

ORIGINAL

**UNITED STATES OF AMERICA**  
**NUCLEAR REGULATORY COMMISSION**

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

**Location:**       **Rockville, Maryland**

**Date:**           **Thursday, May 15, 1997**

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1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION

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4 BRIEFING ON STATUS OF HLW PROGRAM

5 \*\*\*

6 PUBLIC MEETING

7 \*\*\*

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

13 Thursday, May 15, 1997  
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15 The Commission met in open session, pursuant to  
16 notice, at 9:35 a.m., the Honorable SHIRLEY A. JACKSON,  
17 Chairman of the Commission, presiding.

18 COMMISSIONERS PRESENT:

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

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1 STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

2 ANNETTE VIETTI-COOK, Assistant Secretary

3 KAREN D. CYR, General Counsel

4 LAKE H. BARRETT, DOE

5 WILLIAM BOYLE

6 STEPHAN BROCOUM

7 STEVE FRISHMAN, State of Nevada

8 ROBERT LOUX, State of Nevada

9 NICK STELLAVATO, Nye County

10 DENNIS BECHTEL, Clark County Nuclear Waste

11 Division

12 ROBERT HOLDEN, National Congress of American

13 Indians

14 RICHARD ARNOLD, Las Vegas Indian Center

15 MAURICE EBEN, Pyramid Lake Paiute

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

[9:35 a.m.]

CHAIRMAN JACKSON: Good morning, ladies and gentlemen.

This morning, the Commission will be briefed by Mr. Lake Barrett and his staff from the U.S. Department of Energy on the status of the Civilian Radioactive Waste Management Program. In addition, the Commission welcomes representatives from the State of Nevada, Nye and Clark Counties, and Native American representatives who will be afforded the opportunity to address the Commission after the DOE, Department of Energy.

The last time the Commission was briefed by the DOE on its program was September 4, 1996. The last time the Commission heard from the others who are participating in today's briefing was in September, 1994.

With the exception of Commissioner Rogers, none of the other commissioners here today were on the Commission at the last Commission briefing when state and local governments and Native American tribes addressed the Commission. So the Commission has been looking forward to this briefing and I would ask you to bear that in mind as you present whatever your material is that you cannot make assumptions as to what people know and do not know.

The Department of Energy's briefing is a

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1 continuation of a series of annual briefings by DOE for the  
2 Commission regarding the status of its high-level waste  
3 program. Since last September, much has happened in the  
4 high-level radioactive waste program and we can expect more  
5 change in the future.

6           Legislation that could affect this country's high-  
7 level waste program is being considered by the Congress as  
8 Mr. Barrett and I both know. In fact, just two weeks ago,  
9 on April 29, the Commission and the Department of Energy as  
10 well as congressional representatives from the State of  
11 Nevada testified before the House Commerce Committee's  
12 Subcommittee on Energy and Power on its views on the bill,  
13 H.R. 1270. Both the DOE and the NRC are coping with reduced  
14 budgets for their respective high-level waste programs  
15 although I would say we feel, of course, we are hurting the  
16 most. And each agency has taken a hard look at its program.

17           Briefings such as today's can prove to be very  
18 beneficial in times of change and diminishing resources.  
19 The free exchange of information in a public forum between  
20 the two agencies and the affected parties can help to  
21 optimize the utilization of resources and to effectively and  
22 efficiently carry out our responsibility for this country's  
23 high-level radioactive waste management program.

24           Mr. Barrett, the Commission looks forward to  
25 hearing from you today on the status of DOE's high-level



1 waste program and unless the commissioners have anything to  
2 add, I would ask you to begin.

3 MR. BARRETT: Thank you very much, Madam Chairman.

4 As is customary, I thought I would start the  
5 briefing off with four or five visual representations of  
6 some of the work that has happened at Yucca Mountain since  
7 the last briefing.

8 If we could start with the first slide, please?

9 Probably the most significant thing we have done  
10 is daylighted the tunnel boring machine on April 25. What I  
11 would like to do is show you -- the view that you have in  
12 front of you is the south portal where the machine is going  
13 to come out and we have about a 30-second video of the  
14 machine coming out of the south portal wall.

15 If you could run the video, please?

16 [Video shown.]

17 MR. BARRETT: That was very dramatic. But the  
18 real key to the work we are doing at Yucca Mountain as the  
19 science and the engineering and the tunnel boring machine  
20 was just a delivery mechanism to get into the core of the  
21 program, which is the science and the engineering inside the  
22 mountain in the laboratory and I would like to show you how  
23 we are doing that science in the mountain, if we could have  
24 the next slide, please.

25 This is the schematic of the five-mile loop that

1 we did complete and I would call attention to the lower  
2 left-hand corner is the thermal testing facility.

3 Next slide, please.

4 In the thermal testing facility, we have started  
5 some of the thermal tests which we believe are very  
6 important to the program and most constituents that follow  
7 this program believe that also. And there are two main  
8 tests we are going to be doing here.

9 In the upper left-hand corner is the smaller  
10 thermal mechanical test and in the lower right-hand side  
11 will be the larger drift scale test. And in the next  
12 slides, I will show you what is going on in those two, those  
13 two alcoves.

14 Next slide, please.

15 This is the 30-meter thermo-mechanical test block  
16 where we characterize the rock very carefully. It is  
17 probably the most characterized piece of rock in the world.

18 Next slide, please.

19 We placed sensors and heaters in the very center  
20 of that, sort of in front of the man's helmet is the four  
21 kilowatt heater that is placed in the center. We have over  
22 330 thermal sensing points as well as to check the rock  
23 expansion and the temperature and the water movement.

24 Next slide, please.

25 We started this experiment on schedule last



1 August. We are now gathering data.

2 Next slide, please.

3 And we are nearing the end of the data gathering  
4 of the initial heat-up phase. We are actually gathering  
5 thermal profiles through the rock. We can use this to  
6 calibrate our models as we go forward.

7 Next slide, please.

8 This is the predictions, so we can calibrate real  
9 data in the mountain at the repository horizon versus what  
10 our models tell us we will find in the models as we move  
11 forward in this area.

12 Next slide, please.

13 That was the small thermo-mechanical test. We are  
14 in the process of preparing for the large drift scale test,  
15 which will be a simulation of an actual size of an  
16 emplacement drift where we will put heat in the center. We  
17 have finished the excavation of the thermal drift. We have  
18 drilled over a mile of instrumented bore holes around it so  
19 we can follow temperature profiles and see the thermo-  
20 mechanical, hydrological effects of the experiment. This is  
21 the form being placed in the drift to allow for the concrete  
22 liners that we expect to have in the repository.

23 I believe that is the end of the -- excuse me, the  
24 large block test. Next slide, please.

25 We also have on the surface another experiment

1 called the large block test that we finished and that was  
2 started up this last February after we went through the  
3 budget changes last year. This test, we will heat this  
4 block of rock that is about 15 feet high and 10 feet and,  
5 Chairman, you saw that when you were there at your trip in  
6 the heat there last August.

7 CHAIRMAN JACKSON: And that was the real heat  
8 block test.

9 MR. BARRETT: And so that has started up.  
10 Next slide, please.

11 This is a picture of the heaters on the top and we  
12 will heat the block up. It is heating up now. And then we  
13 will disassemble the block to look very carefully at the  
14 thermal, chemical, hydrologic interactions inside the block  
15 of the tuff. So these are just photos of recent activities  
16 that we have had in the science area.

17 When Dan Dreyfus spoke to you last September, the  
18 Civilian Radioactive Waste Management Program was in its  
19 early stages of implementing the revised program plan, which  
20 would be published in June of 1996. Congress endorsed that  
21 plan in the '97 appropriations act and the President's 1998  
22 budget request for the program supports its continued  
23 implementation.

24 With adequate funding, we will complete the Yucca  
25 Mountain site viability assessment next year and maintain



1 momentum toward the geologic disposal as set forth in the  
2 Nuclear Waste Policy Act. As you have mentioned, the Senate  
3 has passed a bill addressing interim storage and the House  
4 is presently considering a similar bill. The Administration  
5 opposes both of the bills and the President has indicated he  
6 would veto either bill if presented in its current form.

7           Despite its opposition to the current legislation,  
8 the Administration remains committed to resolving the  
9 complex and important issue of nuclear waste management.  
10 Secretary Pena has stated his willingness to work  
11 cooperatively with the Congress on nuclear waste disposal  
12 issues.

13           Whatever the outcome, the federal government's  
14 longstanding commitment to permanent geologic disposal  
15 should remain the centerpiece of the nation's high-level  
16 radioactive waste management policy.

17           Over the last several years, the Yucca Mountain  
18 project has been focusing on the major unresolved technical  
19 issues. This will permit us, by late 1998, to provide the  
20 four components of the viability assessment required by the  
21 '97 appropriations act. The viability assessment will give  
22 policymakers key information regarding geologic disposal of  
23 Yucca Mountain. The Administration has stated that this  
24 assessment should be available to inform any decision  
25 concerning the site for an interim storage facility.

1           The viability assessment is not expected to be  
2   sufficient for repository site recommendation and licensing.  
3   Indeed, the viability assessment will include a plan for  
4   additional site investigations and design work necessary for  
5   preparing a complete license application. It is important  
6   that, in this context, we remain clear that in considering  
7   the adequacy and sufficiency of the viability assessment.  
8   If expectations incorrectly elevate the viability assessment  
9   to a final go or no-go decision on the repository or as an  
10   agency action needed for site recommendation, then a  
11   decision will be premature and not meet the requirements of  
12   the Nuclear Waste Policy Act.

13           I seek the assistance of the Commission and other  
14   knowledgeable groups in maintaining the distinction between  
15   the viability assessment and the site recommendation.

16           Our revised program plan recognizes the need to  
17   update the regulatory framework for the repository to  
18   reflect policy changes since the enactment of the Nuclear  
19   Waste Policy Act, the realities of budget constraints on the  
20   program and, in particular, the understanding gained in more  
21   than a decade of site investigations at Yucca Mountain.

22           We have considered these factors in the proposed  
23   amendments to our siting guidelines. It is similarly  
24   important that these factors be considered by the  
25   Environmental Protection Agency and the Commission



1     respectively in developing radiation protection standards  
2     and revising the licensing criteria from a repository at  
3     Yucca Mountain. The Department believes that the resulting  
4     regulations and licensing process should focus on the issues  
5     central to protecting public health and safety and the  
6     environment and not require a degree of proof that is beyond  
7     what science and engineering can reasonably provide.

8             It is important that the revised regulations  
9     consider the inherent limitations of performance assessment  
10    and the uncertainties associated with the analyses of  
11    repository performance. Although these analyses provide  
12    meaningful insights to the potential performance of the  
13    repository system and consequences of disruptive events, the  
14    results should not be viewed as predictions of actual  
15    repository performance. Used as a tool to organize and  
16    evaluate technical information obtained during site  
17    characterization, performance assessment can help all  
18    parties understand the potential benefits and consequences  
19    of geologic disposal.

20            In December of 1996, we issued a notice of  
21    proposed rulemaking to revise our repository siting  
22    guidelines as they would be applied to evaluating  
23    suitability of the Yucca Mountain site. The approach we  
24    proposed focuses on the overall system performance as the  
25    basis for decisions about site suitability and repository

1 development. The suitability decision need not and should  
2 not depend on individual attributes of the site outside the  
3 context of an assessment of the performance of the proposed  
4 engineered repository. We continue to follow with interest  
5 discussions by your staff regarding potential changes to the  
6 Commission's licensing requirements. Changes that would  
7 result in a simple risk-based rule are particularly  
8 appropriate. Reconsideration of defense in depth and  
9 subsystem performance criteria in the context of an overall  
10 strategy for revisions to Part 60 is also appropriate.

11 We understand the staff intends to provide the  
12 Commission with options for possible revisions to Part 60  
13 later this year. We support the staff's position that the  
14 Commission's consideration of possible revisions to its  
15 licensing requirements should not be on the critical path of  
16 the Department's revision of its citing guidelines or any  
17 assessment of the viability of the Yucca Mountain site.

18 To support preparations for a license application,  
19 however, it is important that the key requirements of Part  
20 60 be clear by the time we initiate the final phase of  
21 license application design, which is currently scheduled for  
22 July of 1999. Along with the Commission, we are awaiting  
23 the Environmental Protection Agency's proposed radiation  
24 protection standard for a repository at Yucca Mountain. We  
25 remain concerned that the agency could promulgate standards

1 for geologic disposal that would contain both individual  
2 protection and groundwater protection criteria that are  
3 inconsistent with the realities of geologic disposal.

4 We specifically agree with the view expressed  
5 recently by the Chairman that incorporation of separate  
6 groundwater criteria would not enhance public safety.

7 I am pleased to report we made considerable  
8 progress since we last reported to the Commission in  
9 September. We are implementing a credible plan that  
10 maintains the progress toward a national decision on  
11 geologic disposal.

12 As you have just seen, we completed the excavation  
13 of the five-mile exploratory loop on April 25. From this  
14 point forward, the work will focus primarily on the thermal  
15 and hydrologic testing, confirming our understanding of the  
16 rock where the repository would be constructed. In August  
17 of 1996, we completed the initial construction in the  
18 northern Ghost Dance Fault alcove. This alcove is the first  
19 of two that provide access to the Ghost Dance Fault, a major  
20 geologic feature in the repository setting. Testing in  
21 these alcoves are helping to determine the flow properties  
22 and the chemistry of the water in the fault zone.

23 We intend to construct an additional small  
24 diameter exploratory drift into the potential emplacement  
25 area to the west of the main tunnel in 1998. This will help

1 to improve our understanding of the rock characteristics and  
2 the hydrologic processes that are important to design,  
3 construction and performance of a repository at Yucca  
4 Mountain.

5 As reported to you last September, levels of  
6 chlorine 36 well above the expected natural background  
7 levels were detected at five locations within the ESF. A  
8 total of 189 samples covering more than four miles of the  
9 exploratory tunnel have now been analyzed for chlorine 36  
10 and other isotopes. Elevated levels of chlorine 36 were  
11 found in eight locations, including the five previously  
12 identified. These levels are sufficiently above natural  
13 background to suggest that some water has rapidly moved from  
14 the surface to the repository horizon in the last 50 years.

15 The new data are consistent with the earlier  
16 results. Rapid penetration of surface water to the  
17 repository depth generally correlates with known faults in  
18 the bedded tuff overlying the repository host rock.

19 We worked in critical elements of the repository  
20 in waste package design obtaining information needed as  
21 input to the design process. Repository design activities  
22 addressed thermal management, performance confirmation  
23 design, waste handling emplacement and retrieval,  
24 development of system structures and components important to  
25 safety that have little or no regulatory precedent and



1 design basis analysis.

2           The waste package design activities address  
3 criticality analysis methodology development, preliminary  
4 thermal, structural and shielding analyses, containment  
5 barrier fabrication, closure feasibility analyses,  
6 conceptual invert design and material selection. These  
7 efforts will support designs for components of an engineered  
8 barrier system that contributes to isolation and retardation  
9 of radio nuclides.

10           We are also reviewing suggested changes to the  
11 licensee support system regulation regarding working with  
12 your staff to resolve any comments that we may have. In  
13 light of the significant advances in computer technology and  
14 connectivity that have occurred since these requirements  
15 were last revised in 1991, the proposed change in the  
16 Commission's rule appears to be most appropriate.

17           Our waste acceptance storage and transportation  
18 project is focused on planning and long lead time activities  
19 that must precede the removal of spent nuclear fuel from  
20 reactor sites once a federal receiving facility becomes  
21 available. These activities are consistent with the  
22 Administration's policy on siting an interim storage  
23 facility.

24           During the past year, we developed a market-driven  
25 approach that will rely on the maximum use of private

1 industry capabilities, expertise and experience to provide  
2 the necessary services and equipment required to accept and  
3 transport commercial nuclear fuel to a federal facility. We  
4 are presently working to establish a competitive procurement  
5 process to award fixed-price, multi-year, performance-based  
6 contracts to the industry.

7 To address long lead time requirements related to  
8 centralized storage, we completed a non site-specific design  
9 for a centralized interim storage facility and submitted a  
10 topical safety analysis report for this design through your  
11 staff on May 1, 1997. We believe that the staff's  
12 acceptance and successful review of this report will reduce  
13 the time required for subsequent preparation and staff  
14 review of a license application.

15 We are working closely with the Office of  
16 Environmental Management within DOE to ensure that near-  
17 term decisions related to the stabilization and storage of  
18 department-owned spent fuel are compatible with the  
19 configurations required for disposal as we know them at this  
20 time. We believe that we can safely dispose of the  
21 Department's inventory of spent fuel along with the  
22 commercial fuel and high-level waste. We intend to enhance  
23 interactions with your staff on our plans for the management  
24 of this inventory and to identify potential technical and  
25 licensing issues associated with disposal that may require

1 early resolution.

