

ORIGINAL

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**Title:** COMMISSION BRIEFING BY DOE ON HIGH-LEVEL WASTE PROGRAM

**Location:** ONE WHITE FLINT NORTH, ROCKVILLE, MARYLAND

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*Court Reporters*

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1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION

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4 COMMISSION BRIEFING BY DOE ON HIGH LEVEL WASTE PROGRAM

5 \*\*\*

6 [PUBLIC MEETING]

7 \*\*\*

8 Nuclear Regulatory Commission  
9 One White Flint North  
10 Rockville, Maryland

11  
12 TUESDAY, DECEMBER 20, 1988

13  
14 The Commission met, pursuant to notice, at 2:00  
15 P.m., the Honorable LANDO W. ZECH, Chairman of the Commission,  
16 presiding.

17  
18 COMMISSIONERS PRESENT:

19 LANDO W. ZECH, Chairman of the Commission  
20 THOMAS M. ROBERTS, Member of the Commission  
21 KENNETH M. CARR, Member of the Commission  
22 KENNETH C. ROGERS, Member of the Commission  
23 JAMES R. CURTISS, Member of the Commission  
24  
25

1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

2

3 J. Hoyle W. Parler

4 S. Rousso F. Peters

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6 AUDIENCE SPEAKERS:

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8 R. Stein

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

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2 CHAIRMAN ZECH: Good afternoon, ladies and gentlemen.  
3 Welcome, Mr. Rousso. This afternoon, the Commission will be  
4 briefed by Mr. Samuel Rousso, Acting Director of the Office of  
5 Civilian Radioactive Waste Management of the Department of  
6 Energy. This is an information briefing and it's a  
7 continuation of a series of periodic briefings by the  
8 Department of Energy which are aimed at keeping the Commission  
9 informed of recent developments in the Department's High Level  
10 Nuclear Waste Repository Program.

11 Since our last briefing by the Department of Energy,  
12 a number of significant events have occurred which impact on  
13 the development of a national High Level Waste Repository. The  
14 most significant event was the DOE announcement that the  
15 construction of the exploratory shaft facility was postponed  
16 until November 1989. The Commission is interested in hearing  
17 about how this delay of five months will influence the  
18 implementation of the program.

19 Since our last briefing, Mr. Rousso has taken over  
20 the direction of DOE's High Level Waste Program. The  
21 Commission is interested in hearing about this change at the  
22 top management level and its significance in the interactions  
23 with the NRC and the State of Nevada.

24 The Commission is also very interested in hearing  
25 about progress on the development and operation of a licensing

1 support system, and the interactions of the NRC Staff on the  
2 quality assurance program.

3 We understand that Department of Energy has recently  
4 made a selection of its management and operating contractor.  
5 We'd like to hear about the impact this selection would make on  
6 the overall implementation of the High Level Waste Program.

7 Copies of the slide presentation should be available  
8 at the entrance of the meeting room. Do any of my fellow  
9 Commissioners have any comments they'd like to make before we  
10 begin?

11 [No response.]

12 If not, Mr. Rousso, welcome, and you may proceed.

13 MR. ROUSSO: Thank you, Mr. Chairman, good afternoon,  
14 Commissioners. I'd like to begin if I may by introducing some  
15 key members of my staff that I brought with me this afternoon.  
16 To my left is Mr. Frank Peters who is the Deputy Director for  
17 the program. Starting from your right is Carl Gertz, Manager  
18 of the Nevada Project Office; Mr. Robert Mussler, our legal  
19 counsel; Mr. Jim Bresee is a program associate director; Tom  
20 Isaacs, associate director; Ralph Stein, associate director;  
21 and Steve Cale, associate director; and Mr. Lake Barrett who is  
22 our Quality Assurance Manager.

23 CHAIRMAN ZECH: Thank you very much and welcome to  
24 all of you.

25 MR. ROUSSO: It's a pleasure to appear before you

1 today to report on our agency's activities, because this month  
2 will mark one of the most significant milestones our program  
3 has yet met, the issuance of the Site Characterization Plan for  
4 the Yucca Mountain site, which we expect to issue very shortly,  
5 a little bit later this month.

6 As you know, a great deal is riding on our site  
7 characterization program. We've spent years of effort, several  
8 billion dollars in seeking an important national interest.  
9 Because so much is at stake, the bedrock of our program must be  
10 technical excellence. That calls for both meticulous planning  
11 and rigorous quality assurance, and our planning for site  
12 characterization has benefited from the numerous interactions  
13 between the DOE and NRC staffs. We have strengthened our QA  
14 program significantly in response to NRC concerns.

15 I forgot to mention, sir, that if I may preface my  
16 formal remarks in a shortened version and then we could proceed  
17 to questions, if that's acceptable to the committee.

18 CHAIRMAN ZECH: That's fine. You may proceed.

19 MR. ROUSSO: I will be addressing as we go through a  
20 number if not all of the items that you mentioned in your  
21 opening remarks and will, of course, be prepared to address  
22 questions specifically to those areas.

23 The approximately 7000-page document we will issue at  
24 the end of this month describes a comprehensive and integrated  
25 program that we feel confident will yield the information we

1        need in order to determine the suitability of the Yucca  
2        Mountain site, and if the site proves suitable, to demonstrate  
3        its suitability to you in the licensing process. If at any  
4        point in the course of our site characterization activities we  
5        determine that the site is not suitable, we will promptly  
6        notify the NRC.

7                While Ed Kay has left our program and I am serving as  
8        the Acting Director, I assure you that our core team remains  
9        intact -- the gentlemen sitting behind me -- the continuity is  
10       being maintained and that we are moving the program forward.  
11       In fact, we are substantially augmenting our capabilities  
12       through a major management and operating contractor that you  
13       mentioned, which I'll expand on shortly.

14               This afternoon I'd like to highlight our activities  
15       over the past six months, and as I mentioned, I have submitted  
16       the full text of my presentation for the record.

17               First I'd like to discuss site characterization. Let  
18       me begin by turning in more detail to the subject of site  
19       characterization at the Yucca Mountain site. Last January, DOE  
20       issued a consultation draft of the Site Characterization Plan  
21       for the site. Since our last formal briefing to you in June,  
22       we have continued to hold technical meetings with the NRC Staff  
23       to discuss their major concerns on the draft. These meetings  
24       have been attended by the State of Nevada and local affected  
25       parties. In developing the final test of the plan, we



1 addressed all of the NRC's major concerns including the  
2 treatment of alternative conceptual models; design and location  
3 of the shaft facility; performance confirmation during site  
4 characterization, testing of seals system components, and  
5 interpretation of "substantially complete containment".

6 As I mentioned earlier, we will issue the plan at the  
7 end of this month. We will also issue the supporting  
8 references and a number of environmental and other pertinent  
9 documents. During February and March of '89 we will hold  
10 public briefings and hearings on the SCP in Nevada.

11 With issuance of the SCP, the Department of Energy  
12 plans to proceed with the all-important testing that is  
13 necessary to determine the site suitability. However, no new  
14 site characterization activities will begin until a fully-  
15 qualified QA program covering those activities is in place.

16 We have carefully reviewed the site characterization  
17 schedule, particularly with regard to the exploratory shaft  
18 facility. To ensure that all necessary quality assurance plans  
19 and procedures and other necessary documentation and analyses  
20 are in place, we have delayed starting the ESF final design,  
21 Title II, and, therefore, the start of the ESF construction.  
22 As announced in October, we plan to begin site preparation work  
23 in May of 1989 and to begin the ESF construction in November of  
24 '89.

25 In its comments on our draft Mission Plan Amendment,

1 the NRC expressed concern that schedule compression could  
2 adversely affect the completeness and quality of the license  
3 application. Actually, we imposed the delay to ensure that  
4 site characterization activities are conducted in accordance  
5 with the QA requirements of 10 CFR 60 Subpart G, and we believe  
6 that meeting QA requirements is the best guarantee of the  
7 completeness and quality of data for our license application.  
8 Further, we are actively seeking ways to manage our program so  
9 that we can adhere to our schedule and meet the statutory  
10 timetable for NRC review. We will consult further with the NRC  
11 on this issue as our planning matures.

12           OCRWM has imposed a comprehensive set of management  
13 and technical prerequisites that will be met prior to the start  
14 of ESF Title II design. They include a thorough review of and  
15 necessary revisions to QA program requirements and design  
16 control procedures.

17           The ESF has been the subject of intense scrutiny.  
18 NRC Staff has indicated their concern about the potential for  
19 flooding at the ESF location as well as the possibility of ESF  
20 adversely impacting the waste-isolation capabilities of the  
21 repository. Based on additional analyses of the probable  
22 maximum flood, in June of '87 we reoriented the shafts within  
23 the preferred location area to sites that are topographically  
24 higher than a conservative PMF elevation in question and  
25 horizontally further distant from the flood limits. Even

1     though our analyses show that the original sites were above the  
2     probable maximum flood elevations and there were some cost  
3     impacts with the associated moves, we felt that the new site  
4     locations have the additional advantage of allowing the shaft  
5     collars to be set in bedrock and lends additional margin.

6             I'd like to pause for some figures that we have. Can  
7     I have Figure 1, please.

8             [Slide.]

9             Figure 1 shows both previous and current shaft sites  
10     compared to the probably maximum flood water level. I should  
11     note the location of the shaft sites are marked in green as ES-  
12     1 and ES-2. The blue shows the maximum flood water level in  
13     the area of interest, and you can see where the shafts are  
14     further removed from that flood plane.

15             Can I see Figure 2, please, which shows a  
16     topographical cut-away, I believe.

17             [Slide.]

18             Figure 2 shows on the left the maximum flood area in  
19     the Valley and the new site locations moving up to the right to  
20     the actual bedrock on the hill slope. You can see the  
21     topographical cross-sections of the new shaft sites.  
22     Exploratory Shafts 1 and 2 are located 16 and 36 feet  
23     respectively above the PMF elevations. Exploratory shaft No. 1  
24     is located 290 feet horizontally away from the flood limit, and  
25     shaft No. 2 is located 250 feet away.

1 [Slide.]

2 We have an aerial view of the actual location area  
3 in Figure 3. A little bit more difficult to see but you can  
4 see the Valley floor and then the shaft locations on the  
5 hillside. The new shaft sites are still within the overall  
6 location. This will provide a better foundation for the shaft  
7 above-ground facilities and more margin against the probably  
8 flood conditions. We are quite confident that this new more  
9 location, as suggested by and discussed with your staff, is  
10 better overall and we are pleased with this new position.

11 The new shaft sites were discussed also with the  
12 State of Nevada in April of '87. Participants at the meeting  
13 concluded that the proposed shaft sites are acceptable pending  
14 the demonstration that flooding and erosion will not adversely  
15 affect the long-term performance of the site. That analysis is  
16 provided in the SCP and its references.

17 With regard to preserving the waste isolation  
18 capabilities of the site, analyses reported in the SCP indicate  
19 that the shaft facility can be constructed without adversely  
20 affecting the site and without interfering with other testing  
21 activities or test results.

22 At the request of the NRC Staff, we are preparing a  
23 design acceptability analysis of the ESF Title I design. This  
24 analysis is intended to provide the NRC Staff with the added  
25 confidence in the acceptability of the design that they need in

1 order to review the SCP. This effort is being undertaken by an  
2 independent group of DOE contractors and consultant personnel.  
3 Their recommendations will be thoroughly reviewed by  
4 management, and any necessary corrective actions will be taken  
5 during ESF Title II design. If significant changes are  
6 necessary to the design, we will notify the NRC Staff promptly.

7 A schedule showing these activities and their  
8 relationship to ongoing SCP and ESF-related areas is shown in  
9 Figure 4.

10 [Slide.]

11 Please note that we will issue the design  
12 acceptability analysis in approximately three weeks. We are  
13 expecting NRC Staff comments on the ESF design around three  
14 months after they receive the design acceptability analysis.

15 Overall, we are proceeding with the utmost care to  
16 ensure that our investigations will not impair the waste  
17 isolation capabilities of the site itself, that the data we  
18 obtain will be adequate to assess site suitability, and that  
19 data collection and analysis will be subject to a rigorous  
20 program of quality assurance in accordance with the  
21 requirements of 10 CFR 60. Our aim is to submit a high quality  
22 license application that will enable the NRC to complete its  
23 review of the application within the statutory three-year  
24 period.

