utility Commissioners, the House hearing on interim storage, and a whole host of informal meetings and discussions attest to that.

The Department of Energy seeks to address the concerns of affected parties regarding the continued storage of spent nuclear fuel at reactor sites beyond 1998. On May 25, 1994, the Department issued a Notice of Inquiry that desires to elicit the views of affected parties on: (1) the Department's preliminary view that it does not have a statutory obligation to accept spent nuclear fuel in 1998 in the absence of an operational repository or a suitable storage facility constructed under the Nuclear Waste Policy Act of 1982, as amended; (2) the need for an interim, away-from-reactor storage facility prior to repository operations; and (3) options for offsetting, through the use of the Nuclear Waste Fund, a portion of the financial burden that may be incurred by utilities in continuing to store spent nuclear fuel at reactor site beyond 1998. While seeking these comments, the Department remains committed to pursuing the permanent disposal of spent nuclear fuel and developing a strategy to address its interim storage.

The Department's Multi-purpose Canister Initiative is relevant to both the waste acceptance issue and the Department's role in the near-term management of spent fuel. In support of this initiative, we have completed a conceptual design of the multi-purpose canister, incorporated this concept into the program technical baseline, and revised the conceptual design of the Monitored Retrievable Storage facility accordingly.

The multi-purpose canister design concept would support spent nuclear fuel storage at reactor sites or at interim storage sites if they are developed. It would facilitate transportation, and eventually disposal. Such a system offers the potential for reduced handling of spent fuel and enhances standardization and compatibility among storage technologies. The canister system can play a key role in any interim storage strategy that may evolve. If we are successful, overall waste management system costs, including the costs incurred by the utilities and the Federal government, will be reduced.

We expect to begin scoping in 1995 for an environmental impact statement for the fabrication and deployment of a standardized canister system suitable for storage, transportation, and disposal.

We intend imminently to issue a request for proposal for the design of a multi-purpose canister system. Our goal is to obtain

from the Commission in mid-1997 certificates of compliance authorizing use of the multi-purpose canister and overpacks for storage and transportation which would make these components available for deployment at reactor sites beginning in 1998. Resolution of the burnup credit and criticality control issues we have been discussing with the Commission Staff is important to our certification effort. We therefore request that your Staff plan to focus its attention on these issues in particular and on its review of the topical reports on these subjects we will submit for your consideration. To achieve our mid-1997 certification goal, we plan to submit the applications to the Commission in 1996.

Our plans for transporting spent fuel include the design and development of the required transportation packages and transportation overpacks for multi-purpose canisters. They provide for the development of high capacity legal weight truck casks for use at those nuclear power plant sites not designed to handle multi-purpose canisters with transportation overpacks.

The transportation plans also provide for the continuation of the activities required under the provisions of §180(c) of the Nuclear Waste Policy Act for training on procedures for safe routine transportation and for dealing with emergency response situations. They include the development of policy and requirements documents, operations plans and utility transportation site plans, and the cooperative development with stakeholders of routing policies, emergency response funding policies, and shipping protocols. They also call for our continuing efforts to work with stakeholders to address inspection, enforcement, training, testing, and pre-notification issues. The resolution of such issues is essential to increased confidence in our ability to transport spent nuclear fuel and high-level radioactive waste safely.

#### THE RECENT REORGANIZATION OF OCRWM

Management of the program has been criticized by formal review bodies and by State and local governments, electric utilities, and other affected and interested parties. We, ourselves, also recognized the need for improvement. The structure of our organization was not consistent with achieving the objectives of the program we are proposing.

In response to both our own evaluation and the criticisms received, we decided that we needed to assign resources to our two major projects and to emphasize the total integration of program activities. The new organization also needs to be more efficient, open, and customer- and product-oriented. We have developed a new organizational structure and have submitted our reorganization proposal to the Assistant Secretary for Human Resources and Administration for approval.



Figures 1 and 2 reflect the changes we have made at Headquarters and at the Yucca Mountain Site Characterization Project Office.

The Yucca Mountain Site Characterization Office is the successor to the former Yucca Mountain Site Characterization Project Office. It is based in Las Vegas, Nevada, is task oriented, and is structured along functional lines in the areas of suitability and licensing, scientific programs, engineering and field operations, environment, safety and health, public affairs, and administration.