2           Though implementation of our revised plan has  
3 focused on the program key issues and maintaining momentum  
4 of the repository program, within the next 18 months we will  
5 complete the viability assessment that will serve as a  
6 significant benchmark for the program. The products  
7 associated with the viability assessment will provide all  
8 parties, including the Commission, a better understanding of  
9 geologic disposal at Yucca Mountain and the significance of  
10 the data available. It will also help inform ongoing  
11 revisions to the regulatory framework and guide completion  
12 of the site characterization work.

13           We intend to keep you and your staff advised of  
14 our progress and look forward to a constructive dialogue as  
15 we carry out our mutual responsibilities.

16           Thank you for the opportunity to brief the  
17 Commission and I will answer any questions that you may  
18 have.

19           CHAIRMAN JACKSON: Thank you, Mr. Barrett.

20           I should have announced this before. Because we  
21 have quite a few presenters today, I think we are going to  
22 try and have a more structured set of Q's and A's than we  
23 would normally have. Of course, I am going to take  
24 advantage of that and start. But then we will go down the  
25 line and try to have everyone comprehensively address his or

1 her questions to you so that we can finish in a reasonable  
2 time.

3 Let me ask you, this is relative to your actual  
4 submitted statement. On page 1, you talked about a schedule  
5 for implementing the process with contract holders to  
6 determine what actions under the standard contract would be  
7 appropriate to address the anticipated delay in DOE  
8 accepting spent fuel. Do you have a schedule for  
9 implementing that process?

10 MR. BARRETT: We have to file a brief before the  
11 Court at the end of the month. In the brief before the  
12 Court, we will describe the actions that we were taking  
13 under the remand from the Court to the Department. That is  
14 currently being worked with in the Department and in this  
15 setting I would prefer not to comment.

16 CHAIRMAN JACKSON: Okay, so perhaps I won't ask  
17 you, then.

18 MR. BARRETT: After the brief is submitted then it  
19 might be more appropriate to have that discussion.

20 CHAIRMAN JACKSON: More appropriate to do that.  
21 All right.

22 Can you talk a little bit more about the schedule  
23 for submitting the license application plan? Are you  
24 coordinating this plan with the NRC staff?

25 MR. BARRETT: Yes, we discussed at the last

1 management meeting and within the last few weeks we did  
2 discuss and present our work on that to the staff. The  
3 actual date for that, Dr. Brocoum, would you -- do we have a  
4 schedule as to when that would be submitted to the staff?

5 This is Dr. Steve Brocoum, who is the manager,  
6 assistant manager for licensing at the Yucca Mountain  
7 project.

8 MR. BROCOUM: I think we have a draft LA plan this  
9 fall. Then we will finalize it during fiscal year '98.

10 CHAIRMAN JACKSON: Can you elaborate on your  
11 concerns with the NRC staff's prioritization of the key  
12 technical issues?

13 MR. BARRETT: This is a judgmental issue. One of  
14 the things that we believe are quite important in the  
15 overall repository context is the design of the engineered  
16 barriers and its interaction with the natural setting.

17 In the KTIs of the Commission, design was one of  
18 the ones that were ranked at a lower priority than others  
19 when you had to deal with your budget situation as we have  
20 had to deal with ours. That is an area we think is fairly  
21 important and I know your staff is working in that area as  
22 best they can under the budget constraints.

23 CHAIRMAN JACKSON: This afternoon, the Commission  
24 is going to be briefed by the NRC staff on its performance  
25 assessment efforts and you alluded to this in your comments.



1 Can you flesh out a little bit more how the performance  
2 assessments of DOE compare to the ones being developed by  
3 the NRC staff?

4 MR. BARRETT: I think Dr. Brocoum or Dr. Boyle  
5 might be better able to give you a complete answer to that.

6 From my perspective, they do reinforce each other,  
7 different answers, different approaches. But nonetheless,  
8 there is nothing there that is a surprise to me from the  
9 briefings that I have received.

10 Steve?

11 MR. BROCOUM: I think we have had a lot of  
12 interaction with the staff on performance assessment. We  
13 have one, I think, planned for July. My recollection is we  
14 have a two-day technical exchange.

15 I think in the last year or so there has been some  
16 convergence in the fund. Generally, the staff has had  
17 higher releases sooner. Ours had lesser releases later. I  
18 think we have kind of converged in the last year as we have  
19 taken a higher percolation flux into account.

20 CHAIRMAN JACKSON: Let me talk to you, and since  
21 you are up there, perhaps you can stay. Maybe you could sit  
22 down. Since I am questioning you, I will let you rest your  
23 legs.

24 On page 9 of Mr. Barrett's statement, you state  
25 that the average percolation flux is in the range of 2 to 15

1 millimeters per year. Your earlier estimates of percolation  
2 flux were less than 1 millimeter per year. And you also  
3 state that accumulating evidence is that water percolates  
4 down through the proposed repository host rock predominantly  
5 through the fractures in the rock.

6 These seem to be somewhat significant departures  
7 from your earlier results and I guess the real  
8 question -- there are two questions. One is, do you think  
9 that this new information could significantly affect your  
10 schedules for completing the viability assessment and the  
11 license application. That's question one. And, second, how  
12 has it changed your testing program?

13 MR. BROCOUM: First question, as you know, the  
14 viability assessment is a point in time and it is a status  
15 of where we are at that point in time so I don't see that it  
16 would change our viability assessment schedule.

17 With regard to license applications, we have  
18 several years of testing to go and analysis and so at the  
19 moment we don't see it changing our schedule for license  
20 application.

21 And what are we doing? There are two things. One  
22 is we are doing a risk mitigation -- what we call a risk  
23 mitigation. We are doing several activities to the tune of  
24 about \$14-1/2 million of enhanced site characterization  
25 including constructing some niches in the ESF, some where

1     there is higher chlorine 36, one of them, and the other  
2     where the chlorine 36 was not higher. Then we are going to  
3     seal up and instrument those niches and see how the water  
4     percolates in each one and we are also going to introduce  
5     some traces above it.

6             The second thing which I think is in the testimony  
7     is, of course, we are considering east-west drift and that  
8     will give us some more information across the block with  
9     regard to the percolation of water through the repository.

10            CHAIRMAN JACKSON: Okay, and one last question.  
11     On pages 7 through 12, and this is a follow-on to this, you  
12     talk about the various testing programs that you are  
13     initiating since the tunnel has been completed. Can you  
14     talk a little bit more about how you are actually  
15     integrating the results of the various programs into one  
16     overall test program?

17            MR. BROCOUM: Well, the project was reorganized  
18     last November and so that under my management we have the  
19     engineering, the science, the performance assessment and the  
20     regulatory systems all under my responsibility. We have  
21     also worked very hard to integrate doing these workshops,  
22     what we call abstraction workshops, between the PA, the  
23     engineering and the science. These are ongoing right now  
24     and the key models, different models, are key to the  
25     performance assessments.

1 I think we have made a lot of progress in  
2 integrating the project.

3 Is that responsive to your question?

4 CHAIRMAN JACKSON: Thank you.

5 Commissioner Rogers.

6 COMMISSIONER ROGERS: Well, just right on that  
7 general subject, the drift scale heater test, what is the  
8 duration of that test? How long will that go?

9 MR. BROCOUM: I defer to Dr. Boyle.

10 MR. BARRETT: Dr. William Boyle is a team leader  
11 that works for me in the area of performance confirmation.

12 MR. BOYLE: At least two years of heating but it  
13 is not completely determined as of this point yet. We are  
14 still doing some analyses. It may be as many as four years  
15 of heating and then a subsequent cool down period of  
16 approximately equal length as the heat-up time.

17 COMMISSIONER ROGERS: Thank you.

18 I wonder if you could give me a little bit more  
19 about your thinking on this question of bounding values on  
20 page 5 of your testimony? I didn't quite understand why you  
21 felt that the selection of a set of bounding values  
22 necessarily introduces an excessive amount of  
23 conservatism. Doesn't that depend on what those bounding  
24 values are rather than whether you actually set them?

25 MR. BROCOUM: Of course it depends on what they

1 are. But if you tend to, for each parameter, pick the most  
2 conservative value, you may be in a position that you either  
3 cannot design the repository or, if you can design it, you  
4 cannot afford it. It is that kind of an issue. It is a  
5 tradeoff between cost, time and performance.

6 COMMISSIONER ROGERS: Well, it is just that the  
7 statement here really says the simultaneous selection of  
8 bounding values for many of the key parameters could, you  
9 know, compounding of conservatism could cause the analysis  
10 to lose its useful insight. It seems to me that the notion  
11 of bounding values is very important and, you know, you  
12 don't want to abandon bounding values. It is a question of  
13 how they are set.

14 So the emphasis that you just made on their being  
15 very conservative at the outset is of proper concern but I  
16 am just a little troubled that you might be suggesting that  
17 we don't use bounding values. They have to be there.

18 MR. BROCOUM: Well, we tend to have probability  
19 distribution functions for many of these parameters. And in  
20 that way, you pick the bound as also a matter of judgment.

21 COMMISSIONER ROGERS: Yes. That's all I have.

22 CHAIRMAN JACKSON: Thank you.

23 Commissioner Dicus?

24 COMMISSIONER DICUS: Yes, you address  
25 transportation in your written testimony and your activities

1 with the transportation industry and in that you may have  
2 answered the question that I have and, if you did, I  
3 apologize for that. But the question is, I would like to  
4 know what the status of the topical safety analysis report  
5 on transportation, what the status of that is?

6 MR. BARRETT: We don't have a specific topical  
7 safety analysis report for transportation. We have a  
8 topical -- we have four topical safety analysis reports  
9 presently before the Commission. Probably the most  
10 significant one is the generic centralized storage facility  
11 that we just submitted on May 1.

12 Prior to that, we submitted a topical safety  
13 analysis report for a transfer of facility to allow the  
14 utility to either be used at reactors to move from a small  
15 canister to a large canister with crane limitations. Also,  
16 we have incorporated that into our central storage facility.  
17 If there was ever an off-normal condition that you had to  
18 change, take fuel out of canisters for an off-normal event.  
19 So we would use it, potentially reactor licensees, 50  
20 licensees could use it or we could use it.

21 We have also submitted a topical safety analysis  
22 for burn-up credit which can be used for transportation  
23 certifications under Part 71. Some of the technology could  
24 also be used for our criticality safety analyses for the  
25 repository criticality safety aspects. This is a concept



1 that is currently used in the European nations as well. So  
2 we have been working with your staff on that for several  
3 years.

4 In transportation, I think those are the  
5 transportation-related ones, unless there is something else  
6 that --

7 COMMISSIONER DICUS: Well, given the work that you  
8 are going to be doing with private industry on  
9 transportation, is there going to be some sort of a report  
10 or analysis that is going to address some of the issues that  
11 will surface with transportation?

12 MR. BARRETT: The most comprehensive part of that  
13 would be in the Yucca Mountain environmental impact  
14 statement, which we have under way with the draft statement  
15 due in '99. That will address the entire environmental  
16 aspects of the Yucca Mountain project, including  
17 transportation. So that is where it will lead into what the  
18 transportation impacts are across the country that would be  
19 most explicitly gone through in the draft and final  
20 environmental impact statement for Yucca Mountain.

21 If we ever had an interim storage facility in this  
22 country, depending on what the structure is and the statute  
23 for that, we would also address there the transportation.  
24 Or if that comes after the repository, we could reference  
25 the repository environmental impact statement.

1 COMMISSIONER DICUS: Okay, thank you.

2 CHAIRMAN JACKSON: Commissioner Diaz?

3 COMMISSIONER DIAZ: Yes. Are there any major,  
4 long-term testing that might impact on the site selection  
5 and license submittal by the year 2001, 2002?

6 MR. BARRETT: For the repository?

7 COMMISSIONER DIAZ: For the repository.

8 MR. BROCOUM: Well, the large-scale drift test  
9 will probably be in the cool down phase at that point in  
10 time, depending on how we do. We will also be doing the --  
11 10 CFR 60 requires us to have a performance confirmation  
12 program and as we wind down characterization activities,  
13 they will be replaced by performance confirmation activities  
14 which are designed to show you that the parameters that you  
15 are using for your model and performance assessments are, in  
16 reality, are within those bounds or distributions.

17 So basically we will have a performance  
18 confirmation period. That goes on for all the time that the  
19 repository is operational.

20 COMMISSIONER DIAZ: Yes, I know. But any of those  
21 issues, could they potentially delay site selection if you  
22 have a major test that is ongoing and it is not  
23 substantially completed?

24 MR. BARRETT: What we have is we don't know now of  
25 any test, any specific test, that is on the critical path

1 for -- when you say site selection, site suitability,  
2 recommendations of the Secretary to the President, that  
3 would be in the 2001 time frame.

4 We don't know any particular test that is on that  
5 critical path. But we are doing much testing, we are doing  
6 saturated zone testing, unsaturated zone testing, laboratory  
7 testing, fuel testing.

8 As we learn from these tests, as we have learned,  
9 for example, on the chlorine 36, we will learn things. We  
10 keep a dynamic program that is flexible and adjusts on what  
11 we learn.

12 If we find something requires more time, we will  
13 take more time. We are not going to meet the schedule,  
14 regardless of what we find. But, right now, based on the  
15 work we have done so far, we have not seen anything that is  
16 going to knock those schedules back.

17 Tomorrow or this afternoon I might get a call from  
18 the project that there is something they found that could.  
19 So I don't want to say we are just not on the schedule, no  
20 matter what, but there is not any one particular test that  
21 is the critical path to that. It is a combination of a lot  
22 of things as we are testing. We have schedules that have  
23 over 4000 nodal points that take us out to license  
24 application and those are dynamically controlled in a  
25 management system and sometimes it takes longer and

1 sometimes you do them shorter but, overall, when you look at  
2 it and we status this every week in Steve's office, that we  
3 are on track at this point. But that doesn't mean it can't  
4 change.

5 CHAIRMAN JACKSON: Commissioner McGaffigan.

6 COMMISSIONER MCGAFFIGAN: I noted in your  
7 statement and your formal statement as well the concern that  
8 we not become a critical path item, that we get our Part 60  
9 revision complete by July of '99. You are well aware that  
10 that depends on EPA and we are a dependent rather than an  
11 independent variable in that.

12 What is your sense as to EPA's timing? Do you  
13 have any sense of that at the moment?

14 MR. BARRETT: I really don't. I know that EPA is  
15 actively working on it and the status I really --

16 COMMISSIONER MCGAFFIGAN: I also noted your  
17 comment that you supported the Chairman's testimony for the  
18 Commission at the hearing with regard to what an appropriate  
19 standard might look like, particularly with regard to  
20 groundwater.

21 If it weren't for the interim storage piece of  
22 this legislation that is before the Congress, if the  
23 legislation were -- if it is possible you were to partition  
24 it to those parts that are focused on Yucca Mountain and  
25 trying to clarify Congress's intentions with regard to

1 permanent disposal, are those parts of the legislation, as I  
2 say, put aside interim storage and forcing interim storage  
3 to a certain site and certain timing, there is another part  
4 of the legislation in S. 104 and in 1270, H.R. 1270, that  
5 sort of looks at Yucca Mountain and sets a standard  
6 different in the two bills and lays out various provisions  
7 that are intended to deal with Yucca Mountain, not with  
8 interim storage.

9 Has the Administration done any thinking about  
10 those parts of the bill?

11 MR. BARRETT: As you are well aware, sir, the  
12 Administration is an amalgamation of many different agencies  
13 and groups. There was a lot of discussion early on in some  
14 of the early versions of the bills, which those did evolve  
15 and become more acceptable, let me say. The early versions,  
16 that was basically a show-stopper. Those did evolve in the  
17 Senate to something that was more to the Administration's  
18 view.

19 To my knowledge, there has not been in the  
20 Administration isolating that one item and saying would that  
21 be totally unacceptable or not on its own. So the answer  
22 is, I don't know and I don't think it has evolved to that  
23 because the interim storage issues have been overriding.

24 COMMISSIONER McGAFFIGAN: The licensing support  
25 system, I noticed your testimony there as well. It is our

1 responsibility to change the rule and I guess we have an  
2 advanced notice of proposed rulemaking out on the Internet.  
3 We are using the Internet to do our rulemaking.

4 If we can ge to the point where we are using the  
5 Internet rather than obsolete, massively expensive systems,  
6 whose responsibility will it be to enter all of the data  
7 into the system? Is this primarily a budget item for you  
8 the way you see LSS moving forward?

9 MR. BROCOUM: I think for all Department of Energy  
10 data, it will be our responsibility to enter that and we are  
11 now scanning our data, all our data, and by the end of 1999  
12 all our backlog will be now in an electronic forum, both in  
13 the retrievable and searchable text format and in the image  
14 form. So we will have the ability to go whatever direction  
15 we decide to go using electronic data recovery systems.