25 I'd like to turn briefly to our budget. On July 19,

1 1988, Congress enacted an appropriation of \$369.8 million for  
2 the Nuclear Waste Program for fiscal year 1989. The allocation  
3 of this appropriation among the various components of the OCRWM  
4 program, including a comparison of fiscal year 1988 and 1989,  
5 is shown in an attachment to your formal copy of my remarks.  
6 This attachment also shows the recovery by the NRC of \$15  
7 million for 1988 costs incurred in the pre-licensing activities  
8 performed by the Commission in the OCRWM program.

9 The issuance of the draft Mission Plan Amendment.

10 Last June we issued a draft Mission Plan Amendment for comment.  
11 The final Mission Plan Amendment scheduled for issuance in  
12 early 1989 will provide information to Congress about OCRWM's  
13 plans for carrying out the program as revised by the Nuclear  
14 Waste Policy Amendments Act of 1987. It will be followed by a  
15 revised project decision schedule for the major participants.

16 A few words on the Monitored Retrievable Storage  
17 program. The Amendments Act imposed linkages between the  
18 development of a Monitored Retrievable Storage Facility and  
19 Repository construction. These linkages reduce the early  
20 benefits expected to result from operation of an MRS facility.  
21 We are currently updating our analysis of MRS functions in an  
22 integrated waste management system, as well as conducting  
23 studies for alternative MRS designs. As a result, the  
24 functional and operational requirements originally envisioned  
25 for the MRS may change as we continue our systems studies.

1           At the same time, we are working to support the  
2 efforts of the independent MRS Review Commission in their  
3 analysis of the need for an MRS. And in that regard, I  
4 recently gave testimony just a few days ago to the MRS  
5 Commission on the repository.

6           You mentioned an interest in the status of the M&O  
7 contractor. The Bechtel Systems Management Company has been  
8 selected to become DOE's management and operating contractor  
9 for overall design and analysis of the waste management system.  
10 The M&O contract will have an initial term of 10 years with a  
11 five-year option and is estimated to involve expenditures of  
12 roughly \$100 million annually.

13           Bechtel will be joined in this effort by several  
14 other companies who will be responsible for specific aspects of  
15 the program. Under the terms of the contract, the contractor  
16 will ensure that work on the waste management system proceeds  
17 in a well-structured, systematic manner that meets technical,  
18 schedule, cost, safety, environmental and quality assurance  
19 requirements; that the work meets the regulatory requirements  
20 of the NRC and the EPA; and that it is consistent with  
21 applicable DOE orders. This substantial augmentation in DOE  
22 support is certain to help us meet statutory goals, including  
23 the goal of timely program implementation.

24           Turning to areas of special interest, quality  
25 assurance. In our report to you last June we discussed how our

1 program had been redirected by the Amendments Act, and we  
2 explained that we had undertaken a major reorganization of  
3 OCRWM in order to better carry out the amended program. This  
4 reorganization included the establishment of an Office of  
5 Quality Assurance that reports directly to the OCRWM Director,  
6 and that's Mr. Lake Barrett, whom I introduced earlier.

7 Since then, we have made significant progress in  
8 strengthening our QA program. One important task has been the  
9 re-evaluation of our QA documents. As a result of this re-  
10 evaluation these documents were superceded or will be and  
11 replaced by the Quality Assurance Requirements Document for the  
12 Civilian Radioactive Waste Program and the Quality Assurance  
13 Program Description document for the program. These documents  
14 and supplementary sub-tier documents embody the OCRWM quality  
15 assurance policy. Together they constitute OCRWM's QA plan.

16 We transmitted both of these documents to your staff  
17 prior to issuance for review and acceptance. We have met  
18 numerous times with your staff in open meetings and with the  
19 State of Nevada and others to address questions relating to  
20 these documents and related subjects. Further, we have  
21 committed to the NRC to implement NUREG-1318.

22 QA training and verification activities are other  
23 areas of special emphasis. NRC Staff participate as observers  
24 and provide comments on the conduct and results of our  
25 verification activities.



1           At the beginning of my remarks I mentioned the  
2       productive meetings we have held with the NRC Staff.  
3       Consultation between our staffs is of increasing importance in  
4       the Waste Management Program. Over the past year, DOE and NRC  
5       interactions have included a series of meetings on the  
6       licensing support system, Quality Assurance, the NRC Point  
7       Papers and the exploratory shaft facility, as well as briefings  
8       to the Commissioners and the Advisory Committee on Nuclear  
9       Waste. We appreciate the constructive contributions of the NRC  
10      Staff. You will find the results in the SCP itself.

11           In addition to resolving issues relating to the SCP,  
12      DOE has been developing study plans that provide additional  
13      detail about the studies, tests and analyses described in the  
14      SCP. We expect to transmit 17 study plans to the NRC within  
15      the next 12 to 18 months. A total of over 100 study plans will  
16      be prepared for the total Site Characterization Program. Five  
17      of them pertaining to the exploratory shaft facility have been  
18      prepared and will be submitted to NRC coincident with the  
19      submission of the SCP itself.

20           On the subject of transportation I will limit my  
21      remarks to the subject of cask development. Our efforts are  
22      focused on the design of a new generation of shipping casks  
23      with larger carrying capacities for shipping spent fuel from  
24      reactor sites to a repository or to an MRS facility.  
25      Negotiations have been completed for the design of from-reactor

1 casks. Contract values range from \$7 million to \$14.9 million.  
2 DOE expects to define cask fleet requirements and to initiate  
3 procurement in time to ensure limited shipping capability of  
4 1998. These cask designs will form the core of a cask fleet.

5 DOE has also been working with utilities to evaluate  
6 and assess the compatibility of transport cask designs with  
7 utility on-site storage problems. Although the storage  
8 technologies at several of the utilities differ significantly,  
9 there are possibilities in the system for standardization,  
10 which I think we should take as a goal, and integration that  
11 could optimize operations for safety and economy. While there  
12 are potential benefits to be gained by using more than one  
13 technology for supplementary at-reactor storage, we want to  
14 naturally avoid a proliferation of specifications. Interest is  
15 growing in avoiding such proliferation, but DOE and the  
16 utilities have not yet reached a consensus on how to achieve  
17 compatible designs. however, as part of our effort to deal  
18 with this problem we have been meeting with waste producers to  
19 discuss the concept termed by the NRC, "as compatible as  
20 reasonably achievable" and we will continue working closely  
21 with the producers on this issue.

22 Dry Cask Storage Study. In accordance with the  
23 Amendments Act, DOE is preparing a report on the use of dry  
24 cask storage at reactor sites. The study assesses the utility  
25 industry's spent nuclear fuel storage needs through the start

1 of operation of the geologic repository, and reviews not just  
2 dry cask storage but most of the techniques that could be used  
3 to increase on-site spent fuel storage capacity. We released  
4 an initial version of this report for review and comment in  
5 September. When the final report is completed we will ask the  
6 NRC to comment on it. We will then submit both the final  
7 report and any NRC comments to Congress. The submittal date  
8 for Congress is schedule for late January of '89.

9 Turning to the Licensing Support System development,  
10 the LSS that will support the requirements of all parties in  
11 the repository licensing process will be based on a detailed  
12 set of system specifications. These specifications are being  
13 derived from statutory, programmatic and user requirements.  
14 During the past year some of these requirements have been  
15 defined through the efforts of the High Level Waste Licensing  
16 Support System Advisory Committee, efforts which serve as the  
17 basis of the proposed rule recently published by the NRC.

18 In parallel with these efforts, DOE produced a series  
19 of four reports to serve as a sound foundation for the system  
20 design. These reports have been submitted to the Office of  
21 Management and Budget and distributed to the parties to the LSS  
22 negotiation and to other interested parties. At this time, the  
23 Office of Information and Regulatory Affairs at OMB has  
24 approved the technical aspects of the design and we are  
25 beginning to develop functional specifications that will lead

1 to a competitive procurement of the hardware and software.

2 In addition to these reports, we have embarked on  
3 designing and building a prototype system in Washington, D.C.  
4 and University of Nevada at Las Vegas that is scheduled to be  
5 available by the spring of '89.

6 We believe the LSS negotiated rulemaking was  
7 extremely productive and that the LSS offers real promise for  
8 expediting the licensing process. Because the development of  
9 the LSS will be phased, we will have opportunities to evaluate  
10 the system's effectiveness as it is being developed.

11 I would again like to bring to the Commission's  
12 attention that DOE and others have made a number of suggested  
13 changes to 10 CFR Part 2 during the negotiations which were  
14 agreed to be deferred during the negotiated rulemaking. The  
15 Commission agreed to assess the possibility of conducting  
16 additional rulemaking proceedings relating to the Part 2  
17 changes to streamline the hearings process, other than those  
18 relating to document production and discovery. We continue to  
19 believe that those suggested changes would assist in  
20 streamlining the licensing process and look forward to further  
21 Commission consideration following completion of the LSS  
22 rulemaking.

23 The state and local government interactions. The  
24 State of Nevada continues to actively participate in and  
25 oversee program development. State representatives attended

1     our technical meetings with NRC Staff on the SCP Consultative  
2     Draft and the exploratory shaft facility, and the State  
3     submitted extensive comments on the SCP/CD. Unfortunately,  
4     those comments reached us well past the deadline, approximately  
5     two months -- too late for incorporation into the SCP under the  
6     published schedule. However, we will carefully consider the  
7     State's comments offered on the consultative draft, along with  
8     comments they offer during the upcoming public comment period  
9     on the SCP.

10           I may also add that a quick review of those comments  
11     indicated that many of those issues had been raised by others -  
12     - the NRC primarily -- and we have been able to address them to  
13     a large degree in the SCP, and that will be seen when that is  
14     released shortly.

15           In conclusion I want to refer you to the full text of  
16     my presentation for more information about our activities, but  
17     I've highlighted a few of our activities over the past six  
18     months and I'd like to offer some thoughts on how we might make  
19     our working relationship even more productive over the coming  
20     months.

21           At the outset I stated that we will soon meet a major  
22     program milestone, and that is the issuance of the SCP. I  
23     think it's human nature to want to pause and draw a deep breath  
24     on such an occasion, but the needs of this program press on.  
25     That milestone will not only mark the close of the first phase

1 of site characterization -- development of the SCP -- it will  
2 inaugurate a new phase, implementation of the plans for site  
3 characterization. And that will require sustained and arduous  
4 efforts on both our parts.

5           The NRC is going to be called upon to review numerous  
6 highly technical documents, not only the 7000-page SCP, but  
7 documents related to the design of our exploratory shaft  
8 facility, 100 or more study plans, our semi-annual progress  
9 reports, and we have confidence that like our work to produce  
10 these documents, your review will also be both thorough and  
11 timely. We in turn must carefully consider your comments on  
12 these documents, review our plans for site characterization in  
13 light of them and revise our plans as appropriate, initiate new  
14 surface-based site characterization activities, and begin to  
15 prepare the site itself for construction of the exploratory  
16 shaft facility.

17           Ensuring the technical excellence of our work while  
18 adhering to an aggressive schedule is going to call for very  
19 skillful management. In particular, to ensure that NRC  
20 concerns are understood and addressed, we must continue to work  
21 to maintain clear communication between our agencies via  
22 frequent staff-to-staff interactions. This means that for each  
23 comment we receive from you, it is important to understand not  
24 only the substance of the comment but what weight the NRC  
25 places on it; that is, we must know whether the comment

1 expresses a clear regulatory concern or whether it is a  
2 considered staff-level suggestion for a technical change that  
3 can be treated as advisory in nature.

4 With a technical program of this scope and  
5 complexity, maintaining clarity in communications is no small  
6 task. That it has been performed so well to date is a tribute  
7 I think to the determination and skill of both of our staffs.  
8 I am confident that as the work of the site characterization  
9 progresses, we will gain still more skill in managing our  
10 interactions.

11 I thank you very much for your attention and I hope I  
12 haven't been too long. I would welcome your questions.

13 CHAIRMAN ZECH: All right, thank you very much. Are  
14 there any comments or questions from my fellow Commissioners?

15 COMMISSIONER ROBERTS: Yes, one or two. Reading from  
16 your prepared remarks, "no new site characterization activities  
17 will begin until a fully-qualified QA program covering these  
18 activities is in place." Do you have a target date for that?

19 MR. ROUSSO: The target date is that we will not  
20 proceed, as stated in my statement, with any new site  
21 characterization activities. The main new site  
22 characterization activities is the beginning of the exploratory  
23 shaft. We will look very carefully at activities just  
24 preceding that. The time span is roughly late summer, leading  
25 into the November start of the shaft. We are looking very

1 carefully to see that everything that we do, prior to doing it,  
2 meets the full acceptability and full flow-down of requirements  
3 and will be acceptable when done.