Stationed in Las Vegas but responding to me will be a Chief Scientist to coordinate and oversee scientific investigations and address stakeholder concerns with the impartiality of science. This new office is designed to ensure that our attention is focused on the mainstream scientific activities necessary for evaluating the suitability of the Yucca Mountain site.

The Waste Acceptance, Storage and Transportation Office will be responsible for the portfolio of activities relating to near-term management of spent fuel. These include the functions associated with the development of the multi-purpose canister and transportation systems and the conduct of related regulatory and environmental activities, support for the Nuclear Waste Negotiator, waste acceptance and monitored retrievable storage-related activities, and related public affairs. This Office will carry out the functions that evolve as the Department's role in the near-term management of spent fuel is defined.

The Program Management and Integration Office is responsible for planning, program management, systems engineering, regulatory coordination and total integration of program activities. It is responsible for performing many of the functions previously performed by our Office of Systems and Compliance, Strategic Planning and International Program, and Program and Resources Management. We have identified overall program integration as a major shortcoming which needs increased attention.

The Human Resources and Administration Office is responsible for performing the whole host of human resource, information resource management, document control, and related functions required to support the technical program activities performed by the other offices. Increased attention will be given to training and career development to strengthen the depth of management capabilities within the program.

Finally, our Office of Quality Assurance, in addition to its responsibility for our Quality Assurance Program, also has been given oversight responsibility for our Environmental, Safety and Health, Management Assessment, and Self Assessment Programs.

## CONCLUSION

The Department's restructured program, if it is funded as we have requested, will permit us to continue to pursue the policy goals expressed by Congress in the Nuclear Waste Policy Act. We can carry out the program without the amendment of the Nuclear Waste Policy Act or changes in the framework of the Commission's regulations. It is a program, however, that will demand more effective management on our part. It will also place increased demands upon the Commission's staff.

What we have proposed constitutes a change in the plans the Department has previously presented to the Commission. It is based on more than a decade of experience gained in confronting the technical, social, and public policy challenges the management of high-level radioactive waste presents. We believe that our proposed program approach remains consistent with the Commission's regulations and sensitive to the Commission's responsibilities. It is an approach that will permit us to provide the information the Commission needs at each stage of the licensing process to make the findings required by the law and regulations.

The work we have proposed for Yucca Mountain and for our mid-1997 multi-purpose canister and overpacks certification goal is considerable. We will be developing and submitting a number of study plans and issue resolution documents which will require the timely attention of your Staff.

I am glad to state that our staffs are interacting more frequently, as they must. In addition to their normal means of communication, they are now communicating electronically as Commissioner Rogers has requested. This will facilitate the interaction process.

We will need, and look forward to having, comments from the Commission on the restructured program I have described. To implement that program, we will need the support of your Staff in reviewing and providing guidance and comments on the documents we will be submitting. This effort will be a challenge that we must meet together successfully.

Thank you for the opportunity to discuss our program with you.

# Table 1 OCRWM FY 1995 Congressional Budget Request

(Comparable Dollars in Millions)

Budget Element	FY 1993 (Actual)	FY 1994 (Actual)	FY1995 (Request)	FY 1996 (Estimate)	FY 1997 (Estimate)	FY 1998 (Estimate)	FY 1999 (Estimate)
Yucca Mountain Site Characterization Project	242	260	381	470	510	511	515
Advanced Technology for Near-Term Storage							
- Spent Fuel Storage	16	15	30	29	32	50	68
- Transportation System	19	14	21	23	26	30	21
- Waste Acceptance	3	3	6	7	9	10	11
<i>Subtotal</i>	38	32	57	59	67	90	100
Program Management and Compliance	95	88	94	101	107	112	117
Subtotal, Nuclear Waste Activities	375	380	532	630	684	713	732
Civilian Waste R&D	4.6	0.7	0.7	0.7	0.7	0.7	0.7
Total Program (rounded to millions)	380	381	533	631	685	714	733
Funding							
• Nuclear Waste Fund							
- Base Appropriation	275	260	255	265	276	287	298
- Special Account	—	—	148	236	279	297	305
<i>Subtotal</i>	275	260	403	501	555	584	603
• Defense Nuclear Waste Disposal Approp.	100	120	129	129	129	129	129
• Civilian Waste R&D (Energy Supply R&D)	4.6	0.7	0.7	0.7	0.7	0.7	0.7
Total Program (rounded to millions)	380	381	533	631	685	714	733
Other	437	391	551	585	591	592	600