16 COMMISSIONER McGAFFIGAN: That looks like it is  
17 proceeding well? That is what you are saying to us.

18 The last are multipurpose canisters --

19 CHAIRMAN JACKSON: He was about to make a comment.

20 COMMISSIONER McGAFFIGAN: Oh, I'm sorry.

21 MR. BROCOUM: I think, from our perspective, both  
22 sides, both the NRC staff and our staff are feeling pretty  
23 comfortable with the direction everything is moving.

24 MR. BARRETT: I would add one thing to that. I  
25 think an important point will be in our viability assessment



1 we have as a goal, not as a commitment but an internal goal  
2 to have the entire viability assessment suite of documents  
3 which will be a million pages, probably, when you add it all  
4 up, available on, you know, electronic media, that we can  
5 kind of experiment with that, so that whole package can be  
6 available to all the constituencies to analyze, look at,  
7 come to their own conclusions and evaluate the data that is  
8 there.

9 So there will be a test case coming up very  
10 shortly as to huge amount of information in electronic media  
11 that it would be user friendly to all people who might wish  
12 to use it. So we are working toward that and that is part  
13 of where I personally watched as a test as to how well this  
14 is going to work.

15 COMMISSIONER MCGAFFIGAN: The last question is on  
16 the multipurpose canister program which was terminated. But  
17 what is the -- clearly, we would be better off if we could  
18 get spent fuel into canisters that could be transported as  
19 well as used for storage. There are private sector efforts  
20 to do that.

21 But what is the ongoing involvement of the  
22 Department in any fostering of license applications to us  
23 for multipurpose canisters? Can you explain that?

24 MR. BARRETT: For dual purpose, which will be  
25 storage and transportation, we do not. The only thing we

1 are considering doing is taking that to the third stage,  
2 which we call multipurpose although it should be really tri-  
3 purpose would be probably a better jargon for that, where it  
4 would be storage, transportation and would be able to be  
5 used in the disposal context as basically the inner  
6 structure to the final waste disposal package.

7 That is the only thing we are considering doing  
8 and we are negotiating with Westinghouse, who was the chosen  
9 company, to see if there was some appropriate arrangement in  
10 the context of the market-driven approach that we presently  
11 now have.

12 We believe that the dual purpose technology is in  
13 the marketplace and there is no need for any government  
14 involvement to develop that at this point.

15 COMMISSIONER MCGAFFIGAN: On the multipurpose  
16 side, how will that get into the marketplace? The previous  
17 program you had with Westinghouse, does that technology  
18 belong to the government and can be basically licensed to  
19 anyone or does Westinghouse have primary access to it? How  
20 did that particular contract work?

21 MR. BARRETT: The contract, okay, was a fixed-  
22 price contract and we would pay for it. Therefore, the  
23 design is wholly publicly owned, let me say. If it was  
24 government money that did it, it would be publicly owned.

25 So the design was delivered by Westinghouse last

1 year and that exists and that is publicly available and we  
2 have made that available to any vendor, anybody that wishes  
3 it.

4 Westinghouse is proposing to go on to certify that  
5 and go through the Part 71 certification process, which is a  
6 very important test on the viability of such a concept. Our  
7 original approach was that we would pay for that fully and  
8 then it would be government owned and anyone could fabricate  
9 it at that point. Now, the way we are going to integrate  
10 that in with the market-driven approach is we would not  
11 dictate or mandate that the regional service contractors,  
12 that would be the market-driven contractors, what canisters  
13 they will use. But the way we did it to provide the  
14 multipurpose canister, which will probably cost hopefully a  
15 little bit more but more than a dual purpose because it  
16 could do more, to allow that to work in the market while we  
17 would say any offsetting costs to the Department of Energy  
18 in the disposal program would be returned to the vendor.

19 Now, generally, the canister internals in a waste  
20 package are around \$200,000 to a quarter of a million  
21 dollars, so there is a lot of money involved there. This  
22 could be returned back in the future. But the uncertainty  
23 would be from a Wall Street investor point of view, how much  
24 more does it cost me to go to a multipurpose canister and  
25 what is the likelihood of my return on investment because

1 you really don't know if it is going to work until we go  
2 through the licensing process with you on the waste package  
3 internals and dealing with things, long-term criticality and  
4 those matters that we do not know the ultimate answers yet  
5 until we go through that process.

6 So we were trying to work it that way and let the  
7 market decide on the risk whether to go with a multipurpose  
8 canister or not. That is how we are trying to integrate it  
9 in. Those are the discussions we are having with  
10 Westinghouse within the confines of the existing contract,  
11 that we could work out a structure that would be  
12 appropriate.

13 COMMISSIONER MCGAFFIGAN: Thank you.

14 CHAIRMAN JACKSON: Thank you, Mr. Barrett. Thank  
15 you and your colleagues for a very informative discussion.

16 MR. BARRETT: Thank you, Madam Chairman.

17 CHAIRMAN JACKSON: We will move on and invite the  
18 representatives from the State of Nevada, Mr. Loux,  
19 Mr. Frishman, also Mr. Stellavato from Nye County and  
20 Mr. Bechtel from Clark County. If you could all come  
21 forward, we will begin with the discussion from Mr. Loux.

22 MR. LOUX: Dr. Jackson, members of the Commission,  
23 I am Robert Loux and I am the director of the Nevada Agency  
24 for Nuclear Projects. The agency was established by the  
25 Nevada legislature in 1985 to carry out the state's duties

1 and responsibilities under the NWPB and I have been the  
2 agency's director since it was established and previously  
3 ran the program from the governor's office prior to -- or  
4 since the passage of the Act.

5 We certainly appreciate the opportunity to meet  
6 with the Commission at the same time that the OCRW and  
7 management is providing you with an update of its program.  
8 It is our hope this will broaden the perspective from which  
9 the Commission considers some of the issues which will come  
10 before it in the near term.

11 As you correctly pointed out, our last  
12 presentation was in September '94, shortly after the OCRWM  
13 program, proposed program approach had been outlined with  
14 the Commission. In 1994 in our presentation, we discussed  
15 the topic of OCRWM's licensing approach relative to the  
16 proposed program approach. With the issuance of the 1996  
17 revised program plan, the issue remains the same. It  
18 appears to us that the OCRWM intends to submit less than a  
19 complete license application to receive repository  
20 construction authorization.

21 The Yucca Mountain project managers have begun to  
22 speak of the license application as "the initial license  
23 application" for construction authorization with two  
24 additional update license applications to follow, one to  
25 receive and possess and one for repository closure. OCRWM's

1 statutory and regulatory basis for this approach was  
2 recently outlined to the NRC staff and is attached to my  
3 written statement in annotated form. And Steve Frishman of  
4 my staff will discuss that with you at the conclusion of my  
5 presentation since we think it is rather significant.

6           OCRWM's phased approach to licensing as contained  
7 in the revised program plan is in conflict, in our view,  
8 with the regulatory approach of Part 60 and this should be  
9 studied very carefully. In Part 60, it is clear that the  
10 Commission's disposal decision is to be made with the  
11 issuance of construction authorization. Conversely, the  
12 OCRWM licensing approach would have the Commission taking  
13 incremental steps toward a disposal decision which would  
14 occur after its review of the license amendment for  
15 repository closure.

16           If this were to take place, the Commission's  
17 determination of reasonable assurance of compliance with the  
18 EPA standard would not be made until after as much as 100  
19 years of repository operation and all the waste had been  
20 emplaced. And let me just indicate from a public  
21 perspective, I don't think there is a greater issue that  
22 could impact public confidence in any sort of licensing  
23 process than the program plan. Generally the view of the  
24 public is that this is tantamount to essentially an  
25 unlicensed repository during the first 100 years of

1 operation and they believe further this essentially excludes  
2 them from the final disposal decision in the licensing  
3 process and makes generally the licensing decision somewhat  
4 of a moot issue in the sense that, after 100 years of  
5 operation, their view is it is very unlikely this material  
6 would then be somehow dug up and moved somewhere else if it  
7 was found not to be in compliance with the EPA standard.

8 Since the passage of the Nuclear Waste Policy Act  
9 nearly 15 years ago, the Commission has repeatedly reminded  
10 the OCRWM that it must submit a complete and high-quality  
11 license application in order for it to be reviewed in the  
12 short time mandated in the Act. The Commission should  
13 inform the program of its meaning of a "complete and high-  
14 quality application" in accord with Part 60 as written.

15 The program also will be issuing a Yucca Mountain  
16 viability assessment, as we heard about earlier, in  
17 September of 1998. In our view, the Commission really has  
18 no role in assessing the viability of the site since the  
19 intent of the exercise is to inform an investment decision  
20 regarding whether or not to pursue a repository development  
21 at Yucca Mountain. Also, according to OCRWM, the viability  
22 assessment is completely independent of regulation.

23 The Commission's sole responsibility regarding  
24 viability assessment should be to decide the extent to which  
25 it wants to review and comment on the design or performance

1 assessment reports as it does with all of the prelicensing  
2 documents when participation is not required by law.

3 If the Commission uses the viability assessment as  
4 an opportunity to make an early statement regarding the  
5 sufficiency of information for a license application, it  
6 will only serve to reinforce the widespread  
7 misinterpretation that viability assessment is somehow a  
8 statement of the suitability of Yucca Mountain for a  
9 repository development.

10 Regarding OCRWM's siting guideline amendment, as  
11 you are aware, in order for the guidelines or any subsequent  
12 amendment to be finally promulgated, the Commission's  
13 concurrence is required by the Nuclear Waste Policy Act and  
14 as a condition of the Commission's original concurrence. At  
15 the time the Commission asked for its concurrence, which  
16 according to the current schedules would be sometime prior  
17 to February 1998, it is likely that there will not be a  
18 final new EPA standard and there surely will not be a final  
19 revision to Part 60 in place. In our view, the Commission  
20 should withhold its concurrence in the guidelines until  
21 these final rules are in place since unless the current Part  
22 60 is used for a basis for concurrence, there is no basis  
23 for the Commission's action and if the current Part 60 is  
24 used, the decision will have to be reevaluated after Part 60  
25 is amended to conform to the new EPA standard.

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1           My final point today is that, given changes over  
2 the last two decades in highway and rail conditions and  
3 technologies and the ability of terrorists to willfully  
4 disrupt transportation of spent nuclear fuel, the Commission  
5 should consider opening a broad-based public review and  
6 dialogue regarding spent fuel transportation risk both for  
7 normal and non-normal conditions and events.

8           The existing cask certification standards and  
9 criteria and safeguard regulations should be reviewed and  
10 revised as necessary in the context of the outcome of a  
11 public dialogue. Such a review is timely in that the large  
12 numbers of spent fuel shipments could begin in the near  
13 future, as indicated, if pending new legislation for interim  
14 storage is adopted.

15           I thank you for the opportunity to present some of  
16 our thoughts and observations to you today. After Steve  
17 discusses quickly the attachment to my written presentation,  
18 we of course would be glad to answer questions.

19           CHAIRMAN JACKSON: Thank you.

20           Mr. Frishman.

21           MR. FRISHMAN: I am Steve Frishman.

22           I wanted to bring this to the Commission's  
23 attention since this is very recent information from the  
24 April 30 NRC and DOE management meeting. Those are meetings  
25 that are held periodically at a level above technical

1 exchanges so that management can get at sort of technical  
2 policy issues on a very regular basis, which we believe is a  
3 good idea. It also becomes revealing sometimes when we see  
4 handouts like this as part of the management discussion  
5 between the potential license applicant and the regulator.

6 I wanted to annotate some of this primarily to  
7 show that as we began to point out back in 1994, the  
8 Department's view of the important steps in a licensing  
9 decision appears to be very different from how we interpret  
10 10 CFR 60 and apparently how the Commission has used its own  
11 interpretation in such other rulings as waste confidence.  
12 It has to do with when the disposal decision is made and  
13 whether it is an incremental decision leading up or  
14 incremental set of decisions leading up to something or  
15 whether the decision at the time of construction  
16 authorization is really the decision that must be supported  
17 by reasonable assurance that whatever standard you set for  
18 reasonable assurance.

19 What we see developing is that the standard of  
20 reasonable assurance is expected by the Department to change  
21 through time. That you start out with a lower level of  
22 expectation and move up. This doesn't seem to be consistent  
23 with the way 10 CFR 60 is written and I think was intended  
24 to be written and has been used by the Commission in other  
25 ways.

1           I guess to get the example of how the Department  
2 describes its strategy, if you look at page 14 on how much  
3 is enough, you see their description of the three levels,  
4 what they call sufficiency, and levels of sufficiency is not  
5 an issue in 10 CFR 60. You see, they call the initial  
6 license application for construction authorization while  
7 Part 60.31 speaks to a license application for construction  
8 authorization.

9           Then if you go to the updated license application  
10 for receive and possess, Part 60.33, doesn't speak to an  
11 updated license application. It speaks to an amendment of  
12 the construction authorization which was the original  
13 decision of the Commission.

14           Then if you go further, you see the updated  
15 license application for closure, once again in 60.51. It is  
16 referred to as an amendment for closure.

17           If we move on to page 16, using the language of  
18 Section 114, you see that in Section 114 it speaks to site  
19 characterization information and preliminary engineering and  
20 the rest of the phrase out of the act is engineering  
21 specifications for the facility. Engineering specifications  
22 denotes, to me anyway, something more than just a conceptual  
23 rendition of a repository.

24           If you look down at the bottom of the page, you  
25 see in the Department's thinking, engineering specification

1 has become preliminary design and that takes it even farther  
2 away from what I would view as engineering specifications.  
3 It is clear that the Department intends the design to be  
4 evolutionary. They have already made it very clear that the  
5 design at the time of viability assessment will likely not  
6 be the design for a license application. And the design for  
7 a license application, according to their own strategy, is  
8 not going to be complete. If I recall the last discussion  
9 that I heard, they were putting some level of percentage of  
10 completeness on it for license application.

11 If we go to page 17, again, Part 60.24, the  
12 Department is trying to sort of convince itself and others  
13 of the case for the information that is available for a  
14 license application will be whatever they have available.  
15 Well, your Part 60 says information not available but  
16 information that is reasonably available.

17 The significance of this is that if it is  
18 information available, that would be DOE's judgment of what  
19 should be available. If it is information that is  
20 reasonably available, that's your judgment. So I think it  
21 is important that this distinction be kept in mind because  
22 you, as a regulator, should have the judgment on what is  
23 reasonably available as opposed to what is presented in a  
24 license application.

25 And in the second part of that, for 60.101, the

1 Commission did much more in 60.101 than just say that it  
2 contemplates there will be uncertainties and gaps in  
3 knowledge. This is an area discussing what it takes for the  
4 amendment to receive and possess. And if you look at all of  
5 the language of that particular part, you are speaking that  
6 the Commission may take uncertainties and gaps of knowledge  
7 into account, provided the Commission can make the specified  
8 finding of reasonable assurance as specified in paragraph A.  
9 Well, that was the reasonable assurance for a construction  
10 authorization.

11 So finally we have what I think is maybe the most  
12 interesting and the one that should probably draw your  
13 attention most and that has to do with Part 60.21. If you  
14 look at the text of Part 60.21, rather than the word  
15 "study," it contains the words "research and development"  
16 and if you apply this to a topic such as determining the  
17 thermal design or the thermal loading design, there is a big  
18 difference between study, because the drift scale testing  
19 that si going on now really is an experiment and it is  
20 intended to be a scientific and an engineering experiment;  
21 it is not research and development.

22 So I think clarification on the part of DOE as to  
23 your intent regarding the difference between study and  
24 research and development in 60.21 is probably pretty  
25 important because, ultimately, it may lead to a level of

1 information and also sort of a philosophical approach to  
2 license application that will be very much at variance  
3 between you and the Department. And I think the last time  
4 we brought this up, the general and sort of informal  
5 response to our concerns about DOE's view of phased or  
6 incremental licensing decisions as opposed to what we read  
7 in Part 60, the response informally was we don't really see  
8 enough in DOE's written material to understand that that is  
9 what they are trying to do.

10 Well, from our perspective, we think we saw enough  
11 then. We have seen more and more and when I saw this  
12 handout on April 30, I figured that this is probably maybe  
13 the most important thing that we can show to you at this  
14 point in terms of the possibility of a disparity between  
15 your whole approach to the significance of decisions at  
16 various steps throughout the repository development process  
17 and the Department's idea of what those steps should be.

18 CHAIRMAN JACKSON: Thank you.

19 MR. FRISHMAN: Thank you.

20 CHAIRMAN JACKSON: Commissioner Rogers.

21 COMMISSIONER ROGERS: Well, I am just a little  
22 puzzled at your distinction between study and research and  
23 development but I am not sure quite what the issue is there.