4 COMMISSIONER ROBERTS: All right. You talk about  
5 enabling NRC to complete its review of the application within  
6 the statutory three-year period. As I understand the Nuclear  
7 Waste Policy Act, it gives the NRC a great deal of flexibility  
8 in its licensing procedures for the High Level Waste  
9 Repository. Have you, together with the State of Nevada, given  
10 any thought to any new procedures or improvements that the  
11 Commission can make to comply with the three-year statutory  
12 period and yet air all the technical issues?

13 MR. ROUSSO: I would not presume to tell the  
14 Commission, Commissioner, what they need to do to review the  
15 application. The three-year statutory period is, admittedly, a  
16 tight schedule. We will be working with you continuously as we  
17 have in the past to provide all the information necessary. We  
18 will produce a license application of a quality that you may  
19 proceed with your review with full confidence in the data  
20 behind that submission.

21 Particular suggestions for hastening the review  
22 process, the LSS technical input I think will go a long way  
23 towards making the data available. I think the Commission must  
24 also look to their normal way of conducting hearings and  
25 examining a license application to see what other means are



1 possible. We will, of course, as I said, be prepared to  
2 support you in any way possible to meet the common goal of  
3 getting the license through in the three years.

4 COMMISSIONER ROBERTS: On the selection of the  
5 management and operating contractor, maybe it's too soon to  
6 answer, but I think that's a big unknown, at least to me, what  
7 sort of role they're going to play. Can you expand on that at  
8 all?

9 MR. ROUSSO: Yes, sir. We have thought about it  
10 quite long and hard, and back at least two years ago -- and at  
11 that point in time, of course, we were looking at three  
12 candidate sites, but nevertheless, the involvement that's  
13 necessary in the sciences, in the data collection, in the  
14 planning and the focusing of all the effort of the manpower and  
15 resources, it was beyond the capability of what we would  
16 project as being doable in a strictly federal context of  
17 oversight. We were looking for and have just concluded this  
18 past Friday, the 9th, roughly a week ago, the selection and  
19 culmination of that process with the Bechtel Management team.

20 Their function will be to provide a focused  
21 concentration and responsibility for gaining control of and  
22 accountability for the data collected during the site  
23 characterization process, to monitor the work and integrate the  
24 work that includes the entire waste management system as we now  
25 view it, with the MRS in place and the transportation system to

1 move the fuel and the high level waste to the eventual  
2 repository.

3 We see them as having a longstanding relationship  
4 with the Department and that's why we looked for what we call  
5 the M&O contract, management and operating contract. It's a  
6 10-year with 5-year follow-on. We expect to work very closely  
7 with the contractor. We are not abdicating our role in any  
8 way, shape or form; we are still the license applicant and we  
9 are the ones that set the policy and the criteria and the  
10 requirements within which the M&O will function and assure the  
11 collection of the required information. They will be aiding us  
12 in preparing the license application and they will be  
13 overseeing the work of the implementing contractors, those who  
14 will be, for example, drilling the shaft, and gaining the  
15 firsthand characterization information. They will be  
16 performing the performance assessment of that information; they  
17 will be assuring that that information is representative and is  
18 gathered in a scientifically acceptable manner.

19 COMMISSIONER ROBERTS: That's all I have.

20 CHAIRMAN ZECH: Commissioner Carr?

21 COMMISSIONER CARR: Yes. As I understand it, you  
22 want our ESF comments rapidly.

23 MR. ROUSSO: Sir, you understand exactly correct.

24 COMMISSIONER CARR: Are your study plans for the ESF  
25 coming over at the same time the SCP comes over?

1           MR. ROUSSO: Five study plans will be accompanying  
2 the SCP and they will address the questions that were raised on  
3 the exploratory shaft facility. We recognize that it's very  
4 difficult to respond to such a lengthy document and there are  
5 many areas of which you will want to do a thorough  
6 investigation. It would help us very much if early indications  
7 of the suitability of the exploratory shaft-related questions  
8 can be brought into focus. We have been dealing with your  
9 staffs for approximately a year with the consultative draft  
10 that came out, and I believe during that process and comments  
11 that the State has made many of the issues -- and we feel  
12 probably all the major issues -- have been surfaced, have been  
13 batted back and forth, and I think are substantially addressed  
14 in the SCP itself and you will be able to judge that as soon as  
15 you receive that document with the accompanying study plans.

16           COMMISSIONER CARR: Okay. Evidently the Act doesn't  
17 require our approval prior to your sinking the shaft but you've  
18 got some arrangement with our staff to take care of their  
19 comments before that? Or work them out? Or how are you  
20 planning to do that?

21           MR. ROUSSO: We are planning to work very closely  
22 with the staff, and as I have said, we at this point have no  
23 indication that there's anything grossly amiss that we cannot  
24 resolve. We think that we have addressed in some considerable  
25 detail the questions and concerns of the staff. I would take

1       it as a very big step to try and move forward in the absence of  
2       a strong feeling of confidence that our staffs were essentially  
3       on the same wavelength.

4               COMMISSIONER CARR: On the cask design  
5       standardization I agree with you. I guess I don't understand  
6       which comes first here; the cask or the repository design.  
7       Obviously you're going to start somewhere and you need to know  
8       what you're storing, or conversely, if you know what you're  
9       going to store it's going to affect the design. Which comes  
10      first in your opinion?

11             MR. ROUSSO: Well, that's sort of a chicken and egg  
12      question. I think the mainline activity of course is to  
13      characterize the site to see if we have site suitability. The  
14      cask work is going on in parallel because we have serious  
15      situations where utilities are running out of storage space;  
16      they're looking at pool re-racking, they're looking at dry cask  
17      storage. We have the cask work going on at Idaho where we are  
18      looking at truck casks, rail/barge casks. We expect that to be  
19      on a timescale that would permit shipping as early as 1998 on a  
20      limited scale basis.

21             The casks being designed are not casks to go into  
22      emplacement directly, so that is strictly right now a storage  
23      or transportation cask.

24             COMMISSIONER CARR: But doesn't it lend itself to go  
25      ahead and design the one you're going to emplace? Then we can

1 solve the problem. People are already looking for something to  
2 put their spent fuel in, and it looks like that would at least  
3 fix one of your design criteria and you'd say okay, this is the  
4 package I've got to store.

5 MR. ROUSSO: We do have an effort underway dealing  
6 with waste package design, and that is an activity that  
7 actually -- there will be an overlay by the M&O contractor on  
8 how that's progressing. But right now that activity is  
9 underway, it is somewhat perhaps behind the power curve a  
10 little bit but it's one that we seriously address and expect --

11 COMMISSIONER CARR: Have you given up the idea of on-  
12 site utilities' casks that would go through all the processes  
13 and end up being storable?

14 MR. ROUSSO: I don't know that we've given up the  
15 idea but that is actually a desirable condition but one very  
16 difficult to meet. You would want a cask that is capable of  
17 storing the fuel, shipping the fuel and then being emplaceable,  
18 and the time between those events would make it difficult to  
19 certify such a cask.

20 COMMISSIONER CARR: But it seems easier if you design  
21 it now than it will be later on when some of those other things  
22 become fixed. I would certainly like you to take every effort  
23 you can to look at that.

24 MR. ROUSSO: We will re-look at that issue,  
25 Commissioner.

1                   COMMISSIONER CARR: We've heard some comment that  
2 says your repository is not going to be large enough. What do  
3 you think about that?

4                   MR. ROUSSO: Well, as to size, it depends on the  
5 extent of the question. The law now limits the capacity to  
6 70,000 metric tons. We know in our analyses to date that as a  
7 minimum, we would expect to see something like 87,000 metric  
8 tons I believe in spent nuclear fuel plus some additional fuel  
9 from the Defense program site. So that in an end-of-reactor,  
10 no new orders case we would still have more material to take  
11 care of than the 70,000 metric tons.

12                   We think there are positive benefits to be obtained  
13 if indeed it proves out that one repository could be made large  
14 enough for all the waste that we expect to see. That is  
15 something we will have to come back and discuss with the  
16 Congress when we look at the second site situation, which is  
17 what we've obligated to come back with a position in 2000,  
18 approximately 20 years from now. The 70,000 target is more  
19 than enough for the foreseeable future with what we know to be  
20 available.

21                   The second site would be conceivable. We would have  
22 to look at the pros and cons. I think there could be  
23 considerable savings if it was available to do in one site.

24                   COMMISSIONER CARR: And you're also planning to take  
25 care of greater than Class C, I guess.

1           MR. ROUSSO: The greater than Class C question is one  
2 that gives us considerable difficulty and concern. I think  
3 it's quite a large increase in quantity. The heat load is not  
4 that great, but amount of material could be very significant.  
5 And we would like to continue to work with your staffs and with  
6 the other agencies involved in this process to review carefully  
7 before a ruling is passed on greater than Class C for inclusion  
8 in a geologic repository.

9           COMMISSIONER CARR: Do you have a contractor working  
10 on the design of the LSS in your prototype you're going to  
11 build here in the District?

12           MR. ROUSSO: Yes. The SAIC Company is working the  
13 early design questions on the LSS system.

14           COMMISSIONER CARR: You made a comment about the  
15 staff level suggestions versus, I guess, regulatory comments.  
16 Would you expand on that a little? Have you had a problem with  
17 that to date? I didn't know we'd sent you over anything but  
18 Commission comments. Are you getting under the table things  
19 from the staff that you work with?

20           MR. ROUSSO: No. We've had technical interchanges  
21 with the staffs and I think that's been very helpful.

22           COMMISSIONER CARR: I mean, if it's a problem I'd  
23 like to take care of it but I couldn't tell from your testimony  
24 whether it was a problem or not.

25           MR. ROUSSO: I think the only question is that it

1 would -- as in dealing with any scientific exploration of  
2 issues, people have different views. They are all considered.  
3 But in a pre-licensing phase as a potential applicant, it would  
4 be helpful to know if the gist of the questions or the gist of  
5 the suggestions are based on regulatory concerns -- isolation  
6 safety, those type of issues -- or alternative mechanical or  
7 scientific or geological feelings or alternatives, as different  
8 scientists would have, which are valuable suggestions for  
9 consideration but would not necessarily be go/no-go concerns.  
10 And we need to keep that interface clear.

11 COMMISSIONER CARR: I guess it would boil down then  
12 to where did they come from.

13 MR. ROUSSO: No, not where do they come from, sir,  
14 but more what are they based upon; what is the concern derived  
15 from.

16 COMMISSIONER CARR: I think the onus is on us; if we  
17 expect you to really take action on it, the Commission will  
18 send it over. That's what I would assume.

19 MR. ROUSSO: Well, there are many levels of issues  
20 and I would not expect all of them to focus at the  
21 Commissioners' level.

22 COMMISSIONER CARR: So you would expect that you  
23 could take some action on the staff input without the  
24 Commission getting involved.

25 MR. ROUSSO: We'd like to understand the staff input,



1 and if it was leading us towards a particular direction we'd  
2 like to explore that.

3 COMMISSIONER CARR: I guess then I would ask our  
4 staff if you and the staff are getting to some impasse, they  
5 get us involved in it then.

6 MR. ROUSSO: I don't believe we have an impasse, sir.  
7 I think we're making solid progress. The effort put forth has  
8 been commendable and extensive.

9 COMMISSIONER CARR: Okay. We also heard some  
10 comments that the state and local governments might not have  
11 all the access to the DOE test data they would like. Do you  
12 want to comment on that?

13 MR. ROUSSO: I think we've been very forthcoming in  
14 this program. As you know, the public exposure and the  
15 outreach that we've attempted over the last few years has in my  
16 mind been unprecedented, certainly in my years with the  
17 Department. All pertinent data, if it's not accessible right  
18 now, is going to be in the LSS system and will be available as  
19 agreed to by all the parties.

20 I will say as a corollary to that, in working for the  
21 M&O contract -- and this goes back to approximately a year and  
22 a half ago -- we created reading rooms around the country that  
23 had some 70,000 pages of information on the program. And this  
24 was available to any and all; it wasn't just for the bidders,  
25 it's in public libraries at about 13 locations around the

1 country.

2 I am not aware of any data that the State has asked  
3 for that we have not supplied.

4 COMMISSIONER CARR: Okay. Do you think you've got an  
5 effective mechanism for a resolution of state and local  
6 government issues?