**Table 2 - Key Elements - Proposed Program  
Approach for Repository  
(continued)**

**Key Elements**

**Proposed Program Approach**

**Licensing**

- 2001 LA
- Design basis - Title I for repository, Title II for waste package

**Technical and Scientific Studies**

- Narrow the focus to technical issues most important to suitability and licensing
- Make effective use of required performance confirmation program

## **Table 2 - Key Elements - Proposed Program Approach for Repository**

### **Key Elements**

### **Proposed Program Approach**

**Site suitability evaluation**

- Individual Interim findings
- Design basis - ACD
- Technical site suitability determination by Secretary - 1998

**EIS**

- Draft 1998
- Final 2000
- Final Supports site recommendation
- Final accompanies LA
- Design basis - ACD

**Site Recommendation**

- 2000
- Design Basis-Title I

**Table 2 - Key Elements - Proposed Program  
Approach for Repository  
(continued)**

**Key Elements**

**Proposed Program Approach**

**Retrievability**

- 100 years after start of emplacement operations or when results from performance confirmation provide adequate confidence to proceed with closure application

## Table 3

### DOE DOCUMENT SUBMITTALS TO NRC REMAINDER OF FY 1994 AND FY 1995

- SEMIANNUAL PROGRESS REPORTS

- STUDY PLANS:

LATE FY 1994 - 16  
EARLY FY 1995 - 8

- ESF DESIGN REVIEWS:

FY 1994 - 1  
FY 1995 - 6

- ISSUE RESOLUTION DOCUMENTATION:

- Seismic Hazards Topical Reports
- Ground Water Travel Time Approach (Letter)

### Table 3 (continued)

- **MGDS ANNOTATED OUTLINE FOR LICENSE APPLICATION**
- **SITE CHARACTERIZATION ANALYSIS OPEN ITEMS**
- **UPDATE OF THE WASTE PACKAGE IMPLEMENTATION PLAN (FY 1994)**
- **SUMMARY REPORT WASTE PACKAGE DESIGN FOR INTERIM REVIEW (FY 1995)**
- **TOTAL-SYSTEM PERFORMANCE ASSESSMENT FOR YUCCA MOUNTAIN - SNL SECOND ITERATION (TSPA-1993)**
- **INTEGRATED TOTAL-SYSTEM PERFORMANCE ASSESSMENT**