24 MR. FRISHMAN: The issue is that "study" implies,  
25 in the context of this program, implies that you are still

1 in a site characterization mode. The purpose of site  
2 characterization is to provide information for a license  
3 application. Research and development is trying -- you know  
4 you have a problem, trying to figure out how to, through  
5 design and other types of experimentation, resolve a problem  
6 rather than finding out what the situation is that you are  
7 in in the first place.

8 We know and you have heard today that the thermal  
9 testing information is certainly not going to be complete by  
10 the time of license application. The intent is that it will  
11 go on for more. And that is still in the realm of site  
12 characterization.

13 If you are going to use the thermal output of the  
14 fuel as part of a repository design, that is site  
15 characterization. You should know what you intend to do on  
16 the way into a license application as opposed to picking  
17 some number and later, after a construction authorization is  
18 granted in the context of the way we read 10 CFR 60, later  
19 come in with numbers that may indicate you have a different  
20 situation on your hands and maybe indicate that using the  
21 thermal output is maybe detrimental to waste isolation as  
22 opposed to positive to it in the long term.

23 So the distinction is that studies in the scheme  
24 of the repository program, studies are site characterization  
25 and it makes that one use of the word makes it clear to me

1 that the Department intends to continue what is really site  
2 characterization under both the Waste Policy Act and Part 60  
3 through the licensing process so that you don't have the  
4 ability to make reasonable assurance decisions based on the  
5 level of data that is necessary for those decisions.

6 I know it sounds esoteric. We have been talking  
7 about this for a long time. But we also understand that the  
8 Department is in a situation where it knows that it is not  
9 going to be able to complete under other circumstances what  
10 would have been called site characterization.

11 CHAIRMAN JACKSON: Commissioner Dicus?

12 COMMISSIONER DICUS: No questions.

13 CHAIRMAN JACKSON: Commissioner Diaz?

14 COMMISSIONER DICUS: No questions.

15 CHAIRMAN JACKSON: Commissioner McGaffigan?

16 COMMISSIONER MCGAFFIGAN: I am trying to  
17 understand the significance of, in reading Part 60 as you  
18 went along here, of your concern with regard to the  
19 incremental approach. Because reading Part 60, it looks  
20 like different words rather than initial license  
21 application, updated license application, they use the words  
22 "amendments" but it is clear that Part 60 as it currently  
23 exists that there will be amendments at the point of receive  
24 and possess and the point of closure.

25 So what point of significance are you laying on



1 the fact that they are not calling it amendments, they are  
2 calling them updated license applications? Could you  
3 explain that again?

4 MR. FRISHMAN: I guess it is back to incremental  
5 in terms of levels of information that would be available.  
6 What they are suggesting is that when the sequence from  
7 construction authorization to licensee receive and possess  
8 amendment for closure that there would be a building base of  
9 information, not necessarily a building base of confidence,  
10 as the rule seems to imply. It is that the standard of  
11 reasonable assurance in the Department's thinking, what this  
12 implies, would at each step be a result of new information  
13 as opposed to confirmatory information.

14 So at the beginning, let's just put maybe  
15 percentage numbers as an illustration. At the beginning,  
16 reasonable assurance is 65 percent with the construction  
17 authorization. Well, with new information, if you get to a  
18 license to receive and possess, well, maybe it is 75 to 80  
19 percent. Maybe with the amendment for closure it is up to  
20 what I think the perception is, and this is not to put any  
21 number on it because it is a whole qualitative thing, I am  
22 just trying to show you a scale. By the time you get to an  
23 amendment for closure, it might be at 90 percent. Whereas,  
24 we view 10 CFR 60 as needing that 90 percent to start with  
25 and additional information is confirmatory to give higher

1 confidence in that 90 percent, as opposed to an incremental  
2 growth in what is an acceptable level of reasonable  
3 assurance.

4 I don't think it is that subtle. We have been  
5 discussing this for a long time.

6 COMMISSIONER MCGAFFIGAN: The words probably can  
7 be interpreted in several ways. But at each point in the  
8 process, again looking at Part 60 as it currently exists,  
9 there is the condition that the Commission may include such  
10 conditions as it finds necessary to protect public health  
11 and safety, common defense and security, environmental  
12 values. It sounds a little bit like you are arguing what  
13 the license conditions should be and I am sure we will have,  
14 if this moves forward, there will be a massive discussion at  
15 each phase of the process as to what the license conditions  
16 would be but what do you envision if this goes forward? Do  
17 you envision greater license conditions early or greater  
18 license conditions late in the process? That is built into  
19 every license.

20 MR. FRISHMAN: Right, and we understand that. I  
21 think from the outset what we are trying to do is make the  
22 Commission's expectation for the license application, which  
23 is the first license application not an amended one for the  
24 license application, we want that to be -- the expectation  
25 to be that that will be a thorough and as complete as

1 possible license application, meaning that it requires few  
2 conditions, meaning that the requirements of the rule are  
3 met as near as possible. So it mitigates the need for the  
4 Commission to try to make up conditions to say, okay, well,  
5 you are deficient here so therefore we expect at the next  
6 step that you will have done more work to bring it up to our  
7 expectation.

8 Well, the condition is only because they didn't  
9 meet the expectation in the first place. Or there is  
10 uncertainty that it will meet the expectation.

11 MR. LOUX: It assumes responsibility, the  
12 Commission's or DOE's, to describe what those ought to be.  
13 And under DOE's scheme, they believe it ought to be them.

14 CHAIRMAN JACKSON: But I see three things that  
15 seem to be nested in what you are saying. One is you are  
16 saying to us you would like us to lay out more explicitly  
17 what we mean by complete and high-quality applications and  
18 what constitutes an application versus license amendments,  
19 application for license versus license amendments. And that  
20 we need to exercise care in terms of what is performance  
21 confirmation versus continued site characterization.

22 Is that a summary of what your fundamental points  
23 are?

24 MR. FRISHMAN: Yes, that is a summary.

25 CHAIRMAN JACKSON: Okay. Okay.

1 Well, I thank you very much. I think we will hear  
2 from other representatives at the county level.

3 Mr. Stellavato.

4 MR. STELLAVATO: Thank you, Chairman Jackson and  
5 Commission members. Last time we saw you, you had a hard  
6 hat on going in the tunnel on the train and that's a  
7 different environment than here.

8 CHAIRMAN JACKSON: You never saw me again.

9 [Laughter.]

10 MR. STELLAVATO: That was the only time I've seen  
11 you was in the tunnel.

12 So we submitted a written statement but the  
13 commissioners want to thank you, my county commissioners,  
14 for the opportunity to make a presentation and I am not  
15 going to read the written statement.

16 Since I am the on-site rep, I am going to try to  
17 cover a little bit of our technical program and the first  
18 overhead is up there and our technical program is designed  
19 with this in mind, is it safe. And everything we do is to  
20 try to develop information for the residents of Nye County  
21 when they ask me questions about what the DOE is doing.

22 We addressed key issues that can affect repository  
23 design and performance. We try to identify areas that we  
24 feel additional work ought to be done in. We are evaluating  
25 DOE's scientific program and then we are obtaining our own

1 scientific data to do an independent analysis of Yucca  
2 Mountain.

3 Next slide.

4 The present program that we are working on is we  
5 are going to continue our pressure, temperature and relative  
6 humidity monitoring in the tunnel. We initiated a gas  
7 sampling program last year in a hole called ONC-1 that Nye  
8 County drilled in 1994 and this is one of the sources of our  
9 data sets. And at DOE hole NRG-4 we instrument.

10 We have been monitoring the tunnel and the ESF and  
11 a lot of the information I will present today is based on  
12 the ESF data set for relative humidity, temperature and  
13 pressure because it has a big impact on repository design  
14 and the mountain performance and so I -- we have been  
15 recording that data set since 1995.

16 Next slide.

17 Just a little background on Nye County's program.  
18 We negotiated with DOE on-site protocols similar to the NRC  
19 protocols with the DOE for on-site reps and we developed the  
20 Nye County QA plan, since we are gathering data and if we  
21 ever want to use it in a licensing hearing following NQA-1  
22 criteria and for efficient data distribution we decided in  
23 1995 to put all our data on a web site and I have the  
24 address on there. All of our data is on there. Every month  
25 we post a new data set. Anybody is free to come in, get the

1 data and do with it whatever you want.

2 We drilled, like I said, the ONC-1 hole in  
3 December '94. That was a deep hole into the saturated zone.  
4 Then we instrumented that hole and a DOE hole right along  
5 the north ramp tunnel alignment. NRG-4 is about 50 foot off  
6 the tunnel alignment. ONC-1, I have a map that later I will  
7 show you, is located just off the south portal. So it was  
8 down gradient and so we had two data points to look at  
9 effects of the tunnel on the unsaturated zone at Yucca  
10 Mountain.

11 Besides, ONC-1 has two probes that we monitor for  
12 pressure and temperature in the saturated zone, packed off  
13 so we can monitor effects of some of the pump tests the DOE  
14 have done in the Seawell complex just southeast of the  
15 track. And then the TBM data set is an important data set  
16 and we were the first ones to monitor pressure, temperature  
17 and relative humidity constantly. Every 15 minutes, we take  
18 a reading since 1995 so we've got a complete record of the  
19 mining and the ESF. This is an important data set because  
20 it led us to some of these early interpretations that we  
21 have gotten.

22 Next slide.

23 This is just a map of Yucca Mountain with the two  
24 upper and lower repository blocks. But the main thing is  
25 the tunnel alignment which is in red and now they have

1 finished it on the south ramp. You can see ONC-1 is just  
2 northeast of the south portal and right along the Bow Ridge  
3 fault and then NRG-4 is just 50 foot north of the north  
4 ramp. It was a very important data set that helped us  
5 calculate and look at the permeability of the mountain,  
6 large block permeabilities and by pressure responses in the  
7 unsaturated zone.

8 Next.

9 Then from the data we collected, relative humidity  
10 data and temperature and pressure data in the ESF, we were  
11 able to calculate and get some idea on moisture loss out of  
12 the mountain due to the ventilation system in the mine. We  
13 simulated long-term repository ventilation effects from  
14 thermal and vapor concentration gradients across the tunnel  
15 as the TBM moved down the mining the tunnel. Let me go  
16 back. The instruments were on the TBM itself so as the TBM  
17 moved, our instrument package moved right along with it so  
18 we got a record from the beginning all the way around the  
19 tunnel, which is important.

20 As you can see here, this is the tail end trailing  
21 gear of the TBM and we have three instruments located on  
22 that trailing gear. You can look through and you can see  
23 the tunnel at the end of the TBM. The TBM is behind the  
24 person who took the picture.

25 Then from the pneumatic data that we collected in

1 our two wells, that is that air pressure data in the two  
2 wells, we could identify and see a rapid pressure response  
3 in the subsurface as the TBM moved around the tunnel and in  
4 ONC-1 we saw a pressure response two kilometers away as they  
5 started down the main repository horizon. So this slide is  
6 just a slide of ONC-1 and it is just a typical pressure wave  
7 data set that we collected.

8 If you go to the next one, it is much more -- as  
9 you can see here, not to go through a lot of discussion but  
10 this is NRG-4 and a lot of discussion as the early barrier,  
11 everybody thought the barrier of the Paint Brush tuff non-  
12 welded unit was a barrier and we even pressed the NRC back  
13 two, three years ago, the NRC staff on pneumatic pathways  
14 issues and we had a workshop in Nye County and in Las Vegas  
15 that we sponsored for the pneumatic pathways workshop for  
16 the State of Nevada and Clark County, because we thought it  
17 was a big issue.

18 As you can see here, the mountain does breathe and  
19 as you are coming down to the lower probes at the top of the  
20 slide, they are very subdued and very little response. As  
21 it went through the Paint Brush tuff non-welded unit, you  
22 can see what happened to -- that is a vertical bar -- you  
23 can see what happened to the pressure response to our lower  
24 probes in NRG-4. They started to respond instantaneously  
25 with this surface pressure response. The surface wave is



1 the bottom blue wave there and so through this we can  
2 calculate some bulk permeabilities of the mountain based on  
3 how fast we respond and the amplitude of that response.

4 So this is some of the data that went in with our  
5 ESF data to come up with some ideas and some proposals. So  
6 from the findings, we basically confirmed what I think  
7 everybody knew back in the mid-'80s, that the mountain is  
8 more permeable than they had anticipated. Any work in a  
9 fractured system like this, it is very permeable and the  
10 PTN, although it does dampen the pressure response and  
11 probably does deflect some flow coming down to the  
12 repository horizon, wherever it has faulted or fractured, it  
13 is going to permit migration of percolation into the  
14 repository horizon, as the chlorine 36 data has shown quite  
15 dramatically.

16 Then the flux rates are higher than they had  
17 predicted and .1 or 1 millimeter a year flux seemed  
18 extremely low in the mid-'80s and as you see now in Lake's  
19 presentation, we are looking at 5 to 15 and possibly higher  
20 with focused flow in the fractures. So that has a big  
21 impact on the model calculations and the transport  
22 calculations.

23 Then the faults and fractures do act as conduits  
24 for flow and we saw that because our hole ONC-1 was the  
25 first hole drilled through a fault, one of the main faults,

1 the Bow Ridge fault. We do see pressure responses in the  
2 subsurface coming through some fracture set running from  
3 across the TBM, the tunnel alignment, into the subsurface  
4 and our lower pressure probes have shown our responses.

5 Next slide.

6 In all the indications we are looking at more  
7 reliability, relying more on engineered barriers and  
8 possibly less on geologic repository isolation and due to  
9 higher flux rates, faster fluxes and a fractured system that  
10 breathes and we knew it breathed in '82 and '83 from some of  
11 the early wells, USGS 6 and 6S that were drilled back then  
12 and the USGS talked about those wells would blow and they  
13 still blow and suck depending upon barometric pressure.

14 So our data confirms that and we are looking now  
15 from the amount of moisture we saw drying out and how open  
16 the repository is, we have been looking at an open  
17 repository concept that I think somebody needs to look at  
18 and do some detailed engineering on because some of our  
19 calculations have shown if you leave that repository open  
20 and let it breathe naturally with the heat load that you are  
21 putting in there, you are going to keep the repository dry,  
22 you are essentially drying the mountain out from its own  
23 thermal drive and you keep the canisters dry and the  
24 temperatures are maintained low, just above or right around  
25 ambient for a long period of time.

1           Just a couple more slides here on this natural  
2 ventilation. That slide needs to be turned another way.  
3 The tuff cylinder is the repository. All right.

4           This is just a conceptualization of what we are  
5 looking at. You are basically putting a heat source in the  
6 tunnel and you have an exhaust shaft. Many old mines have  
7 used this type of natural phenomenon for their own  
8 ventilation. In some places, they would start a fire at the  
9 bottom of a shaft to get the ventilation circuit going and  
10 then you would maintain the natural ventilation. You are  
11 basically doing the same thing, putting a heat source in the  
12 mountain and it looks like right now it will drive its own  
13 thermal and suck the ventilation circuit will be complete if  
14 you just manifold it and get the air out.

15           So these are just a couple more slides on some of  
16 our early runs and these are preliminary model runs that we  
17 have done and we are in the process of writing some much  
18 more detailed, three-dimensional model runs. But this one,  
19 the saturation, and you see we started at 75 to 85 or better  
20 saturations and with the open repository we can maintain  
21 saturations below natural. And as you move away from the  
22 tunnel alignment, where the canisters are in place, you are  
23 basically driving the saturation form of the moisture out of  
24 the mountain continually.

25           This is just the temperature curve. Again, you

1 start out above this degree C and, as time progresses, you  
2 are dissipating the heat with the natural ventilation.

3 So in summary, if the DOE are going to rely more  
4 on engineered barriers, we feel that we would like to see  
5 someone do some more detailed engineering than our staff can  
6 do to just analyze or evaluate the phenomenon of open  
7 repository concept. It will also maintain -- the canisters  
8 will remain dry and you can get back in any time and do  
9 something with the canisters if you need to.

10 But we realize that present law is to close the  
11 repository sometime. I don't know how you handle that but  
12 engineering wise we would like to see this concept at least  
13 looked at and analyzed because I think it has some merit if,  
14 you know, you are worried about repository performance.

15 CHAIRMAN JACKSON: You have propagated these ideas  
16 to the DOE and to the Congress?

17 MR. STELLAVATO: Yes, we have talked to the DOE  
18 about these ideas and the NWTRB, we have talked to them  
19 about these ideas and we have not addressed the ideas of  
20 anything, policy, but just technical analysis based on the  
21 data we are getting.