7 MR. ROUSSO: I think we do. I think the State has  
8 raised comments. As I said in this particular instance on the  
9 draft they were received somewhat late. But the essence of the  
10 comments, the majority of the comments, had been expressed from  
11 other quarters and I believe that we are certainly well aware  
12 of their concerns and have done a fairly formidable job of  
13 interpreting those and putting in our resultant positions in  
14 the SCP itself, and that will be available for review in  
15 approximately -- well, at the end of this month.

16 COMMISSIONER CARR: That's all I have.

17 COMMISSIONER ROGERS: Would you say a little bit more  
18 about your QA training program; how pervasive that is, to whom  
19 it extends? My impression in listening to some of the talk  
20 about QA and shortcomings in QA is that it's been particularly  
21 difficult to bring NRC's expectations of what the meaning of QA  
22 is -- and I'm talking about assurance now -- to some of the  
23 professionals that are involved in this who haven't been used  
24 to that kind of a thing. People coming from the scientific  
25 background who don't regard the kind of documentation which is

1 absolutely essential to demonstrate that not only have you done  
2 the right thing but you can prove it -- they're not all that  
3 comfortable with that process. And it seems to me that the  
4 training program is a key element in trying to get the message  
5 to that part of the professional corps that's involved.

6 And I'd like to hear a little bit more about just how  
7 seriously that's being addressed because my sense from the  
8 visit when I was out there a week or so ago seemed to indicate  
9 that that is a bit of a problem.

10 MR. ROUSSO: I think it's quite clear that quality  
11 assurance is an area that we feel quite strongly about. The  
12 change in reorganization back in the spring when we created a  
13 QA office reporting directly to the Director I think was an  
14 enhancement in that regard -- not to say that organizational  
15 changes alone bring about changes in operations. We have gone  
16 through and made considerable progress and effort in the  
17 quality assurance area over the past year. We have worked with  
18 all our program participants to put quality assurance  
19 procedures -- to define those procedures, put them in place,  
20 train the people to those procedures and then do audits and  
21 surveillance to see that that indeed is the way business is  
22 being conducted. This is the first project that the Department  
23 will seek to obtain an NRC license. Clinch River did not go  
24 quite through that far.

25 It is new, as you mentioned, to some of the program

1 participants to impose the quality assurance strict procedures.  
2 That's not to say that the participants have not been doing  
3 quality controlled work, but it's not to the same standards  
4 that we use in the nuclear licensing business. That is some  
5 change in philosophy and culture. We have had our growing  
6 pains but I think we're making very definite progress in that  
7 direction and we will, as I said earlier, not proceed with new  
8 site characterization work until we have that QA assurance in  
9 hand.

10 COMMISSIONER ROGERS: Your training program does  
11 extend into all the professional areas?

12 MR. ROUSSO: Yes. And at headquarters we have put  
13 through every one of my staff, including our support contractor  
14 staff.

15 COMMISSIONER ROGERS: Well, I'm talking about out in  
16 the field, too.

17 MR. ROUSSO: The field personnel will be trained to  
18 the QA procedures that will have received acceptance from the  
19 Commission. I believe at this point that you have accepted the  
20 Nevada Project Office's QA Program Plan, and the headquarters'  
21 requirements document, the program description document -- or  
22 you will have it very shortly if that's not already been passed  
23 but I know we've had iterations on that -- and all the quality  
24 assurance program plans from the various site contractors will  
25 also receive that same process.

1                   COMMISSIONER ROGERS: You mentioned in your written  
2 remarks that QA training is an area of special emphasis and I'd  
3 just like to encourage you in every way in that direction  
4 because until everybody is aboard on what is required to  
5 demonstrate quality, not just to perform in a quality way but  
6 to document it, there's always a danger that it isn't provable.  
7 And I think that's something you really have to be absolutely  
8 on top of.

9                   What can you tell me a little bit more about the LSS  
10 state of affairs? You have, you mentioned, a contractor or a  
11 consultant that's working with you on that. Have the NRC  
12 people been involved to any degree in the software requirements  
13 of that LSS?

14                  MR. ROUSSO: I don't know the answer to that one,  
15 sir.

16                  COMMISSIONER ROGERS: If we are going to have an LSS  
17 administrator that will have to administer this operation, it  
18 would seem that there should be an involvement at an early  
19 stage with the software requirements. Not necessarily design  
20 of the software or a choice of the hardware, but nevertheless a  
21 rather sophisticated input to what the software really has to  
22 do.

23                  CHAIRMAN ZECH: Could you identify yourself for the  
24 reporter, please, with your name and title?

25                  MR. STEIN: Yes, it's Ralph Stein, Associate Director

1 of Systems Integration Regulations. There was indeed a lot of  
2 interactions early on. We had an extensive amount of  
3 interactions during the preparation of the negotiated  
4 rulemaking and at the present time, while we're developing at  
5 the early stages of design on the LSS we have not yet  
6 interacted with the staff on some of the design features. But  
7 the intent is to interact with the staff as soon as we have  
8 something we can talk to them about. But there have been quite  
9 a bit of interactions in the past.

10 COMMISSIONER ROGERS: I know there have been but the  
11 question is whether that's an ongoing operation because as  
12 things evolve, earlier points of view maybe should be modified  
13 but may simply get lost along the way, and it is a rolling  
14 process to some extent.

15 MR. STEIN: I agree, but as I say, we're in the  
16 conceptual design phases, early conceptual design phases. The  
17 intent is to involve the NRC Staff in the early design stages.  
18 The conceptual design in particular.

19 CHAIRMAN ZECH: Thank you very much.

20 COMMISSIONER CARR: When do you think we ought to  
21 have our administrator named?

22 MR. STEIN: I think that I'll defer to NRC.

23 COMMISSIONER CARR: What I'm trying to find out is  
24 are you waiting on him?

25 MR. STEIN: No, we're not waiting on the

1 administrator at this point. There is certainly an important  
2 function for the administrator. I don't know what the current  
3 plans are. At the present time we do have, as you know, the  
4 negotiated rulemaking out for comment. I assume the staff has  
5 some plans following that, but again, I will defer to the staff  
6 to answer that question.

7 COMMISSIONER CURTISS: Do you have sufficient  
8 interaction with our staff at this point on the conceptual  
9 design, even before the LSS Administrator has been named? Is  
10 the interaction sufficient at this stage to provide a forum and  
11 a vehicle by which our comments and concerns about the design  
12 can be communicated to you?

13 MR. STEIN: I believe that we have a good forum for  
14 it. Again, I think that I would have to defer to the staff to  
15 see if there's any particular problems that they have. I don't  
16 know of any problems in that particular area. I think there is  
17 good communication. Certainly has been good communication in  
18 the past and I would anticipate that we'll continue along that  
19 line.

20 COMMISSIONER ROGERS: Along this communications line,  
21 not on the LSS necessarily, have your people been in contact  
22 with the NRC Center for Nuclear Waste Regulatory Analysis at  
23 Southwest Research Institute? Have you -- has there been a  
24 dialogue in any way with those people, or is that still just a  
25 separate advisory function to NRC?

1 MR. ROUSSO: I'd like to direct that question to  
2 Ralph Stein as he's been directly involved.

3 MR. STEIN: There have been interactions. I visited  
4 the office here in Washington. Ed Kay and Lake Barrett were in  
5 their offices, San Antonio offices, and had a briefing there.  
6 We recently received a letter from Hugh Thompson I believe  
7 suggesting that as soon as possible we continue that dialogue  
8 and get the staffs together, and I have asked my licensing  
9 branch chief to contact his staff to make arrangements to do  
10 just that. So I'm giving you the extent of what we have done  
11 in the past and we hope to do a lot more in the future.

12 COMMISSIONER ROGERS: Can you say anything more about  
13 the question of what the transportation modes are that are  
14 envisioned to deliver waste packages to the site?

15 MR. ROUSSO: The transportation modes are -- the  
16 majority by rail. There will be some truck. Going to the  
17 repository from an MRS will be strictly by rail. Going from  
18 the reactors themselves to an MRS will be a rail/truck split  
19 but we still think predominantly by rail. Shipments from DWPF,  
20 for example, on the Defense waste, ceramic or silicate glass,  
21 will be by rail. So we're looking primarily at a rail-barge  
22 combination cask and standard way truck cask.

23 COMMISSIONER CARR: Who's doing the roadbed study on  
24 the railroads?

25 MR. ROUSSO: No routes at this point have been



1 formalized or designated and we will have to look to see where  
2 an MRS will be sited and then see what the access routes are to  
3 the Yucca Mountain facility if that does indeed turn out to be  
4 the site of the repository. And that work is still quite a  
5 ways off. But we are dealing -- we have a transportation  
6 coordination group that deals with state people and interested  
7 agencies, and their work has been continuing for some years and  
8 we expect that to continue.

9 COMMISSIONER ROGERS: Are there any significant  
10 problems with having rail access to the site?

11 MR. ROUSSO: Right now there is no rail access --

12 COMMISSIONER ROGERS: With respect to right-of-way  
13 acquisition or anything of that sort?

14 MR. ROUSSO: We have looked at something like nine or  
15 is it reduced now to six possible rail sites, each of which  
16 require some extension to the mountain itself because obviously  
17 that's an inaccessible place right now; ranging from I think  
18 something like 80 miles to several hundred miles. There are  
19 different approaches; it could be from the north of the state,  
20 from the south. Some of the material coming from the West  
21 Coast may proceed by truck if not by rail. But that part of  
22 the program is not developed to a point where specific routing  
23 has been determined.

24 COMMISSIONER ROGERS: This just keeps coming up  
25 whenever I am meeting with the NARUC people as NRC's person on

1 some of their committees. What is the status of the rate of  
2 expenditure of funds on this? How much has been expended so  
3 far of the monies collected for ultimate storage of high level  
4 waste from the utilities, and is the rate of expenditure on  
5 some kind of a track or is there any relationship or no  
6 relationship between the monies expended so far and the total  
7 expected cost of the repository?

8 MR. ROUSSO: I won't say certainly no relationship.  
9 I think to give you some perspective or framework, the money  
10 collected currently from the 1 mil per kilowatt hour that's  
11 payable by the utilities producing the nuclear electricity, and  
12 the interest on the investments to the Fund which is close to a  
13 \$2 billion balance that has not been expended yet from the  
14 program, that combination annually produces something close to  
15 \$700 million. The expenditures for the program have  
16 consistently been under that rate. The last few years it's  
17 been running three and a half to four and a half, \$350 to \$450  
18 million.

19 We would expect now, being into the characterization  
20 phase, to try and do some actual on-site work to drill the  
21 shaft and get the test data, that those expense rates would  
22 increase. And I would expect an increase into the  
23 approximately \$700 million per year range. That would be  
24 easily offset by the amount of money annually collected, and it  
25 is cushioned by the fact that there is approximately \$2 billion

1 in the Fund. So I would not say that we've been constrained in  
2 that sense.

3 But remember that the program is subject to annual  
4 appropriations through the congressional appropriation process  
5 and so the amount of money in the Fund or the amount collected  
6 has no direct resemblance on how much money we're allowed to  
7 usefully expend.

8 COMMISSIONER ROGERS: Thank you very much.

9 CHAIRMAN ZECH: Commissioner Curtiss?

10 COMMISSIONER CURTISS: I wonder if I might just  
11 return to the LSS subject for a few quick questions. This is  
12 kind of a curious system from what I can tell because of the  
13 nature of the involvement of the two agencies. You all are  
14 designing the system with input from our staff and paying for  
15 the system through the High Level Waste Repository Fund. We're  
16 going to administer the system with an administrator appointed  
17 by the Commission and in large part to serve functions that  
18 have to do with our formal repository hearing.

19 I wonder if you could just take a few brief minutes  
20 to explain what you see at DOE as the purpose of the system;  
21 what kind of documents you're going to put into the system, how  
22 many we're talking about, and what you see as the real purpose  
23 of the LSS from your perspective.

24 MR. ROUSSO: Well, we've done I believe four studies  
25 that we've submitted to OMB and the Congress on the LSS. We

1 did a scoping study -- a needs analysis, a scoping study, a  
2 conceptual design and cost-benefit analysis, and there will be  
3 tends of millions of pages of data through this process;  
4 material that we've developed so far that we'd like to get into  
5 the LSS system, references that go with that material, new data  
6 that comes out as we proceed to characterize the site. This  
7 will be ongoing for a number of years.