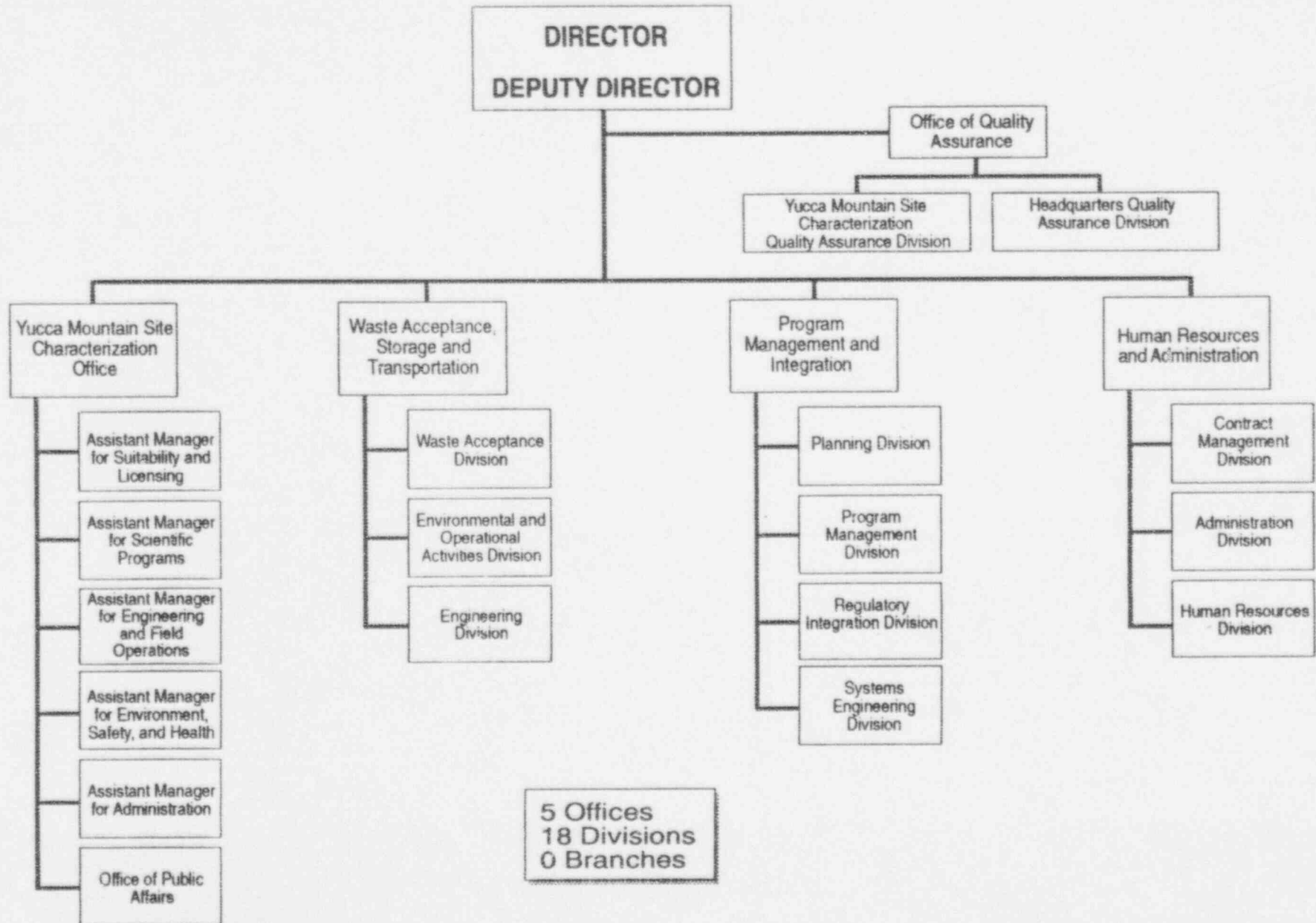
## Table 4 Information Levels Supporting Key Milestones

	TSS/DEIS - 1998	LA/CA - 2001	CA - 2004	ULA/R&P - 2008	L/R&P - 2010	Performance Confirmation
<b>NATURAL BARRIER EVALUATION</b>						
GWTT	Bounded	Substantially Finished		Final		
Scenarios	Bounded	Bounded		Substantially Finished		Final
Subsystem Analyses	Bounded	Substantially Finished		Final		Updated
TSPA Source Term	Bounded Model	Bounded Model		Complete		Confirmed
Post Closure TSPA	Bounded	Bounded		Substantially Finished		Final
<b>REPOSITORY DESIGN</b>	<b>ADC</b>	<b>Title I</b>	<b>Title II</b>	<b>Title III</b>	<b>Title III</b>	<b>Title III</b>
Backfill/Seals		Title I (Flex)		Demonstrated		Decision
Materials Interaction	Bounded	Bounded	Materials Selection			
Retrievability		Title I	Proof of Principle	Demonstrated		
Areal Power Density (ADP)	Bounded	Bounded		ADP Decision		Final APD
Emplacement Mode		Title I		Decision		
Preclosure P.A.	Bounded	Substantially Finished		Final		
Lag Storage	ACD	Title I	Title II	Title III		
Rail Spur	CD		Title I/II	Title II/III		

## Table 4 Information Levels Supporting Key Milestones

	TSS/DEIS - 1998	LA/CA - 2001	CA - 2004	ULA/R&P - 2008	L/R&P - 2010	Performance Confirmation
WASTE PACKAGE DESIGN	ACD/Title I	Title II Prototype	Full Scale	Prototype Tested/Title III	Title III	Operations Confirmed
Substantially Complete Containment		Complete		Updated		
Criticality Control		Complete		Updated		
Controlled Release	Bounded	Conservative Calculations		Complete		
Materials	Concepts	Determined		Test Complete		
Waste Form		Source Term Bounded		Final Source Term		
EBS Thermal	Concepts	Bounded				

# Figure 1 Headquarters Reorganization



# Figure 2 Yucca Mountain Site Characterization Project Office Reorganization