22 CHAIRMAN JACKSON: Commissioner Rogers?

23 COMMISSIONER ROGERS: No.

24 CHAIRMAN JACKSON: Commissioner Dicus,  
25 Commissioner Diaz, Commissioner McGaffigan?

1 COMMISSIONER McGAFFIGAN: No question, really. He  
2 answered it at the end. Current law does seem our  
3 regulations clearly contemplate closure.

4 CHAIRMAN JACKSON: That's why his committee talked  
5 to the Congress.

6 MR. STELLAVATO: Yes, I am not proposing this.  
7 What I am saying is someone needs to look at the engineering  
8 aspects of this. This is not the policy right now.

9 CHAIRMAN JACKSON: As Commissioner McGaffigan  
10 said, I think in an earlier and different context, we are  
11 creatures of the existing law.

12 Mr. Bechtel.

13 MR. BECHTEL: Madam Chair, members of the  
14 Commission, I appreciate the opportunity to speak to you  
15 today and the Clark County Commission appreciates the  
16 opportunity to provide input to your very important work  
17 here.

18 What I would like to do, for the record, my name  
19 is Dennis Bechtel and I am a planning manager for Clark  
20 County Department of Comprehensive Planning, Nuclear Waste  
21 Division. What I would like to do today, and I realize you  
22 don't have a lot of time -- unfortunately, my presentation  
23 didn't make it.

24 CHAIRMAN JACKSON: We noticed.

25 MR. BECHTEL: I did, though. So what I would like

1 to do is maybe submit some formal comments when they arrive  
2 to Secretary Hoyle.

3 What I would like to do is discuss briefly four  
4 points. Since there are new members here, what I would like  
5 to do is discuss briefly Clark County's interest in the  
6 activities associated with the Nuclear Waste Policy Act and  
7 our involvement, describe particular concerns that Clark  
8 County has regarding the Department of Energy's approach to  
9 site characterization and viability assessment, to discuss  
10 briefly the revisions that have been proposed to Title 10,  
11 Part 2, Subpart J of the licensing support system, work that  
12 we have been involved in as well as others, and to evaluate  
13 the responses to the Nuclear Regulatory Commission's  
14 strategic assessment and rebaselining report, which we  
15 tracked.

16 Clark County has been involved in nuclear waste  
17 activity since about 1983, me primarily. We were involved  
18 for a number of years with the state of Nevada's program.  
19 We were funded by the state. Then in 1987 with the  
20 amendments act, Clark County requested and received affected  
21 unit of local government status from Department of Energy.

22 I might add that there are actually 10 affected  
23 units of local government, including Nye County.  
24 Unfortunately, over the last two years the Congress has not  
25 seen fit to fund our programs. Clark County and others are

1 currently working on FY '95 money, if you can believe it.  
2 At one time, I had a staff of about 17 people. Now we are  
3 down to about four or five and we had a lot of work in  
4 progress that we have had to kind of cut off. We are a  
5 little more optimistic, maybe, that funding would be  
6 available in '98 but we will see how that works out.

7 Clark County, you might wonder. Clark County, by  
8 the way, includes the city of Las Vegas and has about 1.3  
9 million people. It is the largest growing county in the  
10 United States, I believe. Because of -- we are victims of  
11 geography in a lot of ways. Although we are south of the  
12 site a considerable distance, we are concerned that a lot of  
13 the transportation decisions will go right through our  
14 community. So transportation, as you can imagine, is an  
15 issue of concern to our board.

16 We are also interested, we are a tourist-based  
17 economy and how the effects of the transport of the material  
18 primarily would affect people's decisions and desires to  
19 come to Las Vegas, you might say.

20 Most recently, we have been concerned about DOE's  
21 efforts to initiate and, say, privatize the transport of  
22 nuclear material. We have a number of concerns with regard  
23 to that. We feel in many ways DOE is abrogating their  
24 policy responsibilities. It is not clear in our mind how  
25 this whole thing is going to work.

1           We as local governments would be first responders  
2     if there is an accident and it is unclear how DOE and the  
3     private sector would interact with local governments on  
4     issues like -- you know, trying to work out routing,  
5     emergency response issues, things like that. So I think we  
6     feel there needs to be a lot more rigor when you are  
7     considering a very sensitive program to transport material  
8     around the country. I might add it is not just a Clark  
9     County issue; that is an issue that would be of national  
10    importance.

11           We are also very much concerned about the interim  
12    storage legislation that has been proposed. I think we feel  
13    that the -- that in the interests of reaching a time line  
14    that things are going to get rushed, primarily with regard  
15    to, you know, transporting the waste. And so we feel -- we  
16    are concerned that in the interest of solving what we feel  
17    is kind of a hypothetical problem at reactor sites, it has  
18    been proven that material can be stored safely in dry cask  
19    storage, that the transportation issues are not going to be  
20    well thought out and there is going to be this rush to  
21    judgment that may put the public around the nation at risk.

22           Other issues we are concerned about are just some  
23    of the manifestations of DOE site characterization and  
24    viability assessment program. One concern we have are the  
25    proposed revisions to 10 CFR 9.60, general guidelines to the



1 recommendations for sites. As you are aware, of course,  
2 this proposal was brought forth December 16, 1996, and the  
3 idea was to provide that a total systems assessment of the  
4 performance of the proposed site to specific regulatory  
5 design within the geologic setting of Yucca Mountain would  
6 be compared to the applicable regulatory standards to  
7 determine whether the site was a suitable for the  
8 repository.

9 We have two primary concerns with regard to that.  
10 DOE's proposals to deviate from Section 1.12(a) of the  
11 Nuclear Waste Policy Act and a process that has been defined  
12 by Congress to determine site suitability and as well from  
13 our perspective of local government, the elimination of  
14 several important pre-closure characteristics in the  
15 proposed revisions. The Nuclear Waste Policy Act, as you  
16 are well aware, in Section 1.12 established guidelines for  
17 recommendations of candidate sites for site  
18 characterizations. To quote the original 10 CFR 9.60, such  
19 guidelines shall specify detailed geologic considerations  
20 that shall be primary criteria for the solution of sites and  
21 various geologic media.

22 It further states, however, that such guidelines  
23 shall specify factors that qualify or disqualify a site from  
24 development of a repository and we feel the objective, as we  
25 understand it, was to examine those individual factors that

1 could contribute to the failure of a repository to contain  
2 these highly dangerous wastes from the public for thousands  
3 of years.

4 Section 1.12(a) went on to specify certain  
5 qualifying and disqualifying standards for a number of  
6 functional areas including transportation and safety, which  
7 of course is of primary concern to us.

8 It is interesting to note that DOE as late as  
9 September 1995 felt that these standards were adequate and,  
10 once again, I think our concern that the schedule being  
11 proposed is driving a lot of simplification of very  
12 important site suitability issues.

13 DOE, by moving, as indicated in their notice of  
14 proposed rulemaking, is limiting the individual performance  
15 measures given in 10 CFR 9.60. This, we feel, is in direct  
16 conflict with, as I indicated, their September 1995  
17 statement.

18 We are concerned about this because, as you are  
19 aware, the qualification standards were divided into pre-  
20 closure and post-closure areas and of particular concern to  
21 Clark County are the socioeconomic and transportation  
22 criteria noted in the current version of 9.60. For example,  
23 the criteria for potentially adverse conditions states a  
24 potentially adverse condition is one that could cause the  
25 transportation-related costs and environmental impacts or

1 risks to public health and safety from waste transportation  
2 operations to be significantly greater than those for other  
3 comparable siting operations.

4 Realizing that the original 9.60 was meant to  
5 compare sites, I think it is our feeling it didn't  
6 necessarily preclude an investigation of issues such as  
7 these. And I think the larger issue, I guess, is while site  
8 characterization is important, this is also taking place in  
9 the context of communities and people. I think we felt that  
10 the preclosure conditions spoke to those issues.

11 To go on, in the absence of standards and  
12 regulations determined by the EPA and the Nuclear Regulatory  
13 Commission, there is an uncertainty in understanding how DOE  
14 can design a program and collect appropriate information to  
15 determine site suitability.

16 There has been a great -- there will be a great  
17 reliance on the use of models. The use of models to predict  
18 the performance of a natural and engineered barrier system  
19 for thousands of years into the future is, at best, we feel,  
20 tenuous based on perhaps the inadequate availability of  
21 information by which to calibrate and validate that model.  
22 I have done some groundwater modeling in the Las Vegas  
23 Valley and it is the old your answer is as good as the data  
24 you put into it. So I think that is a concern that we  
25 definitely have, that there is not enough time to gather

1     that data.

2             Also a third issue to try to summarize, realizing  
3     you don't have a lot of time here, with regard to the  
4     proposed 10 CFR, Part 2(g), the licensing support system  
5     issues, Clark County has been involved since about 1984 on  
6     the original negotiated rulemaking on -- for the licensing  
7     support system and more recently has been part of the  
8     advisory board in evaluating the -- how this system could be  
9     implemented.

10            We are currently reviewing the revised rulemaking  
11     that was just recently released, so I have some kind of ill-  
12     formed thoughts, I guess, on it. But a couple of things  
13     maybe to present to you, a major concern with the proposed  
14     rule, as we see it, change is the important structure that  
15     appears to have been lost that would ensure data and  
16     information relevant to licensing would be managed and  
17     available to ensure the timely and comprehensive review of  
18     potentially relevant information for licensing. I realize,  
19     you know, the technology has improved considerably since we  
20     were originally talking about this a number of years ago but  
21     it is still a little uncertain, in my mind, how we are going  
22     to be assured that data will be available in a timely way  
23     and that all parties will be able to access that data.

24            One of the things that I see missing in the  
25     revised rule that I think could maybe provide some rigor to

1     that would be the retention of the licensing support system  
2     administrator. I think you need somebody to -- in the  
3     Nuclear Regulatory Commission to manage the system. I think  
4     that is very important. This function may, I realize, you  
5     know, we are talking about a lot of data and but it will  
6     probably serve as an auditing function if nothing else.

7             I think we don't want to get to the point where,  
8     you know, licensing may take place and then realize we don't  
9     have enough information or it is not organized in a way that  
10    can be useful to all parties.

11            I think from a perspective of a small player in  
12    this total issue, I think the addition of an administrator  
13    would be essential to kind of level the playing field to  
14    ensure that information is available for all interested  
15    parties. I think also there has to be some consideration as  
16    to how the public or citizen organizations in the case of  
17    Nevada -- in the case of Nevada some of the rural counties  
18    would be able to participate in the discovery and review of  
19    licensable documents.

20            While new information systems may facilitate the  
21    dissemination of information, there is a cost in obtaining  
22    that and I think we need to make sure all potential parties  
23    have the resources and the ability to be able to participate  
24    in that. I think maybe that needs a little strength in the  
25    proposed rule as well.

1           On the plus side, we are happy the rule speaks to  
2 the advisory committee. You know, I think the work of the  
3 advisory committee with the assistance of, say, Chip Cameron  
4 and John Hoyle, I think hopefully has been useful to the NRC  
5 and to the process and I know from the perspective of Clark  
6 County and I am sure the other affected counties, if they  
7 are funded in the future, that we would like to retain our  
8 ability to participate in that.

9           I think it is extremely useful. It is a good  
10 reality check for NRC, I think, just on a lot of the -- you  
11 know, where the rubber meets the road, I guess. You know,  
12 the folks are going to have to live with this, potentially  
13 live with this repository if it happens. So we think that  
14 the advisory committee is a useful way to do that.

15           My final comments are with regard to the strategic  
16 assessment rebaselining project and we would like to commend  
17 the NRC and your leadership for, you know, bringing these  
18 issues up. I think a lot of them required revisiting and I  
19 think they are an important step in, you know, are we doing  
20 things right now or do we have to do things differently.

21           I know there was an attempt to get the public  
22 involved. Speaking as a person who has been in government  
23 for a number of years, I don't know what the secret is to  
24 get the public out sometimes but I do think if this -- if  
25 you are planning more things like this in the future, I do

1 think, and I spoke to this at one of the meetings, that you  
2 need to hit the popular press more. I mean, people don't  
3 read legal columns and stuff like that. That's true for  
4 Clark County. We have the same notification requirements  
5 but we need to make sure the public knows that something is  
6 going on out there.

7 In our case, Clark County has a steering committee  
8 made up of seven citizens and we have governments within  
9 clark county, incorporated cities and what we did, we had a  
10 subcommittee of that sit down and just look at the issues.  
11 What I wanted to give was just kind of a public perspective.

12 In fact, the citizens were the only ones who  
13 participated in my subcommittee but we submitted comments  
14 and hopefully those were useful. We did get your summary  
15 document and had a chance to look at that and I think our  
16 citizen members were pleased that they, you know, were able  
17 to provide some meaningful input to the process.

18 Your support of the DOE working group  
19 recommendations, I think, was good. It actually went beyond  
20 what we had recommended. We felt with all your many duties  
21 and funding crush and everything, you were better off maybe  
22 just kind of doing what you're doing. But I think it is  
23 important for the Nuclear Regulatory Commission to get  
24 involved in as many oversight issues as possible, if only  
25 for the reason because things radioactive, rightly or

1     wrongly, are feared by the public and to know that an  
2     important oversight body is watching that I think is good.  
3     We were supportive -- we were hopeful that your funding  
4     levels will be maintained so you are able to do all these  
5     duties.

6             That's about all I had to say. And, once again, I  
7     appreciate the opportunity to provide input to you all.

8             CHAIRMAN JACKSON: Thank you very much,  
9     Mr. Bechtel.

10            Commissioner Rogers?

11            COMMISSIONER ROGERS: I have no questions.

12            CHAIRMAN JACKSON: Commissioner Dicus?

13            COMMISSIONER DICUS: No questions.

14            CHAIRMAN JACKSON: Commissioner Diaz?  
15     Commissioner McGaffigan?

16            COMMISSIONER MCGAFFIGAN: My questions were more  
17     or less answered.

18            CHAIRMAN JACKSON: Well, I thank all of you  
19     gentlemen. It has been very useful insight and input and we  
20     will certainly take note of all of this as we shape our  
21     process here.

22            I guess I would like now to call to the table  
23     Mr. Arnold from the Las Vegas Indian Center, Mr. Holden from  
24     the National Congress of American Indians and Mr. Eben from  
25     the Pyramid Lake Paiute Tribe.



1           And since we don't know if the placards are  
2 correct, maybe you could identify yourselves for us.

3           MR. ARNOLD: As much as I would like to tell you  
4 that I am Robert Holden, I am Richard Arnold, to tell the  
5 truth here.

6           [Laughter.]

7           MR. HOLDEN: I am Robert Holden, director of the  
8 Nuclear Waste Program for the National Congress of American  
9 Indians.

10          MR. EBEN: And I am Maurice Eben.

11          CHAIRMAN JACKSON: Okay. So who would like to  
12 begin?

13          MR. HOLDEN: Madam Chairman, Commissioners, if I  
14 could, NCAI is a national tribal government organization  
15 and, in deference to tribal representatives, I would ask  
16 that Mr. Arnold and Mr. Eben proceed in that order, if  
17 possible.

18          MR. ARNOLD: Thank you.

19               My name is Richard Arnold and I am Southern  
20 Paiute. I am the spokesperson for the Consolidated Group of  
21 Tribes and Organizations, which are a conglomeration of 17  
22 different tribes and organizations that have historic and  
23 cultural ties to Yucca Mountain.

24               What is very interesting in hearing a lot of the  
25 dialogue and testimony provided this morning, because I

1 think while a lot of what was directed at the science, there  
2 also too is a human element.

3 For us, for the Southern Paiute People, for the  
4 Western Shoshone People and for the Owens Valley Paiute and  
5 Shoshone people, Yucca Mountain plays a vital role in our  
6 culture and in our afterlife. It is something that is  
7 viewed upon as being very historically important to us,  
8 especially culturally.

9 We have been involved, actually, with the process  
10 since 1985 and through a whole variety of activities  
11 including literature reviews and cultural affiliation  
12 studies to ensure or try to identify the tribes that had the  
13 ties to the area. One of the difficulties with that,  
14 however, is that for us as Indian people, we look at  
15 ourselves as being interrelated all throughout the Great  
16 Basin and so although I identified myself as Southern  
17 Paiute, Mr. Eben who is Northern Paiute, we are all the same  
18 so it is very difficult to try to distinguish those kinds of  
19 ties.

20 The cultural affiliation study that was done  
21 identified tribes actually that were not only in Nevada but  
22 Owens Valley in California, which is in Inyo County in kind  
23 of that strip there. Utah, in southern Utah, and then  
24 northern Arizona, being the Kaibab Paiute Tribe.