8 We see a net advantage in that the material will be  
9 available in real time essentially. We feel that that will  
10 greatly reduce the discovery time period. The rulemaking  
11 that's been held over the past year has shown that the parties  
12 to the licensing agree to this approach and feel that that will  
13 be usable and satisfactory. We have a formidable technical  
14 task to prove the system workable. The Commission, as you  
15 mentioned, has been named as the operator, the administrator of  
16 the system to be sited at Las Vegas.

17 Our studies have shown that a primary siting at Las  
18 Vegas with some corollary siting at Washington as the two nodes  
19 conceptual design is workable, and I think that will serve the  
20 interest of the Commission, ourselves and the State of Nevada.

21 COMMISSIONER CURTISS: Do you envision putting into  
22 the system documents that have to do with sites other than  
23 Nevada?

24 MR. ROUSSO: I don't know the answer to that one but  
25 I think as it pertains to useful technical data that can be

1 extrapolated or can be correlated with the site in question,  
2 that should be part of the database.

3 COMMISSIONER CURTISS: Do you envision including  
4 documents that have to do with issues of transportation that go  
5 beyond just localized impacts -- on national transportation  
6 routing questions and cask design and so forth?

7 MR. ROUSSO: I think as that pertains to the  
8 licensing application that should definitely be included.

9 COMMISSIONER CURTISS: One final question on that.  
10 Did I understand you to say that you have proposed Part 2  
11 changes that the Commission should consider, beyond those that  
12 are addressed in the LSS rule?

13 MR. ROUSSO: I believe that -- actually there was an  
14 SECY report that made some suggestions. The 88-285 paper as  
15 well as an 86 paper on the staff's evaluation of possible  
16 approaches to licensing, SECY 86-323, there were efficiencies  
17 in licensing proceedings that might be achieved including some  
18 hearing management techniques, and I'm sorry I don't have  
19 personal knowledge of those but I believe we have submitted --

20 COMMISSIONER CURTISS: All right. If you have  
21 additional thoughts or suggestions on Part 2 changes beyond the  
22 ones that are addressed in those two SECY papers I guess I'd be  
23 interested in seeing what thoughts you have.

24 MR. ROUSSO: Fine.

25 COMMISSIONER CURTISS: That's all I have.

1                   CHAIRMAN ZECH: One of the significant occurrences  
2 has been, of course, this slippage from May to November of 1989  
3 of the exploratory shaft construction. Could you talk about  
4 that just a little bit more and tell us perhaps how that  
5 slippage might impact on repository construction itself, or  
6 other milestones you may have.

7                   MR. ROUSSO: Of course we're looking quite carefully  
8 with that. It was with reluctance that we made that schedule  
9 change; however, I think it shows affirmation of our commitment  
10 that we will not be a slave to schedule -- and I don't mean  
11 that lightly -- but that we will not go forward with data we  
12 cannot show is going to be suitable for a license application  
13 that meets the regulatory requirements. So until we feel that  
14 we have QA'd, quality assured data and procedures in place, we  
15 will not proceed with the scheduled work.

16                   And in that regard, we came forward with this slip  
17 under some pressure, as you can imagine, but we felt that was  
18 the correct thing to do and that's why we did it. And it is a  
19 bit too early to say that the downstream milestones -- and  
20 let's take the 1995 license application submittal -- will be  
21 definitely affected. It is clear it doesn't make our case  
22 better, but in the sense that we have much more confidence in  
23 what we will be doing it may well save spending time and coming  
24 up with data that is useless.

25                   CHAIRMAN ZECH: Well, we certainly appreciate the

1 fact that you want to do a quality job, and of course that's  
2 what we expect you to do. On the other hand, a schedule  
3 slippage like that has got to perhaps impact the whole program,  
4 and this is what my concern would be. We certainly want to end  
5 up with making sure that our regulatory responsibilities are  
6 met and we intend to do that, but the impact of that of course  
7 could be significant and I would just hope that you would do  
8 everything you can to meet that schedule with a quality  
9 program. In any case, that's what we're expecting you to do.  
10 And we want quality rather than schedules, too. We want you to  
11 take as long as you need to do to do it right. On the other  
12 hand, it does mean that you've got to put the effort forth to  
13 try to meet that national schedule which is indeed important to  
14 the nuclear industry and our country.

15 MR. ROUSSO: Yes. I might add two factors to that.  
16 One is that we have hopes that with the advent of the M&O  
17 contractor we would get increased efficiency and focus of the  
18 effort, and this might be reflected in reduced times which  
19 could give us added confidence of meeting the 1995 date.

20 Also at this time, until we actually get a shaft in  
21 place and get down to depth and get some data, it's hard to say  
22 how big a problem or non-problem we really have. So that to  
23 come forward now and say that that slip results in another  
24 month or two or whatever on the downstream schedule, I can't  
25 give you that answer with anymore certainty at this time and I

1 think we have to wait a little bit longer to see what real  
2 effect that has.

3 CHAIRMAN ZECH: Perhaps you could address the  
4 Commission comments that we made on your June of 1988 draft  
5 Mission Plan. How do you plan to address those, and what are  
6 your comments on addressing the comments that the Commission  
7 had on your Mission Plan amendments?

8 MR. ROUSSO: This was the comment on compression --?

9 CHAIRMAN ZECH: Well, it was on a number of things as  
10 I recall, but it was the amendments that we commented on that  
11 you had forwarded to us, and I'm just asking in what kind of a  
12 manner are you planning to address those comments that we had?

13 MR. ROUSSO: We are covering those. Right now we are  
14 in the process of trying to finalize a Mission Plan amendment,  
15 and the comments of the Commission have been factored into that  
16 document and we'll raise comments about -- I'm sorry, sir, I'm  
17 losing track -- was it alternative methodologies?

18 CHAIRMAN ZECH: Well, what I'm asking you to do is  
19 just to pay particular attention to the comments the Commission  
20 made on the amendments that we had for your Mission Plan. And  
21 I would hope that you would treat those with a great deal of  
22 caution and respect because I think what we're trying to do  
23 here in this process of acting as a licensing authority, we're  
24 trying to alert DOE as a prospective licensee, if you will,  
25 when the time comes, to any regulatory concerns we see. So



1 we're letting you know ahead of time that we have this concern,  
2 and I can only say that we expect you to address it with a  
3 great deal of caution and care, because if you don't, when the  
4 time comes we're just going to have to say well, we told you  
5 so. We're trying not to do that.

6 On the other hand, we're trying to keep a respectful  
7 relationship with the licensee, another government agency. And  
8 all I'm trying to say is I would hope that the comments we send  
9 you and that you recognize are coming from the agency in a  
10 government that's going to license that facility.

11 MR. ROUSSO: There's no question about that, Mr.  
12 Chairman, and I assure you that comments coming from the  
13 Commission and the Commission staff are given full and careful  
14 attention and consideration. And I think you will see the net  
15 results in the Mission Plan when it's issued late January or  
16 early February.

17 CHAIRMAN ZECH: And I needn't tell you that this  
18 agency has the ultimate responsibility for making the decision  
19 that the public health and safety is being protected. We  
20 intend to exercise that responsibility.

21 MR. ROUSSO: I understand, sir.

22 CHAIRMAN ZECH: Could you talk just a little bit more  
23 about the nuclear waste negotiator, and how you see the  
24 progress of that office?

25 MR. ROUSSO: We look forward to the creation of the

1 Office of the Negotiator, as listed in the Amendments Act of  
2 '87. To date I do not know of a negotiator being named. There  
3 have been names considered from time to time. But I think the  
4 role the negotiator can play can be very instrumental in moving  
5 this national program forward both in primarily looking at  
6 potential sites for an MRS, volunteer states for an MRS or  
7 tribes. There is also the option that a negotiator may find a  
8 volunteer repository state, but I think that's somewhat less  
9 likely.

10 But we would be prepared and are prepared to respond  
11 directly and provide such a negotiator once named any and all  
12 information at our resources that would be helpful to him or  
13 her in reaching accommodation with a volunteer.

14 CHAIRMAN ZECH: I understand that before sinking  
15 exploratory shaft in November '89 as you're planning to do now,  
16 you'll finalize the Site Characterization Plan and hold public  
17 hearings. I guess I'd be interested to get your views on the  
18 considerations you might have taken regarding overall planning.  
19 For example, have you considered other factors such as land  
20 ownership, mineral right claims, Air Force flight negotiations,  
21 things like that, which may potentially impact your schedule?

22 MR. ROUSSO: I think the coverage in the SCP is quite  
23 extensive. I would have to ask for specifics if I might. Mr.  
24 Stein is our primary associate director associated with the SCP  
25 effort.

1           MR. STEIN: Ralph Stein. I think that you're asking  
2 have we considered the other factors that would let us get on  
3 the site, and let me assure you that we are considering these  
4 factors. We're at the present time waiting for the State to  
5 issue a permit, for example, on air quality. We have submitted  
6 an application for that permit. We have other applications  
7 that are pending with the State at the present time and  
8 hopefully we'll hear from them in the near future.

9           We have interactions with the Bureau of Land  
10 Management, with the Air Force on the activities that we need  
11 to do and they need to do in order for us to get access to the  
12 site. There is a whole host of ongoing interactions that need  
13 to be accomplished before we can actually start the site  
14 characterization work, and in particular the work associated  
15 with site prep and the exploratory shaft facility. And these  
16 are indeed underway at the present time.

17          CHAIRMAN ZECH: Thank you. I think it's just  
18 important to recognize this is a very complex undertaking, and  
19 whereas the tendency perhaps is to get involved completely in  
20 the shaft itself and the technology involved, which is of  
21 course extremely interesting and vitally important, there are  
22 other issues that are important also as we proceed in this very  
23 important area. And I know that they've been discussed and I  
24 know they've been noted but it seems to me that it's important  
25 to recognize that this is a very complex proceeding and all

1 those other issues that might be considered ordinarily kind of  
2 on the side are right up in the middle of this whole program  
3 and they need to be addressed and addressed properly and  
4 technically as well as procedurally correct.

5 And I just want to emphasize the fact of how  
6 important that is to your proceeding with hearing schedule and  
7 all that which this agency is involved in on a day-to-day  
8 basis. But I can only say from my experience on this  
9 Commission that those kind of issues sometimes can become of  
10 great importance and you should be aware of that fact early on  
11 in this whole proceeding.

12 MR. ROUSSO: Yes, sir.

13 CHAIRMAN ZECH: Just one last thought. Commissioner  
14 Carr asked you about your comment in your prepared statement  
15 where you say, and I quote, "This means for each comment we  
16 receive from you we must understand not only the substance of  
17 the comment but the weight the NRC places on it; that is, we  
18 must know whether the comment expresses a regulatory concern or  
19 whether it's a staff-level suggestion for a technical change  
20 that can be treated as advisory."

21 I, too, would be concerned with that. I'm not  
22 exactly sure what you're saying. My understanding is that  
23 you've been working with the staff very professionally, and  
24 that's what we get from our staff, too. But if there are  
25 things that you are concerned about as far as priorities or

1 Commission concerns, I would hope that you would make sure that  
2 they get to the attention of the Commission. And if you're not  
3 satisfied, we need to know that.

4 MR. ROUSSO: I do not have specifics to give you at  
5 this time. I think it's more in the line of the fact that as  
6 we try to resolve issues in a timely fashion we need to  
7 understand the basis for comments. It's not that the  
8 Commission issuing comments itself, it's perhaps more in  
9 dialogue with the smaller technical groups as to whether the  
10 comments are based on serious regulatory concerns or whether  
11 they're based on alternative options in handling a particular  
12 technical problem, and it's just that we need to get that clear  
13 as we go forward.

14 CHAIRMAN ZECH: Well, I hope you'll hammer that out  
15 with the staff and if you're not satisfied that you'll make  
16 sure that it comes to the Commission because we don't want you  
17 uncertain as to what this agency requires or is going to demand  
18 as far as compliance is concerned, or any way that you need  
19 meet our regulations. We don't want you in doubt about that.  
20 We fully recognize that you will be getting staff comments and  
21 informal suggestions from time to time I suppose, but there  
22 shouldn't be any doubt in your mind as to what this agency  
23 requires, and if there is it should be brought to the attention  
24 of the Commission.

25 MR. ROUSSO: All right, sir.

1           CHAIRMAN ZECH: Well, let me just -- unless there are  
2 other questions or comments from my colleagues, let me just  
3 thank you very much, Mr. Rousso, for an excellent presentation  
4 and for that of your colleagues. Your briefing has been very  
5 informative and very helpful. We're talking about a very  
6 serious and important national issue. The Commission needs to  
7 be kept informed on a regular basis. DOE has been doing that  
8 and doing it very well. They do provide the Commission the  
9 opportunity to keep current and to involve ourselves directly  
10 in this extremely important national program.

11           It's important that we get the briefings from you, we  
12 get briefings from our staff and others. We've heard from the  
13 State of Nevada, and it's important that the Commission does  
14 keep informed on this because we do recognize the importance of  
15 this program.

16           I think it's important also that the State of Nevada,  
17 the local governments, Indian tribes, all who have concerns and  
18 interest in the area are kept informed by DOE on a very routine  
19 basis so that this program can receive the public attention and  
20 concern that it deserves.

21           So I would encourage you to continue all your  
22 relationships in that regard. I note that you pointed out  
23 earlier, Mr. Rousso, your emphasis on the clarity of  
24 communications. I agree with that. If that's a problem with  
25 our staff or the State of Nevada or Indian tribes or anyone, I

1 think DOE should be very frank and candid in trying to clarify  
2 communications. We, too, want to communicate very carefully  
3 and very clearly to you, so I appreciate that point you made  
4 and I would agree with you that we should all be mindful of  
5 that. This is a very technical area, an area that is unique in  
6 the experience of mankind, in a sense, of all the technical  
7 issues that we're bringing together to try to accomplish a safe  
8 repository. So I think clarify of communications is extremely  
9 important in this regard, and I emphasize that, too, as you  
10 brought it out earlier as something we should all be mindful  
11 of.

12 So with those comments I thank you very much for a  
13 fine presentation and we look forward to seeing you again at an  
14 appropriate time. If there are no other comments from my  
15 fellow Commissioners, we'll stand adjourned. Thank you very  
16 much.

17 [Whereupon, at 3:20 p.m., the Commission meeting was  
18 adjourned.]

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**CERTIFICATE OF TRANSCRIBER**

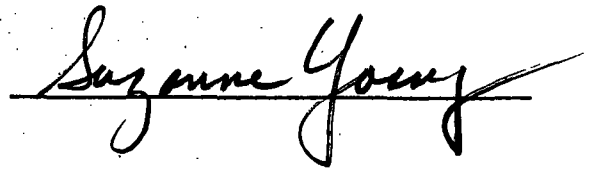
This is to certify that the attached events of a meeting of the U.S. Nuclear Regulatory Commission entitled:

**TITLE OF MEETING:** COMMISSION BRIEFING BY DOE ON HIGH-LEVEL WASTE MANAGEMENT

**PLACE OF MEETING:** Washington, D.C.

**DATE OF MEETING:** TUESDAY, DECEMBER 20, 1988

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.

A handwritten signature in cursive script, reading "Suzanne Young", written over a horizontal line.

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PRESENTATION TO THE NUCLEAR REGULATORY COMMISSION  
Samuel Rousso, Acting Director  
Office of Civilian Radioactive Waste Management  
December 20, 1988

Introduction

It is a particular pleasure to appear before you today to report on our agency's activities, because this month will mark one of the most significant milestones our program has met: issuance of the Site Characterization Plan (SCP) for the Yucca Mountain site.

As you well know, a great deal is riding on our site characterization program: years of effort, several billions of dollars, and an important national interest. Because so much is at stake, the bedrock of our program must be technical excellence. That calls for both meticulous planning and rigorous quality assurance (QA). Our planning for site characterization has benefited from the numerous interactions between DOE and NRC staffs, and we have strengthened our QA program significantly in response to NRC concerns. The approximately 7,000-page document we will issue at the end of this month describes a comprehensive and integrated program that we feel confident will yield the information we need in order to determine the suitability of the Yucca Mountain site and--if the site proves suitable--to demonstrate its suitability to you in the licensing process. If at any point in the course of our site characterization activities we determine that the site is not suitable, we will promptly notify the NRC.

While Ed Kay has left our program and I am serving as an Acting Director, I assure you that our core team remains intact, that continuity is being maintained, and that we are moving the program forward aggressively. In fact, we are substantially augmenting our capabilities through a major management and operations contract which I will tell you more about in a few minutes.

This afternoon, I want to highlight our activities over the past 6 months. I will then discuss areas of joint and special interest to our agencies.

### PROGRAM HIGHLIGHTS

#### Site Characterization

Let me begin by turning in more detail to the subject of site characterization at the Yucca Mountain site. Site characterization involves the collection, compilation, and synthesis of data that will be used to:

- o Determine whether or not the Yucca Mountain site is suitable as a geologic repository for high-level radioactive waste,
- o Design the repository,

- o Design the waste package,
- o Develop and validate models for performance assessment, and
- o Support development of the Environmental Impact Statement and the Safety Analysis Report needed to submit a license application to the NRC.

Last January, DOE issued a Consultation Draft of the Site Characterization Plan (SCP/CD) for the Yucca Mountain site. Since our last formal briefing to you, in June, we have continued to hold technical meetings with the NRC staff to discuss their major concerns on the consultation draft. These meetings have been attended by the State of Nevada and local affected parties. We have also reviewed and acted upon draft and final point papers from the NRC that presented objections, comments, and questions about the SCP/CD. We have reviewed comments from the U.S. Geological Survey and others, as well.

In developing the final text of the plan, we addressed all of the NRC's major concerns, including:

- o The treatment of alternative conceptual models;
- o The design and location of the exploratory shaft facility (ESF) and the potential effects of ESF construction and

testing on site characterization and waste isolation; and

- o Performance confirmation following site characterization, testing of seals system components, and the interpretation of "substantially complete containment."

DOE Headquarters has completed its concurrence review of the final text of the SCP and, as I mentioned earlier, we will issue the plan at the end of this month. At about that same time, we will issue the supporting references and a number of environmental and other documents. During February and March 1989, we will hold public briefings and hearings on the SCP in Nevada.

With issuance of the SCP, the Department of Energy will be able to proceed with the all-important testing that is necessary to determine site suitability. However, no new site-characterization activities will begin until a fully-qualified QA program covering those activities is in place.

#### Exploratory Shaft Facility

We have carefully reviewed the site characterization schedule, particularly with regard to the ESF. To ensure that all necessary quality assurance plans and procedures and other necessary documentation and analyses are in place, we have

delayed starting the ESF final design (Title II) and, therefore, the start of ESF construction. As announced in October, we plan to begin site preparation work in May 1989 and to begin exploratory shaft construction in November 1989.

In its comments on our draft Mission Plan Amendment, the NRC expressed concern that schedule compression could adversely affect the completeness and quality of the license application. However, we imposed the delay to ensure that site characterization activities are conducted in accordance with the QA requirements of 10 CFR 60, Subpart G, and we believe that meeting QA requirements is the best guarantee of the completeness and quality of data for our license application. Further, we are actively seeking ways to manage our program so that we can adhere to our schedule and meet the statutory timetable for review. We will consult further with the NRC on this issue as our planning matures.

OCRWM has imposed a comprehensive set of management and technical prerequisites that will be met prior to the start of the ESF Title II design in January. They include a thorough review of, and necessary revisions to, QA program requirements and design control procedures. Significant elements of these prerequisites are:

- o A review of the flowdown of 10 CFR Part 60 requirements to

the ESF design.

- o Development and implementation of procedures to assign appropriate QA controls to ESF design and construction.
- o Development of the Nevada Nuclear Waste Storage Investigation Quality Assurance Plan 88-9, Revision 2, currently under review by NRC staff.

The ESF has been the subject of intense scrutiny. NRC staff has indicated their concern about the potential for flooding at the ESF location as well as the possibility of the ESF adversely impacting the waste-isolation capabilities of the repository. Based on additional analyses of the probable maximum flood (PMF), in June 1987, we reoriented the shafts within the preferred location area to sites that are topographically higher than a conservative PMF elevation and horizontally distant from the flood limits, even though the original sites were above the probable maximum flood elevations. The new sites have the additional advantage of allowing the shaft collars to be set in bedrock.

Figure 1 shows both previous and current shaft sites compared to the probable maximum flood water level. Figure 2 shows topographic cross-sections of the new shaft sites. Exploratory Shafts 1 and 2 are located 16 and 36 feet, respectively, above

the PMF elevations. Exploratory Shaft 1 is located 290 feet horizontally away from the flood limit, while Exploratory Shaft 2 is 250 feet away. An aerial view of the sites is provided in Figure 3. These new shaft sites were discussed with NRC staff and the State of Nevada in April 1987. The participants at the meeting concluded that the proposed shaft sites are acceptable pending the demonstration that flooding and erosion will not adversely affect the long-term performance of the site. That analysis is provided in the SCP and its references.

With regard to preserving the waste-isolation capabilities of the site, analyses reported in the SCP indicate that the ESF can be constructed without adversely affecting the site and without interfering with other testing activities or test results.

At the request of the NRC staff, we are preparing a Design Acceptability Analysis of the ESF Title I design. This analysis is intended to provide the NRC staff with the added confidence in the acceptability of the design that they need in order to review the SCP. The Design Acceptability Analysis includes the following:

- o A review of 10 CFR 60 requirements applicable to the ESF and their incorporation into the design requirements and criteria documents;

- o An evaluation of the Title I design to determine if the exploratory shaft facility would (1) compromise long-term waste isolation, or (2) compromise our ability to characterize the site, and (3) provide representative data;
- o A determination of the appropriateness of parameters and data used in SCP analyses;
- o Comparative assessments of alternative ESF locations; and
- o An assessment of any impacts on the design and recommendations for corrective measures to be implemented during Title II design.

This effort is being undertaken by an independent group of DOE contractors and consultant personnel. Their recommendations will be thoroughly reviewed by management, and any necessary corrective actions will be taken during the ESF Title II design. If significant changes are necessary to the ESF design, we will notify the NRC staff promptly.

A schedule showing these activities and their relationship to ongoing SCP and ESF-related areas is shown in Figure 4. Overall, we are proceeding with the utmost care to ensure that our investigations will not impair the waste-isolation capabilities of the site itself, that the data we obtain will be



adequate to assess site suitability, and that data collection and analysis will be subject to a rigorous program of quality assurance in accordance with the requirements in 10 CFR 60. Our aim is to submit a high-quality license application that will enable the NRC to complete its review of the application within the statutory 3-year period.

#### Changes in OCRWM Technology Development Activities

Section 161(c) of the Nuclear Waste Policy Amendments Act of 1987 (Amendments Act) calls for an orderly phase-out of funding for all research designed to evaluate the suitability of crystalline rock as a potential host rock medium for a geologic repository. The amendments narrow the program's research objectives by directing OCRWM to characterize only one site, the Yucca Mountain site. We have therefore terminated six domestic research activities designed to evaluate the suitability of crystalline rock as a host medium, and we have redirected the remaining domestic research activities to support the characterization of the Yucca Mountain site.

#### OCRWM Budget for Fiscal Year 1989

On July 19, 1988, Congress enacted an appropriation of \$369.8 million for the Nuclear Waste Program for Fiscal Year 1989. The allocation of this appropriation among the various components of

the OCRWM program, including a comparison of Fiscal Year 1988 and Fiscal Year 1989, is shown in an attachment to your copy of these remarks.

Without going into the details of the budget, I would like to call your attention to a few items: (1) \$15 million is provided for recovery by NRC of Fiscal Year 1988 costs it incurred in performing pre-license application activities related to the OCRWM program (additional funding is being requested in our Fiscal Year 1990 budget); (2) the second repository program has been terminated; and (3) in Fiscal Year 1989, \$7.8 million is budgeted for the Licensing Support System. Depending on the procurement schedule, some of this could be carried over for commitment in Fiscal Year 1990.

As you know, the NRC and the DOE signed a Memorandum of Understanding in July 1988 to establish general policy and procedures regarding the recovery by the NRC of costs it incurs in performing pre-license application activities related to nuclear waste disposal in a geologic repository. This memorandum codifies our on-going practices, and we are pleased that smooth working relationships are the norm under this agreement.

### Issuance of the Draft Mission Plan Amendment for Comment

We issued a draft 1988 Mission Plan Amendment for comment last June. The Mission Plan Amendment, scheduled for issuance in early 1989, will provide information to Congress about OCRWM's plans for carrying out the program as revised by the Nuclear Waste Policy Amendments Act of 1987. It presents the general strategy for the waste-management program as well as plans for both technical and institutional activities. It will be followed by a revised Project Decision Schedule.