25 I think the main driver behind all this actually

1 was the American Indian Religious Freedom Act, federal  
2 legislation that allows us basically and guarantees us our  
3 right to practice our religion and all of the other cultural  
4 nuances that go along with that. Beyond that, there was a  
5 Native American Graves Protection and Repatriation Act.  
6 Although to date there hasn't been any burials found there,  
7 it doesn't mean that they don't exist but, beyond that,  
8 under that law, there are also items that are identified  
9 under that as cultural or sacred items, items of cultural  
10 patrimony and so there are currently those activities that  
11 are going on right now in working with the tribes and trying  
12 to identify those things so the tribes are actively working  
13 in that respect.

14           There is also some executive orders that ensure  
15 and require government-to-government relationships between  
16 the federal entities and the tribal groups. Then, also,  
17 most recently one executive order, 13007, that allows access  
18 to sacred sites and there have been sacred sites identified  
19 actually early on, even in some of the historic literature,  
20 some of the sites that were used close by Yucca Mountain.

21           I give you all this information really only in  
22 hope that it is kind of again helping you to understand  
23 perhaps the position of the Indian people and showing the  
24 human element to this.

25           What we have initiated, though, there have been

1 some studies because, interestingly enough, when I look at  
2 the scientific studies, and being brought up very  
3 traditionally, I can also appreciate through our traditional  
4 stories, there are a lot of similarities of things. We had  
5 knowledge of underground water systems that people now talk  
6 about. We have knowledge of so many different things.

7 But try to imagine if you will, English being my  
8 second language, trying to describe radiation to somebody  
9 that doesn't know the concept of radiation by the term  
10 radiation. However, imagine trying to identify that, and  
11 often times I act as liaison or interpreter of some of those  
12 things. The elders were identifying it as an angry rock.

13 It doesn't matter what kind of cask that you  
14 design, anger is anger and you put an angry rock inside of a  
15 cask and it still remains angry. You bring it from another  
16 area, you bring anger from another area into that. And to  
17 some people that maybe aren't from the mind sets that the  
18 three of us are, I think it may be kind of difficult to  
19 understand. But it is something that is just as believable  
20 to us as perhaps maybe your respective religions or values  
21 would be. The same holds true.

22 We do hold tribal update meetings because we feel  
23 that it is important to be involved in learning about the  
24 updates of the project and so we have had that implemented.  
25 One of the nice things we have, I have to say, is that we

1 have been able to identify and recommend that there be a  
2 preservation in place policy relative to artifacts, which is  
3 very helpful to us.

4 However, I think, all too often Indian people are  
5 oftentimes thinking that our concerns are just archeological  
6 and so they see artifacts and they think of Indian people.  
7 But they forget that we are human beings too and that we  
8 have just as many concerns and similar concerns as what  
9 everybody else does.

10 We have also done interpretative work and we do  
11 make periodic recommendations to DOE at these meetings and  
12 responses are given back to us. We are also very interested  
13 and have been working closely in monitoring the progress of  
14 the environmental impact statement and looking at how we are  
15 going to have the concerns of the Indian people also brought  
16 into that.

17 Just as I heard some of the other presentations  
18 that were made, we as Indian people have the same concerns.  
19 Transportation is a tremendous concern by the Indian people  
20 and the Indian tribes. I think if you look at the  
21 reservations within the state of Nevada and actually in the  
22 Great Basin and even into the three surrounding states of  
23 Nevada, that the tribes are in very remote areas.  
24 Oftentimes they don't possess the necessary infrastructure  
25 to host activities that would have them prepared for

1 emergency response, for example. They don't have the  
2 training. We heard about the affected counties, actually,  
3 of some of the tribes. While that was, in all due respect,  
4 nice for the counties to receive that, the tribes did not,  
5 the tribes that were inside of those counties.

6 There are jurisdictional problems with that, as  
7 you can imagine, because of the tribes' sovereignty and the  
8 trust responsibility from the different agencies in trying  
9 to work on those government-to-government relationships.

10 Funding, I think, is critical for us also in terms  
11 of the preparation, response and oversight that is necessary  
12 for the project and the magnitude of the project. But I  
13 must also point out that since our last visit here, which  
14 has actually now been a couple of years ago, some good  
15 things have also come out from our previous presentation to  
16 you.

17 Some of the things now that we are getting more  
18 updates and things, however a lot of the paper becomes very  
19 voluminous and we think of all the trees that are losing  
20 their lives because of all the paper that is coming out but,  
21 nevertheless, we receive the documents from the NRC and that  
22 is very helpful. A lot of it is in very technical jargon  
23 that sometimes is way beyond us and I commend the people for  
24 writing it that have the command of those big words but, for  
25 us, it doesn't make a whole lot of sense.

1           But I think there are, just in closing, a few  
2 other things I would just like to touch on. One, I just  
3 want to reiterate the trust responsibility between the NRC,  
4 actually the Department of Energy and any other federal  
5 agency or federal entity that would become involved that has  
6 that responsibility to the tribes. The other is that if  
7 funding is restored, I think the tribes need to definitely  
8 be involved in that and not be left out of the loop.

9           I heard about the advertisement and that, too, I  
10 think is something that is very critical in trying to get  
11 people in public participation. One of the things that a  
12 lot of the tribes have is either tribal newsletters or  
13 newspapers and/or working through the National Congress of  
14 American Indians is another good vehicle to get information  
15 out to the tribes.

16           Then basically the last thing is that as,  
17 basically, the oversight body, I think it is critical to  
18 maintain your oversight and input into the process, just as  
19 we would like to be involved in the process as well.

20           Thank you.

21           CHAIRMAN JACKSON: Thank you very much.

22           I have less in the way of questions but rather to  
23 note the points you have reiterated and also in particular  
24 your comments relative to within the context of an EIS of  
25 the transportation issues and how that might affect your

1 communities as well as issues related to emergency planning.  
2 I am very familiar with the executive orders relative to the  
3 government-to-government relationship so I thank you for  
4 bringing that to our attention.

5 Commissioner Rogers?

6 COMMISSIONER ROGERS: Well, just one question.  
7 Some years ago, there was a question about the ability to  
8 access an LSS and to get the information and so on and so  
9 forth. The NRC, as I recall, contributed some computers,  
10 more personal computers to some groups. Do you have  
11 anything to say about how effective that was, whether that  
12 turned out to be useful and whether there was anything of  
13 that sort in the future that you could suggest?

14 MR. ARNOLD: Sure. First of all, it was helpful  
15 in those tribes that were able to access the computers.  
16 Currently, though, what we are trying to do, and not to try  
17 to downplay anything we are doing by any means, but I think  
18 that oftentimes with some of the tribes and trying to keep  
19 up with all the technology and things, sometimes we are a  
20 few steps behind and that. So just in looking at some of  
21 the situations now, just trying to access and get on the  
22 Internet, for example, in some of the remote communities,  
23 you then incur large bills by having long-distance calls  
24 every time you are trying to access it.

25 So some of it has become cost prohibitive. So it



1 was almost in one sense like a double-edged sword in that we  
2 got -- some of the tribes got computers and that was nice  
3 and they looked pretty. But then, you know, to then go  
4 maybe to the next step.

5 So I think part of that could also be addressed by  
6 either having a funding mechanism of some sort of some other  
7 kind of computer support or somehow to access some of those  
8 things. But definitely it is a way of trying to get  
9 that -- a way of getting Indian people into the loop of  
10 things, if you will.

11 CHAIRMAN JACKSON: Commissioner Dicus?

12 COMMISSIONER DICUS: No questions.

13 CHAIRMAN JACKSON: Commissioner Diaz?  
14 Commissioner McGaffigan?

15 COMMISSIONER MCGAFFIGAN: Just on that last point,  
16 we may need to get some T-1 lines. The modem is going to be  
17 the limiting factor, it seems like to me, in this LSS  
18 system.

19 CHAIRMAN JACKSON: Well, I would like to thank you  
20 again and to thank all of the participants.

21 Were you making a separate --

22 MR. EBEN: Yes.

23 CHAIRMAN JACKSON: Oh, I am so sorry. I  
24 apologize.

25 Mr. Eben.

1 MR. EBEN: Thank you very much.

2 Before I start with our statement, a lot of it is  
3 going to be repetitious for you, our tribe just recently got  
4 pulled into this nuclear transportation issue and it is very  
5 disturbing listening to Mr. Arnold. I have heard  
6 Mr. Arnold's name for a number of years and I just met him a  
7 couple of weeks ago, last week I guess in San Diego. And  
8 that is part of our problem, is there are a couple of groups  
9 in Nevada and we were totally in the dark when it came to  
10 some of this information.

11 CHAIRMAN JACKSON: Actually it would be helpful, I  
12 think, to us, in terms of interacting with the publics that  
13 we need to interact with, if you might think about and  
14 suggest a mechanism that you think would be useful for us to  
15 be sure that we reach all populations we need to reach.

16 MR. EBEN: Well, I was going to suggest that with  
17 the National Congress of American Indians, they were the  
18 ones who basically helped us the most along with our  
19 lobbyists and friends back here, Dorsey & Whitney. It was a  
20 quick game of catch-up and then we were told we probably  
21 will never catch up, so we just need to go on forward from  
22 this point. And our issues out at Pyramid Lake are tied to  
23 the water.

24 We have an endangered specie, it's the cui-ui,  
25 Cui-ui-Ticutta and the ta cutta mean eater and the ta cai is

1 a trout and that is the Walter River Paiutes and they have  
2 been involved directly and indirectly.

3 I am going to go ahead and read my statement.

4 Good morning, my name is Maurice Eben. I am an  
5 enrolled member of the Pyramid Lake Paiute Tribe and  
6 currently serve as a Tribal Councilman. Our tribal offices  
7 are located in Nixon, Nevada. The Tribe appreciates this  
8 opportunity to present our statement to the Commissioners of  
9 the Nuclear Regulatory Commission.

10 The Pyramid Lake Indian Reservation was surveyed  
11 in 1859 and was confirmed by executive order in 1874 by  
12 Ulysses S. Grant. The Tribe has been through many social,  
13 economic and cultural changes since the reservation was  
14 created.

15 Since time immemorial, we Indian People have had a  
16 respect for the land that we walk upon. At no time has that  
17 caretaking responsibility changed. Indian People are still  
18 the rightful caretaker of this land. As we proceed and  
19 continue our discussions from this day forward, we will  
20 remind you of this responsibility and stand by the prayer  
21 and sincerity to our Creator in allowing us to continue the  
22 responsibility.

23 We feel that as our race, the four races on this  
24 earth, that was our job and it hasn't been taken away yet no  
25 matter what human beings say, so we continue on and that is

1     what we need to remind you folks of, that is our spiritual  
2     job.

3             I am a descendent of the two major tribes of the  
4     Great Basin, the Cui-ui-Ticutta of the Northern Paiute and  
5     the Timbisha of the Western Shoshone. The Cui-ui-Ticutta  
6     are from the Pyramid Lake region of the Great Basin and the  
7     Timbisha Shoshone of the Death Valley region of the Great  
8     Basin.

9             Due to the Indian Reorganization Act, our parents  
10    were forced to enroll their offspring with one tribe. My  
11    parents chose my father's tribe. Although I was brought up  
12    in Northern Nevada, we traveled to Death Valley on a regular  
13    basis to enjoy my mother's side of our family. Both my  
14    parents spoke their respective languages. Both my parents  
15    attended the Stewart Indian School in Carson City, Nevada.  
16    After my birth, I lived on the Pyramid Lake Paiute Indian  
17    Reservation and as most families, we moved to the Truckee  
18    Meadows where my parents could find jobs. Truckee Meadows  
19    is where Reno and Sparks sits and it is a shared area with  
20    the Washoe tribe, between the Cui-ui-Ticutta and the  
21    Washoes.

22            The Reno Sparks Indian Colony sat on land donated  
23    by a kind-hearted elderly non-Indian lady for the three  
24    Nevada Tribes, Paiute, Shoshone and Washoe. The colony  
25    residents were mostly related to each other or knew family

1 from respected reservations or the Stewart Indian School.  
2 We were brought up around great uncles and aunts,  
3 grandparents and cousins to most degrees. The extended  
4 family truly was a common part of life at the colony.  
5 Fortunately for me, I was taught some of the Coyote stories  
6 and legends of the three tribes from the Reno Sparks colony.  
7 The Washoes are mostly from the Sierra Nevada Mountain area  
8 with ancient ties to the Great Basin before moving into the  
9 mountains. The Western Shoshone came into the Basin about  
10 10,000 years ago in search of food. The Paiute people,  
11 according to scientists, were in the Great Basin for about  
12 15,000 years.

13 The 400,000 square miles is bordered on the east  
14 by the Wasatch Mountain Range in Utah, the Snake River in  
15 the north and the Sierra Mountains on the west and as far  
16 south as the Mojave Desert.

17 The Timbisha people lived and died in the region  
18 of the Sierra Nevadas to the west to as far as the Colorado  
19 River to the east. Of course, I would be centrally locating  
20 them in Death Valley, Death Valley being our winter home and  
21 the Wildrose Mountains and the Hunter Mountain range to the  
22 west of the valley and Beaty being north and Yucca Mountain  
23 to the east being wintering homes.

24 Following the traditions of other Great Basin  
25 peoples, burials took place on the eastern side of valleys

1 and in rock crevices and in outcrops on the sides of the  
2 mountains that at one time were islands in the Lahotan  
3 Inland Sea. These burial caves are found throughout the  
4 Great Basin and are known to grave robbers too. Mr. Jack  
5 Harrelson of Grants Pass, Oregon, was one of those grave  
6 robbers. He was convicted in the State of Oregon for taking  
7 two bodies from graves found in areas of the Great Basin  
8 which are similar to Yucca Mountain. As with the Southern  
9 Paiute, the Timbisha share common cultural beliefs and  
10 legends such as Coyote being the jester. The morals are the  
11 same as both Northern and Southern Paiute.

12 Before the Euro-American arrived here, we were  
13 just a People, as Mr. Arnold had mentioned. We were at  
14 times I want to say borders of contention because we did  
15 battle over certain areas and lives were lost but not in the  
16 sense of warfare in Europe. Nobody lined up in rows and  
17 chased each other. Sometimes a wounding of one person was  
18 enough.

19 I would like to say for the record there is an  
20 ongoing effort by many tribes to correct their histories.  
21 In the past there have been some attempts to change tribal  
22 history by a few misguided tribal members. This was done  
23 with the thorough knowledge of a number of anthropologists  
24 and ethnohistorians with only the publication of their work  
25 in mind instead of accuracy and truth.

1           You have to put in mind, when we were doing this  
2 last night, I think I was still suffering from jet lag, so  
3 there are a few words missing. It kind of threw me off.

4           So the process taken in identifying and notifying  
5 affected tribes is purposefully flawed. There is a  
6 concerted effort by federal agencies today to change the  
7 history of the Great Basin People. The Bureau of Land  
8 Management and the State of Nevada Museum have taken a  
9 position that the first inhabitants of the Great Basin have  
10 only been in the region for 1,000 years. There is no known  
11 scientific data to support this theory. Nonetheless, they  
12 are attempting to use their theories against us.

13           I would request that the Nuclear Regulatory  
14 Commission study all the ethnohistories for accuracy and  
15 factual material. Without the truth from the original  
16 inhabitants of the Yucca Mountain region is an insult to the  
17 entire process. The history of the Timbisha People should  
18 be studied very closely for its accuracy. Most important,  
19 the archeologists doing the history of the Great Basin  
20 tribes should also be investigated.

21           The changing of one spring, the name, could throw  
22 the whole concept off. As most of you are aware, there is  
23 the name, Tono Pah. The word Pah, it means water, no matter  
24 what dialect you say it in or if you change it a little bit,  
25 it just means water. In Tono Pah's case, it means bad

1 water.

2 Cui-ui-Pah was the name of the Lahotan Inland Sea  
3 before it was ever named, I guess, and Cui-ui being our main  
4 food substance. And so you will find in the Great Basin,  
5 pah, and it refers to water and, as Mr. Arnold had  
6 mentioned, water is very, very important to our religion let  
7 alone to us as a human being.

8 The history of our people in the Great Basin is  
9 from oral histories and from scientific. According to the  
10 time measurement of the Great Basin Curvilinear attributed  
11 to petroglyphs found in the Great Basin, our people have  
12 been in the region for up to 15,000 years. Many of our  
13 ceremonies are the same and are practiced during the same  
14 time of the year. The Cry Dance is done when a death occurs  
15 and the meaning of the dance is the same with the Southern  
16 and Northern Paiute. Legends of how the pine nut got to the  
17 top of the mountains is the same with the same outcome and  
18 meaning. The Park Service told the Indian People they were  
19 no longer welcome to pick pine nuts in the Wildrose  
20 Mountains and in 1944-1945, the site chosen by the People  
21 was Yucca Mountain to pick pine nuts. The National Park  
22 Service didn't want to assume the responsibility for the  
23 Indian People back then. As a matter of fact, they wanted  
24 our families to live in tepees although tepees were a Plains  
25 Indian home. I think it kind of demonstrates the lack of



1 knowledge during that time toward our people.