### Monitored Retrievable Storage (MRS)

The Amendments Act authorizes DOE to site, construct, and operate an MRS facility subject to certain conditions, which include linkages to the development of the geologic repository. These linkages between an MRS and repository construction reduce the early benefits expected to result from operation of an MRS facility. We are currently updating our analysis of MRS functions in an integrated waste-management system as well as conducting studies for alternative MRS designs. As a result, the functional and operational requirements originally envisioned for the MRS may change as we continue our systems studies.

Meanwhile, we are working to support the efforts of the independent MRS Review Commission. Our staff has made several

presentations to the Commission. We plan to brief the Commission on the results of our systems studies early in 1989, and we will continue to provide them with information they need to prepare their report to Congress.

#### Selection of Management and Operating Contractor

Bechtel Systems Management Inc. has been selected to become DOE's management and operating (M&O) contractor for overall design and analysis of the waste-management system. The M&O contract, with an initial term of 10 years, is estimated to involve expenditures of about \$100 million annually.

Bechtel will be joined in this effort by several other companies who will be responsible for specific aspects of the program. Under the terms of the contract, the contractor will ensure that work on the waste-management system proceeds in a well-structured, systematic manner that meets technical, schedule, cost, safety, environmental, and quality-assurance requirements; that the work meets the regulatory requirements of the NRC and the Environmental Protection Agency; and that it is consistent with applicable DOE orders. This substantial augmentation in DOE support is certain to help us to meet statutory goals, including the goal of timely program implementation.

## AREAS OF JOINT AND SPECIAL NRC INTEREST

### Quality Assurance

In our report to you last June, we discussed how our program had been redirected by the Amendments Act and we explained that we had undertaken a major reorganization of OCRWM in order to better carry out the amended program. This reorganization included the establishment of an Office of Quality Assurance that reports directly to the OCRWM Director.

Since then, we have made significant progress in strengthening our QA program. One important task has been the reevaluation of our QA documents. As a result of this reevaluation, these documents were or will be superseded and replaced by the "Quality Assurance Requirements Document for the Civilian Radioactive Waste Management Program" and the "Quality Assurance Program Description for the Civilian Radioactive Waste Management Program." These documents and supplementary sub-tier documents embody OCRWM quality-assurance policy; together, they constitute OCRWM's QA Plan.

We transmitted both of these documents to your staff, prior to issuance, for review and acceptance. We have met numerous times with NRC staff in open meetings, and with the State of Nevada and others, to address questions relating to these documents and

related subjects. Further, we have committed to the NRC to implement NUREG-1318, "Technical Position on Items and Activities in the High-Level Waste Geologic Repository Program Subject to Quality Assurance Requirements," April 1988.

QA training is another area of special emphasis. OCRWM and Project Office staff and contractor employees are receiving training on specific QA procedures. Mandatory indoctrination workshops are being held to acquaint each employee with QA requirements and benefits as well as the NQA-1 basic criteria under which QA programs have been established and used successfully throughout the U.S. nuclear power industry. Specific training on the Quality Assurance Requirements and the Quality Assurance Program Documents is being provided to familiarize employees with the OCRWM QA program requirements and program description. Further, we have underway QA verification efforts that include all of our program participants. NRC staff participate as observers and provide comments on the conduct and results of these verification activities.

The General Accounting Office has reported on the OCRWM QA program, and the DOE Office of the Inspector General has undertaken a study of how we have handled comments on the SCP/CD. This is not the forum for addressing the GAO report, and the Inspector General's investigation is still underway. I mention them, however, to emphasize that our program does not lack for

surveillance to assure its proper conduct and the quality of its work.

#### DOE-NRC Interactions

At the beginning of my remarks, I mentioned the productive meetings we have held with the NRC. Consultation between our staffs is of increasing importance in the waste-management program. Over the past year, DOE/NRC interactions have included a series of meetings on the Licensing Support System, QA, the NRC Point Papers, and the ESF, as well as briefings to the NRC Commissioners and the Advisory Committee on Nuclear Waste.

A key meeting that dealt with alternative conceptual models was, indeed, a technical seminar on modeling of the Yucca Mountain site hydrology. We appreciate the constructive contributions of the NRC staff in this area. You will find the results in the SCP itself.

In addition to resolving issues relating to the SCP, DOE has been developing the study plans that implement the site characterization plan. The study plans provide additional detail about the studies, tests, and analyses described in the SCP. We expect to transmit 17 study plans to the NRC within the next 12 to 18 months. A total of over 100 study plans will be prepared for the total site characterization program. Five of

them pertaining to the ESF have been prepared and will be submitted to NRC coincident with the SCP.

### Transportation Initiatives

DOE's transportation program is based on the assumption that full-scale movement of high-level radioactive waste is not likely to start for about 15 years, and that this schedule allows ample time to develop the necessary infrastructure for an efficient transportation system. Planning and implementation of the transportation program are well underway. I believe that we have made real progress technically in developing the elements of the system and institutionally in addressing concerns about the transport of high-level waste.

### Institutional Interactions

Institutional interactions are a key component of our efforts to develop the transportation system, and we continue to encourage the active participation in program planning of a broad range of interested parties. To support such participation, the Transportation Coordination Group, consisting of the State of Nevada, representatives from other States, Indian Tribes, utility representatives, and others, meets periodically. NRC staff have attended such meetings on a regular basis. Detailed information about the transportation program is also provided through



documents that are issued for comment.

To foster the study of a wide variety of institutional issues, OCRWM has also put into place a number of cooperative agreements with national and regional groups having particular interests in transportation. Agreements are now in effect with such organizations as the National Conference of State Legislatures, the Western Interstate Energy Board, the Southern States Energy Board, the Commercial Vehicle Safety Alliance, and the American Association of State Highway and Transportation Officials.

#### Cask Development

Because DOE will need a fleet of transportation casks over the operating life of the program, a major cask-development effort is underway. Efforts are focused on the design of a new generation of shipping casks with larger carrying capacities for shipping spent fuel from reactor sites to a repository or to an MRS facility. Negotiations have been completed for the design of "from reactor" casks with General Atomics, Westinghouse Electric, Nuclear Assurance Corporation, Nuclear Packaging, and Babcock and Wilcox. Contract values for these "from reactor" casks range from \$7.0 million to \$14.9 million. DOE expects to define cask fleet requirements and to initiate procurement in time to ensure limited shipping capability by 1998. These cask designs will

form the core of a cask fleet.

In addition to the design and development of these "from reactor" casks, DOE will be reviewing over the next several years the need for three additional cask design initiatives. These include casks for (1) shipping waste from an MRS facility to a repository, (2) shipping non-standard fuel and component parts, and (3) shipping defense high-level waste.

DOE has also been working with utilities to evaluate and assess the compatibility of transport cask designs with utility on-site storage programs. Although the storage technologies at several of the utilities differ significantly, there are possibilities in the system for standardization and integration that could optimize operations for safety and economy. While there are clearly benefits to be gained by using more than one technology for supplementary at-reactor storage, we want to avoid a proliferation of specifications. Interest is growing in avoiding such proliferation, but DOE and the utilities have not yet reached a consensus on how to achieve compatible designs. However, as part of our effort to deal with this problem, we have been meeting with waste producers to discuss the concept termed by the NRC "As Compatible as Reasonably Achievable," and we will continue working closely with them on this issue.

## Nuclear Fuel Services Fuel Shipment and Storage Project

The West Valley Demonstration Project is under the jurisdiction of the DOE's Assistant Secretary for Nuclear Energy. OCRWM's responsibility relative to the West Valley Demonstration Project is limited to ensuring that the glassified waste now stored as liquids at West Valley are compatible with the natural and engineered repository system prior to DOE's acceptance, transport, and eventual emplacement of these wastes.

In light of Federal spent-fuel research and development needs and a Federal commitment to clean up the former Nuclear Fuel Services (NFS) facility at West Valley, OCRWM entered into a cost-sharing program with NFS to demonstrate the performance of transport/storage casks using the NFS-owned fuel. OCRWM has imposed Waste Acceptance Preliminary Specifications and QA Requirements on this program to assure that the glassified waste will meet program standards. We are also working closely with the NRC to finalize certification of the casks used for spent-fuel transport.

### Dry Cask Storage Study

In accordance with the Amendments Act, DOE is preparing a report on the use of dry cask storage at reactor sites. The study assesses the utility industry's spent nuclear fuel storage needs

through the start of operation of the geologic repository, and reviews not just dry cask storage but most of the techniques that could be used to increase on-site spent-fuel storage capacity. We released an initial version of this report for review and comment by the NRC, States, local governments, and the public in September. Overall, we are very pleased with the reception given the initial version and are well into the comment resolution process at this point. When the final report is completed, we will ask the NRC to comment on the final version. We will then submit both the final report and any NRC comments to Congress. Submittal is scheduled for late January 1989.

#### Licensing Support System (LSS) Development

The licensing support system that will support the requirements of all parties in the repository licensing process will be based on a detailed set of system specifications. These specifications are being derived from statutory, programmatic, and user requirements. During the past year, some of these requirements have been defined through the efforts of the High Level Waste Licensing Support System Advisory Committee, efforts which serve as the basis of the proposed rule recently published by the NRC.

In parallel with these efforts, DOE produced a series of four reports to serve as a sound foundation for the system design. These reports, "A Preliminary Needs Analysis," "Data Scope

Analysis," "Conceptual Design," and "Benefit-Cost Analysis," have been submitted to the Office of Management and Budget (OMB) and distributed to the parties to the LSS negotiation and to other interested parties. At this time, the Office of Information and Regulatory Affairs at OMB has approved the technical aspects of the design, and we are beginning to develop functional specifications that will lead to a competitive procurement of the hardware and software.

In addition to these reports, we have embarked on designing and building a prototype system in Washington, D.C., and the University of Nevada at Las Vegas that will contain about 200,000 pages of text. This information will be in full text with images of the actual pages of the documents. The prototype will be used primarily to assess user reaction to such a system and to fine-tune hardware and software requirements. It is scheduled to be available by Spring 1989.

We believe the LSS negotiated rulemaking was extremely productive and that the LSS offers real promise for expediting the licensing process. Because the development of the LSS will be phased, we will have opportunities to evaluate the system's effectiveness as it is being developed. The Energy and Water Appropriations Bill, P.L. 100-371, names the University of Nevada, Las Vegas, as the site of the LSS. We view this as an opportunity to work cooperatively with the University not only to provide a home for

the LSS, but to develop and apply emerging technology that can optimize this system for all participants.

#### State and Local Government Interactions

The State of Nevada continues to actively participate in and oversee program development. State representatives attended our technical meetings with NRC staff on the SCP/CD and the exploratory shaft facility, and the State submitted extensive comments on the SCP/CD. Unfortunately, those comments reached us well past the deadline--too late for incorporation in the SCP under the published schedule. However, we will carefully consider comments the State offered in their review of the Consultation Draft along with comments they offer during the upcoming public comment period on the SCP.

The DOE continues to hold open its offer to the State of Nevada to begin consultation and cooperation negotiations under Section 117 of the NWPA. On April 6, 1988, Secretary Herrington wrote to Governor Bryan of Nevada offering to enter into consultation and cooperation negotiations and negotiations for the Benefits Agreement provided for under the Amendments Act. Among other benefits, such an agreement would provide for State and local representation on a Review Panel with broad review and advisory responsibilities. It would also include a schedule of annual payments to Nevada. In exchange, the State would forego its

right to file a notice of disapproval if the Yucca Mountain site were recommended for a repository. The Secretary's letter also offered the State the opportunity to name an on-site representative. On May 20, 1988, The Governor of Nevada declined the offer to negotiate, stating that the State prefers to use informal mechanisms for interacting with the program.

Prior to the Amendments Act, impact assistance was to be made available to the State only during repository development and operation. The amendments made it available during site characterization as well--if a benefits agreement is not negotiated. DOE will soon submit to Congress a report--mandated by Section 175 of the Amendments Act--on the possible socioeconomic impacts of the repository program and the various authorities, responsibilities, and funding sources that could be used to mitigate those impacts that might occur.

The amendments authorize direct participation grants to "affected" units of local government and expand the definition of "affected." Nye County, the county in which the site is located, is "affected" under the terms of statute, and the Secretary has approved the requests of two other counties--Lincoln and Clark--for "affected" status. On October 14, 1988, DOE awarded initial participation grants for FY '89 of \$203,340 to Nye County, \$313,568 to Clark County, and \$156,490 to Lincoln County. The final grant awards for FY '89 will be made shortly.