2 The commissioned a genealogy to be done to prove  
3 that the Shoshone people weren't from that area and the  
4 further it went back it proved that Great Pine Dog's family  
5 did come from Death Valley so they stopped it and that stops  
6 the process and we don't think that is really the right way  
7 that our people should be looked at.

8 With most ceremonies, there comes a negative side.  
9 I jumped ahead.

10 There is something I carry for our people and it  
11 is some of the legends and it is this particular piece that  
12 I am going to read is that legend and it was named the Ghost  
13 Dance and it goes a lot further back than the 1870s but it  
14 is written in this area of around 1870.

15 The story of the Ghost Dance and of Wodziwod's  
16 vision. And as most people know, Jack Wilson or Wovoca is  
17 always associated with the Ghost Dance because after  
18 Wodziwod had passed away, Wovoca picked it back up and tried  
19 to revitalize it.

20 But the gentleman, the man who did get the  
21 original vision, was Wodziwod and he was from the Walker  
22 Lake area.

23 The story of the Ghost Dance and of Wodziwod's  
24 vision was one of many histories told to us by our elders  
25 from the Paiute side. In this vision, he saw the return of

1 our brothers who had traveled to the other side of the  
2 world. As prophesied, our older brother was in chains, put  
3 there by our little brother. They had new things we would  
4 not understand. Their dance would help us as one people to  
5 understand each other's ways.

6 The understanding of our mother earth would come  
7 from the Red People. Should this dance be done correctly,  
8 this dance would bring water in its many forms to cleanse  
9 and bless us. Wodziwod's vision showed the dance steps and  
10 the songs. The vision showed the clothing required to be  
11 worn and what they should be made of, deer hide with long  
12 fringe on the front of the shirts to shake off the sickness  
13 and to be shaken through the fringe to the mother earth.  
14 Those shirts have become what is called ribbon shirts now  
15 and it has kind of lost its ceremonial value. You know, I  
16 see basketball coaches wearing them. Maybe they're trying  
17 to get some of that luck. I'm not real sure.

18 With most ceremonies there comes a negative side  
19 and in this case the Ghost Dance, it was said that four men  
20 would come out of the East who will turn our dance into its  
21 opposite. Wodziwod's vision was one of love and peace. The  
22 vision meant the dance would be turned into a war dance  
23 which did happen and it led to Wounded Knee with the  
24 massacre of an entire unarmed people.

25 Our dance would one day return and be brought to

1 us by the ones who came to the Great Basin to get it. Over  
2 the years, gifts have been sent to the Cui-ui-Ticutta and  
3 the Tagi-Ticutta from the people who had taken our dance to  
4 their homes. Seventeen years ago, our dance returned to the  
5 Great Basin and was given to Stanley Smart, a Paiute,  
6 Shoshone, Pit River lineage. The prophesy told the dance  
7 would be given to a snake person, who we were before the  
8 name Paiute was put on us. Wodziwod's vision is only a  
9 piece of the total prophesy believed by us. It is believed  
10 that when the four races return to the basket we will be  
11 able to make the sound the Creator is waiting for us to  
12 make. And I think, as many people are aware, there is a  
13 movement toward Indian religion and right now we are waiting  
14 and it is pretty hard. We have a lot of non-Indians coming  
15 around us that are being shown by some of these misguided  
16 tribal members. It is not that time yet but we are waiting.

17 The basket that we were created in is the Great  
18 Basin. So the return of the other three races obviously is  
19 happening and, you know, we are waiting for that time so  
20 that we can train our brothers.

21 It is our understanding that since our creation we  
22 have always followed the south end of the lake we call Cui-  
23 ui-Pah, which is Pyramid Lake. Our culture is tied to the  
24 ancient inland sea known as Lahotan Lake. 14,000 years ago,  
25 the climate of the Great Basin was wet and full of lakes.

1 During the Pleistocene Era, 1.8 million years ago, there was  
2 over 27 million acres of lakes. Today there are only 2.5  
3 million acres.

4 Five thousand years ago, the inland sea started to  
5 dry up. The Lahotan Inland Sea covered the vast area of  
6 8,000 square miles and was 900 feet deep. During the  
7 drought period, the water slowly drained south and east. On  
8 the east side of the many valleys, the sands were halted  
9 which became one of the areas used to bury our dead. During  
10 periods of high water, the cliffs exposed by the ever-  
11 beating of wave after wave, the volcanic uplifts helped to  
12 make natural burial chambers. These chambers were prepared  
13 with loving care by placing mats made of tule reeds, food  
14 stored in willow woven baskets, blankets made of rabbit  
15 hides were made to keep the bodies warm. Clothing was made  
16 for the journey home. The cave would be used, when it was  
17 necessary, by placing another body on top of a previous  
18 grave. This practice was used up until recently.

19 As I mentioned earlier, Mr. Harrelson, the grave  
20 that he robbed came out of Elephant Mountain which is almost  
21 identical to Yucca Mountain but in a smaller version. The  
22 way the bodies were on top of each other, one being 2,500  
23 years, the other about 1,200 years old. We have these type  
24 of graves on our reservation in the same format that I just  
25 read.

1           The Tribe is currently directly involved with an  
2   issue with the nuclear industry that includes the  
3   Departments of Energy, Defense and Navy and the private  
4   sector. The project is known as the Nuclear Weapons  
5   Nonproliferation Policy Concerning Foreign Research Reactor  
6   Spent Nuclear Fuel. This program will result in  
7   transportation of spent nuclear fuel through our tribal  
8   lands. Although it is known that transportation is an old  
9   practice, the issue of involving our Tribe is new. As a  
10  matter of fact, the record of decision was issued on May 13,  
11  1996, but the Tribe did not receive official notification  
12  from the federal government until January 1997.

13   Furthermore, we received a notice from the State of Nevada  
14  on October 3, 1996, inviting the tribe to a meeting in San  
15  Francisco to discuss shipment of foreign nuclear fuel.

16           The National Environmental Policy Act was  
17  violated. No consultation occurred between the federal  
18  government and the Tribe. Had DOE followed the spirit of  
19  executive order 12898 pertaining to environmental justice,  
20  they would have been on notice to at least contact the  
21  Tribe. The DOE never did. At this point, we do not  
22  visualize any consultation occurring in the near or distant  
23  future. This treatment between two governments is all too  
24  familiar. We request that the Commission seriously consider  
25  and reconsider its authority which is vested toward federal

1 agencies responsible for carrying out the obligations of the  
2 federal government.

3 When an Indian Tribe is affected either directly  
4 or indirectly by any project involving the nuclear industry,  
5 the seriousness of impacting the environment must be the  
6 primary consideration and not secondary. This nuclear  
7 energy and nuclear waste is not part of our Indian society  
8 to which we belong. This makes it harder to understand and  
9 accept. Although the science and technology can be taught  
10 and shared, there is a fundamental an conceptual difference  
11 that exists between natural law and the man-made written  
12 laws. It is important to us to demonstrate to you that we  
13 are unique but we do not feel any superiority to you. All  
14 we expect is equal treatment from you just as you would  
15 treat your relatives and families.

16 We would like to acknowledge the efforts of the  
17 National Congress of American Indians over the years for  
18 their monitoring of and providing education to Tribes on the  
19 effects of nuclear waste. The Tribe is willing to work with  
20 the federal government and its regulatory agencies to come  
21 to a common understanding but only as long as the  
22 consultation process is done fairly and legally. We will  
23 support the NRC in its efforts in the development of an  
24 Indian policy as other federal agencies have done in  
25 compliance with the President's executive memorandum of

1 April 29, 1994, to all heads of departments and agencies  
2 regarding government-to-government relations with Native  
3 American Tribal Governments.

4 Thank you.

5 CHAIRMAN JACKSON: Thank you very much.  
6 Commissioner Rogers.

7 COMMISSIONER ROGERS: No questions.

8 CHAIRMAN JACKSON: Commissioner Dicus?  
9 Commissioner Diaz? Commissioner McGaffigan?  
10 Mr. Holden.  
11 MR. HOLDEN: Thank you, Madam Chairman. And again  
12 good morning, Chairman and Commissioners.

13 I was going to read a statement from the Nevada  
14 Indian Environmental Coalition Executive Director, an inter-  
15 tribal organization which many -- to which some of the  
16 Nevada tribes belong and they were going to issue a  
17 statement. But that did not arrive by fax last night. So  
18 once I get that, I will certainly forward it to you and will  
19 forward to you the written statement that I have. It is in  
20 different pieces right now.

21 But thank you again for allowing me to be part of  
22 this panel. NCAI is the oldest, largest national tribal  
23 government advocacy organization in the country. It was  
24 formed in 1944. The purpose was to offset attacks by  
25 various jurisdictional entities, states, counties and in

1 some instances the federal government who did not look upon  
2 tribes as viable governments base don the treaties and  
3 agreements that they had signed over 100 years ago, backed  
4 by the Constitution and backed by Supreme Court cases. We  
5 are, as I said, an advocacy organization and in instances  
6 such as this we do represent some of those tribes who are  
7 unable and do not have the resources to be here as well as  
8 those tribes who may have the resources but asked us to  
9 speak with them.

10 I want to thank the Department of Energy for its  
11 cooperative agreement that we have, similar to an agreement  
12 that the National Conference of State Legislatures, Western  
13 Governors Association and similar organizations have. It  
14 has allowed us to disseminate information, to conduct  
15 meetings about the issues and concerns of tribal governments  
16 and the native peoples and the denigration of their cultures  
17 in many instances.

18 Unfortunately, that cooperative agreement has come  
19 under the budget knife, as we all know happens, and we have  
20 been cut two thirds a couple of years ago and are still  
21 under a freeze and as you are well aware a freeze is the  
22 same as a cut in each increasing year for funding impacts.

23 I also do want to thank the NRC and its staff for  
24 working with the NCAI and working with tribal governments in  
25 providing resources and information on its many programs.

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1 Some tribes have invited the NRC representatives to  
2 community meetings, community presentations to talk about  
3 the issues that fall under the NRC's jurisdiction. Mr. Chip  
4 Cameron in the General Counsel's office has worked with us  
5 on the LSS, as Mr. Hoyle, Mr. Greeves have been part of a  
6 program that you referred to regarding providing computers  
7 to tribes. Let me say that was greatly appreciated, as  
8 Richard Arnold indicated. Let me also say, these were 386s  
9 and exponentially the capability of computers has enhanced  
10 and I don't need to say much more about that. But in terms  
11 of those might be seriously outdated at this point. But we  
12 do appreciate that effort when it came because that was,  
13 honestly speaking, that was more than the tribes had at that  
14 time so anything helps.

15 That is where we are coming from.

16 Much has happened. There has been much DOE  
17 activity in the Yucca Mountain area since I was last here.  
18 But unfortunately not much has happened in terms of tribal  
19 resources and the ability to participate in the process.

20 As I said the last time I was here, in regard to  
21 what Mr. Eben was stating, not being able to participate,  
22 that is quite important in the cultural resources protection  
23 area. Last time around we notified -- we had notified the  
24 NRC that Yucca Mountain project officials were working under  
25 a flawed cultural resources study that they had done by a

1 non-Indian from the University of Michigan. Those concerns  
2 seemed to have gone unheeded, even though as a cultural  
3 workgroup, which Mr. Arnold is a part of, it has not always  
4 been embraced by all of the tribes in that area and even  
5 though respectful deference is given to those tribal  
6 cultural people, it is the tribes to whom the federal  
7 government has its trust obligation on a government-to-  
8 government basis. So we would look for the federal agencies  
9 to find some way to live up to that moral and legal  
10 obligation to ensure tribal participation.

11           Impacted tribal governments may still opt to enact  
12 transportation regulatory codes which will enable them to  
13 participate and monitor transportation activities, though  
14 there is significant federal preemption in these areas. The  
15 stakes are too high for the tribes to be left on the outside  
16 and no matter when they decide to avail themselves of the  
17 process, they have the right to participate to whatever  
18 extent feasible. The NCAI feels it falls within the trust  
19 responsibility of the DOE to provide resources and  
20 assistance if a tribe so desires.

21           As you have heard, some tribes may wish to  
22 participate under the cover of an intertribal organization  
23 such as the Nevada Indian Environmental Coalition. The  
24 choice is that of the tribes. The NCAI still has on record  
25 resolutions from the NIEC which asked us to provide

1 information and work with those tribes within their  
2 organization to monitor activities for them and to provide  
3 them with updates from the various participating federal  
4 agencies.

5 I must say that DOE has at times made attempts to  
6 find resources for the tribes. Dr. Dreyfus a couple of  
7 years ago met with tribal officials and the short story is  
8 that nothing ever became of that. The Yucca Mountain  
9 Project Office had funding available and then they didn't a  
10 short time later. The came back to the tribe and said, yes,  
11 we do, and then that was pulled back also. So it has been  
12 sort of on a I yo-yo string as far as the tribes being asked  
13 to participate realistically and then being denied. So that  
14 is something we are dealing with. So there is a little bit  
15 of mistrust on the part of the tribal governments and  
16 rightly so if you can put yourselves in that position.

17 The State of Nevada and counties have received  
18 impact dollars and the tribes whose land and cultures are at  
19 risk are yet to receive funding and are unable to assess the  
20 thousands of documents emanating from site characterization  
21 studies and thousands more to come. They don't know if the  
22 non-Indian scientific approach is sound or not. They can't  
23 evaluate DOE's scientific programs. As a matter of equity,  
24 as a matter of legal and moral obligations, we would urge  
25 the NRC to implore the DOE to correct this longstanding

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1 error and provide resources to impacted tribes until there  
2 is at least a funding level equitable to the states and  
3 counties and that should be viewed only as the beginning of  
4 the tribal participation in this process.

5 The funding we are suggesting is not special  
6 interest or pork barrel project. In our mind, it should be  
7 a staple within DOE program budget items, not only with DOE  
8 but with NRC and other agencies across the board. This is  
9 also not a matter of lobbying but an attempt to ensure  
10 participation by the necessary parties. The federal  
11 government should accept its role to provide assistance as  
12 part of the trust responsibility under treaties and  
13 agreements.

14 To go back to transportation for a moment, if I  
15 could, in regard to spent nuclear fuels and radiological  
16 waste shipments, we are urging the NRC to establish  
17 protocols requiring tribal notification. I would point out  
18 that many of the corridors through whose jurisdiction these  
19 shipments traverse or will travel in the future are coming  
20 from near ground zero in regard to readiness to respond to  
21 radiological transportation accidents. We all know that it  
22 takes years for an emergency response organization to reach  
23 a state of readiness. We, along with the tribes, have made  
24 the DOE aware that the tribes retain the jurisdictional  
25 ability to enact hazardous materials transportation codes

1 and may opt to exercise this authority.

2 The NCAI is working with DOE transportation  
3 external coordination work group and within that group have  
4 urged funding and training and technical assistance to  
5 tribes and tribal responders but this has not really reached  
6 what is necessary to bring tribes in regarding emergency  
7 response activities. Once again, the State of Nevada and  
8 counties have received impact dollars and the tribes whose  
9 land and cultures are at risk have yet to receive funding  
10 and are unable to assess these documents. So we just wanted  
11 to reiterate that.

12 This is quite important because it is not you and  
13 I and the DOE who have so much at stake and the word  
14 stakeholders is an understatement in this instance. Their  
15 homelands are being altered at this very moment, altered to  
16 a state which, based on the work done, is not recoverable  
17 for many generations.

18 You and I will go home tonight and perhaps file  
19 these papers and our thoughts away for the time being but  
20 these people will return to their homelands and will wake up  
21 every morning and wonder the fate of the birthplace of their  
22 culture where their Creator placed them.

23 There is a limited opportunity to carry out a fair  
24 and just policy and implement decisions which enables them  
25 to protect and preserve their homelands and birthright and

1 to maintain their way of life. But they and their progeny  
2 will look back on today as just another instance when their  
3 message went unnoticed.

4 I appreciate this opportunity.

5 CHAIRMAN JACKSON: Thank you very much.

6 Commissioner Rogers?

7 COMMISSIONER ROGERS: None.

8 CHAIRMAN JACKSON: Commissioner Dicus,

9 Commissioner Diaz, Commissioner McGaffigan?

10 Well, I thank each of you and all of you for your  
11 input. I take note of what I have heard, which I always  
12 feel is useful to play back and that is the need for  
13 cultural understanding. The cognizance of our  
14 responsibilities under the various laws and executive  
15 orders, the special sensitivity to transportation issues,  
16 the need for consistency of interaction, the need for access  
17 to information, including the use of information technology  
18 and the issue of funding. We are probably in the same boat  
19 you are as far as that is concerned.