## CONCLUSION

Having presented the highlights of our activities over the past 6 months, I would like to offer some thoughts on how we might make our working relationship even more productive over the coming months. At the outset of my remarks, I stated that we will soon meet a major program milestone--issuance of the SCP. I think it's human nature to want to pause and draw a deep breath on such an occasion. But this program presses on. That milestone will not only mark the close of the first phase of site characterization--development of the SCP; it will inaugurate a new phase--implementation of the plans for site characterization --that will require sustained and arduous efforts on both our parts.

The NRC is going to be called upon to review numerous, highly technical documents--not only the 7,000 page-long SCP, but documents related to the design of our exploratory shaft facility, 100 or more study plans, and our semi-annual progress reports. We are confident that, like our work to produce these documents, your review will also be both thorough and timely. We, in turn, must carefully consider your comments on these documents; review our plans for site characterization in light of them and revise our plans as appropriate; initiate new surface-based, site-characterization activities; and begin to prepare the site itself for construction of the exploratory shaft facility.



Ensuring the technical excellence of our work while adhering to an aggressive schedule is going to call for very skillful management. In particular, to ensure that NRC concerns are understood and addressed, we must continue to work to maintain clear communication between our agencies via frequent staff-to-staff interactions. This means that for each comment we receive from you, we must understand not only the substance of the comment, but what weight the NRC places on it. That is, we must know whether the comment expresses a regulatory concern, or whether it is a staff-level suggestion for a technical change that can be treated as advisory.

With a technical program of this scope and complexity, maintaining clarity in communications is no small task. That it has been performed so well to date is a tribute, I think, to the determination and skill of both of our staffs. I am confident that as the work of site characterization progresses, we will gain still more skill in managing our interactions.

Thank you very much for your attention. I hope that I have been clear. I would welcome your questions.

ATTACHMENT  
APPROPRIATION FOR NUCLEAR WASTE PROGRAM  
FOR FISCAL YEAR 1989

On July 19, 1988, Public Law 100-371 was enacted that included, among other appropriations for Fiscal Year 1989, \$369,832,000 for nuclear waste disposal activities to be derived from the Nuclear Waste Fund. This appropriation is allocated to the following programmatic activities:

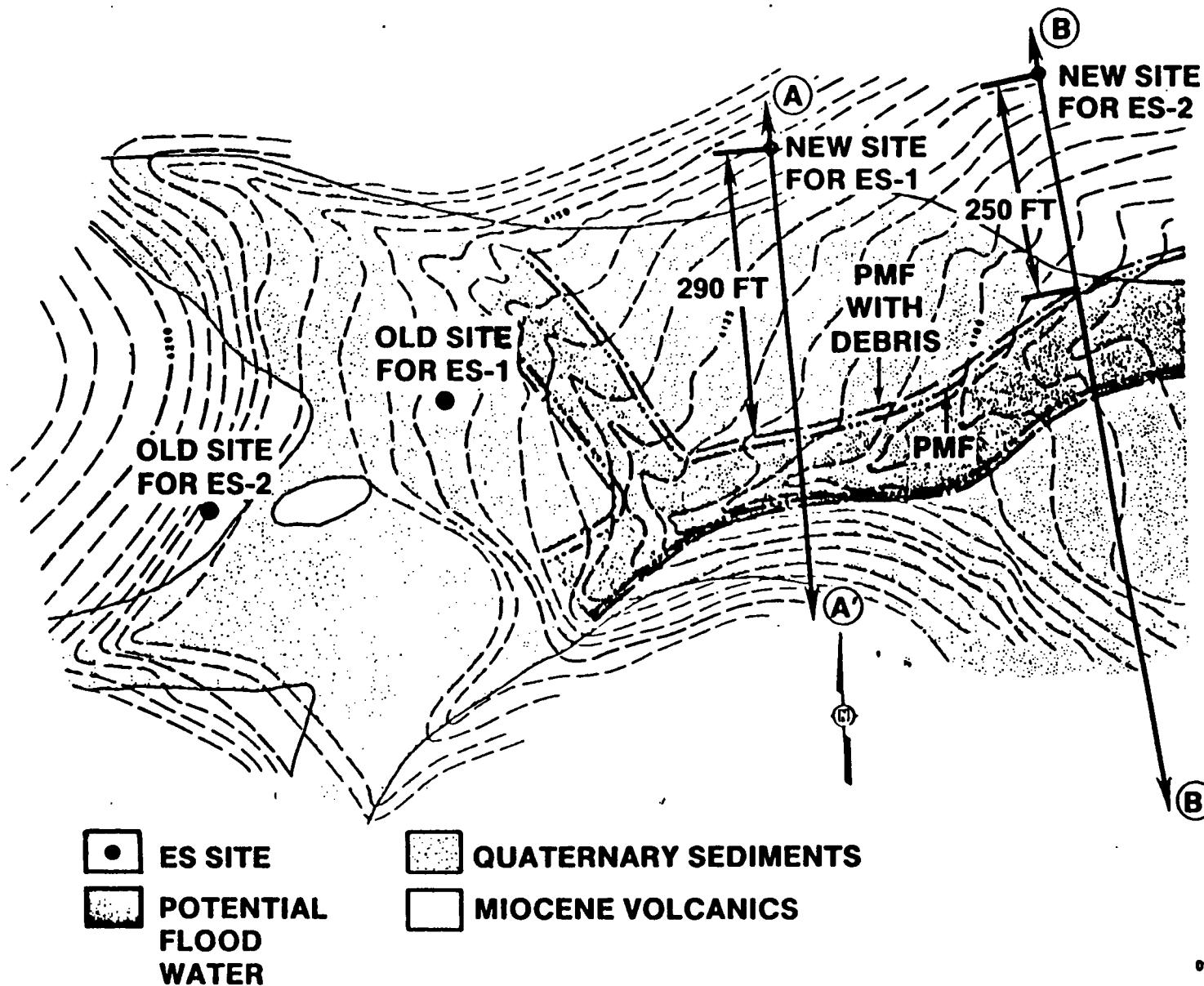
<u>Nuclear Waste Fund</u>	<u>FY 1988</u> (in millions)	<u>FY 1989</u> (in millions)
<b>First Repository</b>		
Operating expenses.....	\$240,900	\$212,161
Capital purchase.....	15,100	11,539
Construction.....	0	0
Subtotal.....	\$256,000	\$223,700
<b>Second Repository</b>		
Operating expenses	\$ 3,500	\$ 0
Capital purchase.....	0	0
Construction.....	0	0
Subtotal.....	\$ 3,500	\$ 0
<b>Monitored Retrievable Storage</b>		
Operating expenses.....	\$ 4,000	\$ 15,000
Capital purchase.....	0	0
Construction.....	0	0
Subtotal.....	\$ 4,000	\$ 15,000
<b>Transportation and Systems</b>		
<b>Integration</b>		
Operating expenses.....	\$ 37,000	\$ 40,600
Capital purchase.....	0	400
Construction.....	0	0
Subtotal.....	\$ 37,000	\$ 41,000
<b>Program Management and Technical</b>		
<b>Support</b>		
Operating expenses.....	\$ 56,800	\$ 71,732
Capital purchase.....	2,700	3,400
Construction.....	0	0
Subtotal.....	\$ 59,500	\$ 75,132

Total Program.....	\$360,000	\$354,832
Nuclear Regulatory Commission Fees	<u>0</u>	<u>15,000</u>
Total Nuclear Waste Fund.....	\$360,000	\$369,832

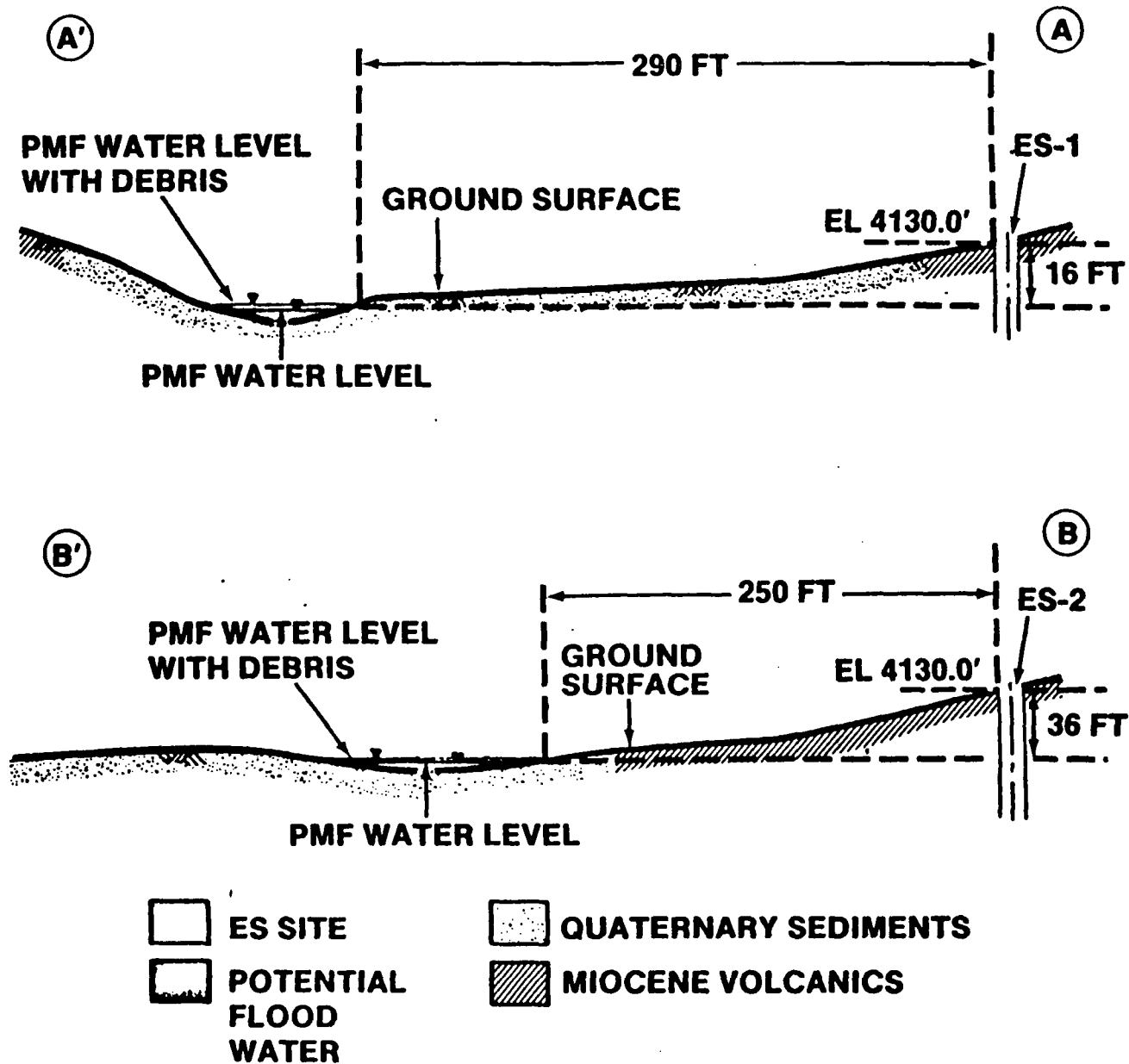
Several limitations on expenditures were included in the legislation:

- o Of the amount appropriated, no more than \$11.0 million, at an annualized rate, may be provided to the State of Nevada for the period July 1, 1988, through June 30, 1989, for the conduct of its oversight responsibilities pursuant to the Nuclear Waste Policy Act of 1982 as amended, of which not more than \$1.5 million may be expended for socioeconomic studies and not more than \$1.5 million may be expended on transportation studies.
- o No more than \$5.0 million at an annualized rate may be provided to local governments to conduct appropriate activities.

**FIGURE 1**  
**ESTIMATED HIGH-WATER LEVELS ASSOCIATED WITH**  
**A PMF IN THE EXPLORATORY SHAFT AREA**



**FIGURE 2 ·**  
**TOPOGRAPHIC CROSS SECTIONS IN THE VICINITY OF**  
**THE NEW ES-1 AND ES-2 SITES**



## FIGURE 3

### EXPLORATORY SHAFT COLLARS (ES-1 and ES-2) AT YUCCA MOUNTAIN

Approximate Elevation Above Natural Wash



**FIGURE 4**  
**ESF RESOLUTION APPROACH**