20 I thank you again. I also thank the  
21 representatives from the State of Nevada and from Nye County  
22 and Clark County and, of course, the representatives from  
23 the DOE. As you know, we are briefed regularly by our staff  
24 and other organizations involved in the high-level waste  
25 area. But hearing directly from all of you is helpful to

1 the Commission as we determine the status of DOE's efforts  
2 and the direction of our own program.

3 The statements of all of the participants in  
4 today's briefing and in the discussions surrounding the  
5 statements, you have described the issues and concerns that  
6 all of you have, which overlap but are also unique to each  
7 group associated with the high-level waste repository  
8 program. It is important that we continue to maintain clear  
9 communications between, obviously, DOE and NRC but among all  
10 the affected parties so that we can use the resources  
11 available appropriately and carry out an effective program.

12 Again, the Commission thanks everyone very much  
13 and, unless there are further comments, we are adjourned.

14 [Whereupon, at 12:02 p.m., the briefing was  
15 adjourned.]

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CERTIFICATE

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

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

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Thursday, May 15, 1997

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

Transcriber: Christopher Gitchell

Reporter: Jon Hundley



South Portal Boxcut







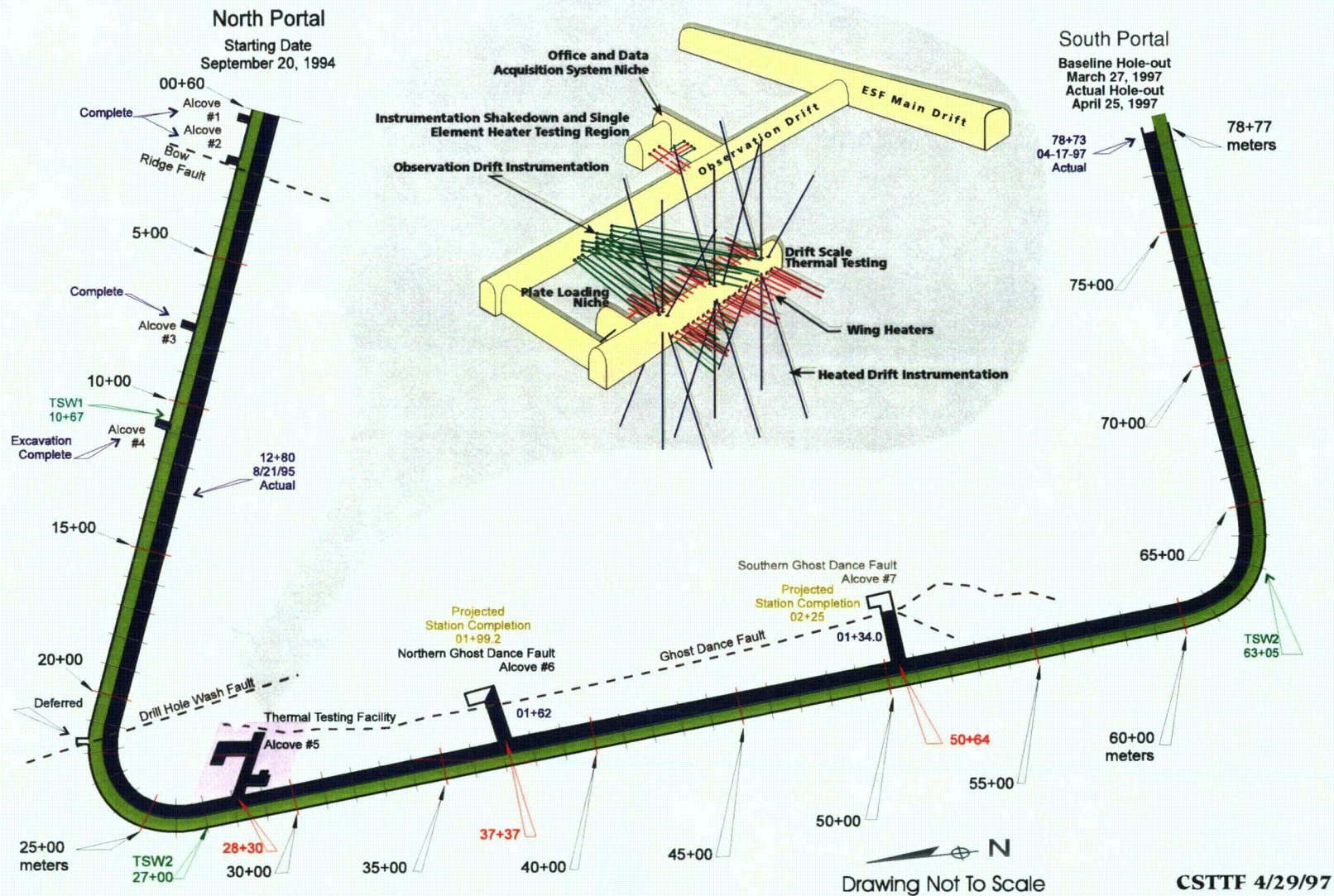
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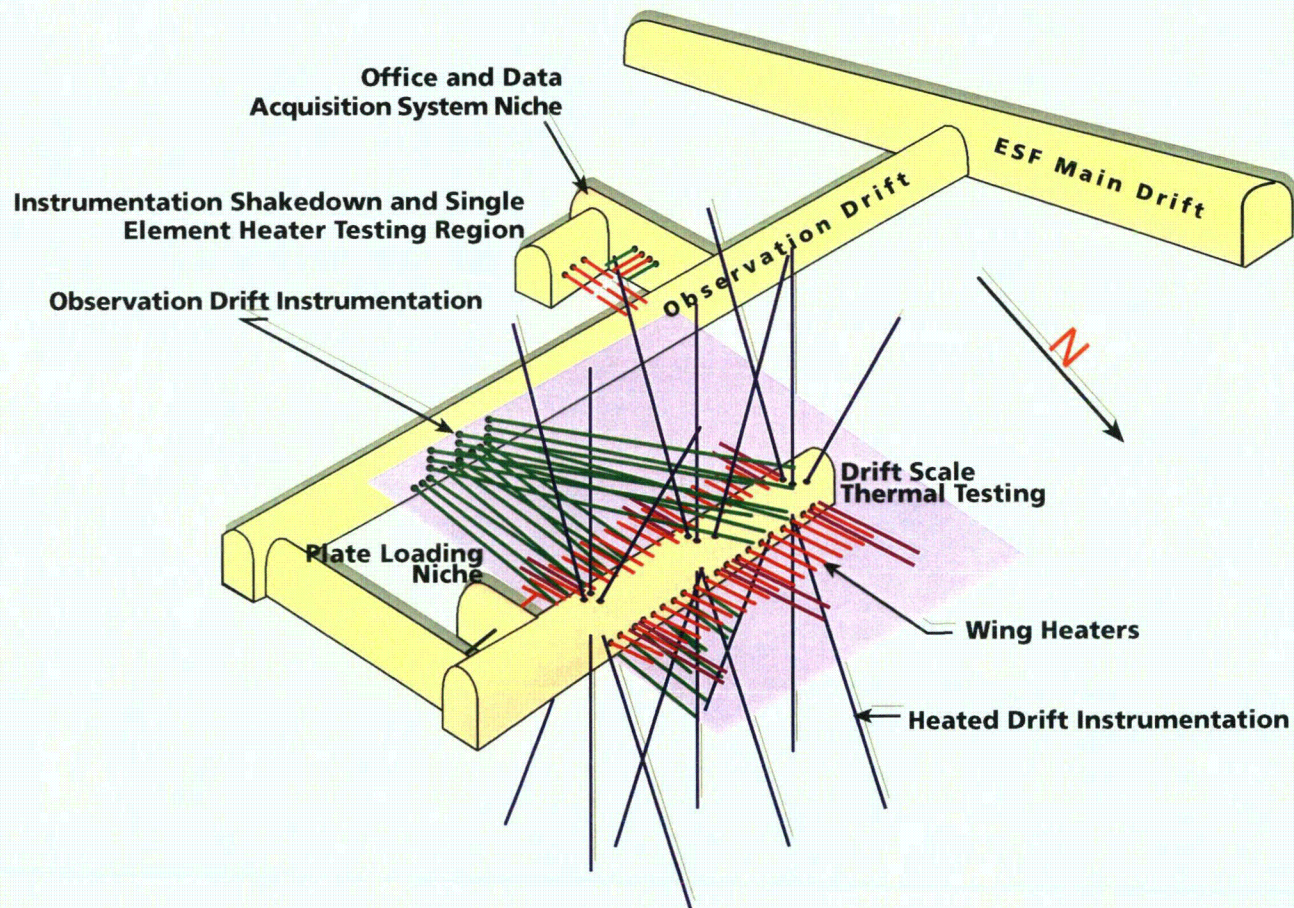
# Core Science - Construction





# Core Science Data Acquisition

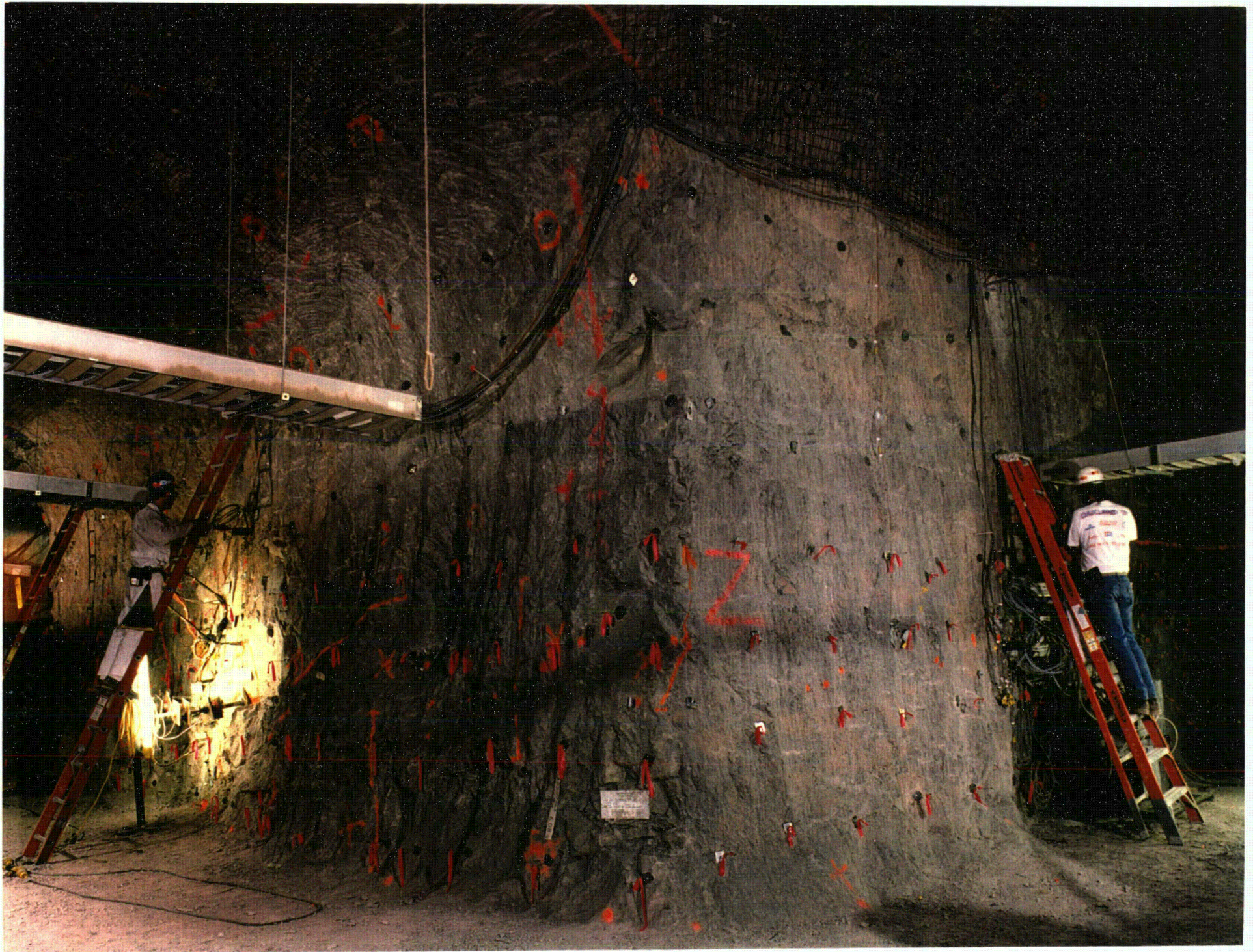
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**Schematic Illustration of the Thermal Testing facility Layout**



**Intersection of Thermo-Mechanical Drift (left) and  
Thermo-Mechanical Drift Extension (right) in Alcove 5, Exploratory Studies Facility**





**View of Single Heater Test Experiment from Thermo-Mechanical Drift, Alcove 5**

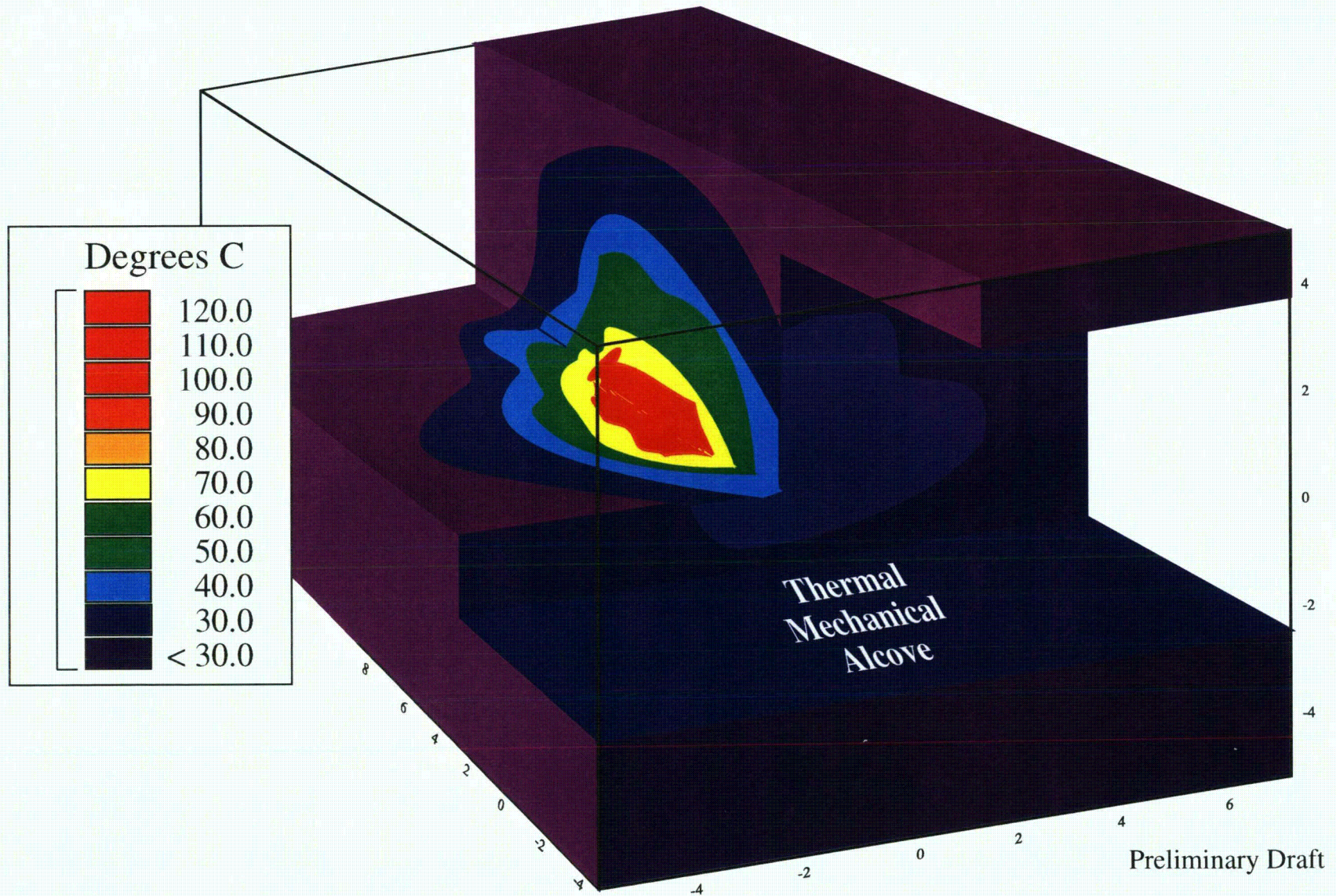




# Core Science - Results

## Single Heater Test: Measurements

*Perspective Isotherms • Cutaway Along Heater • November 30, 1996 (Day 96)*

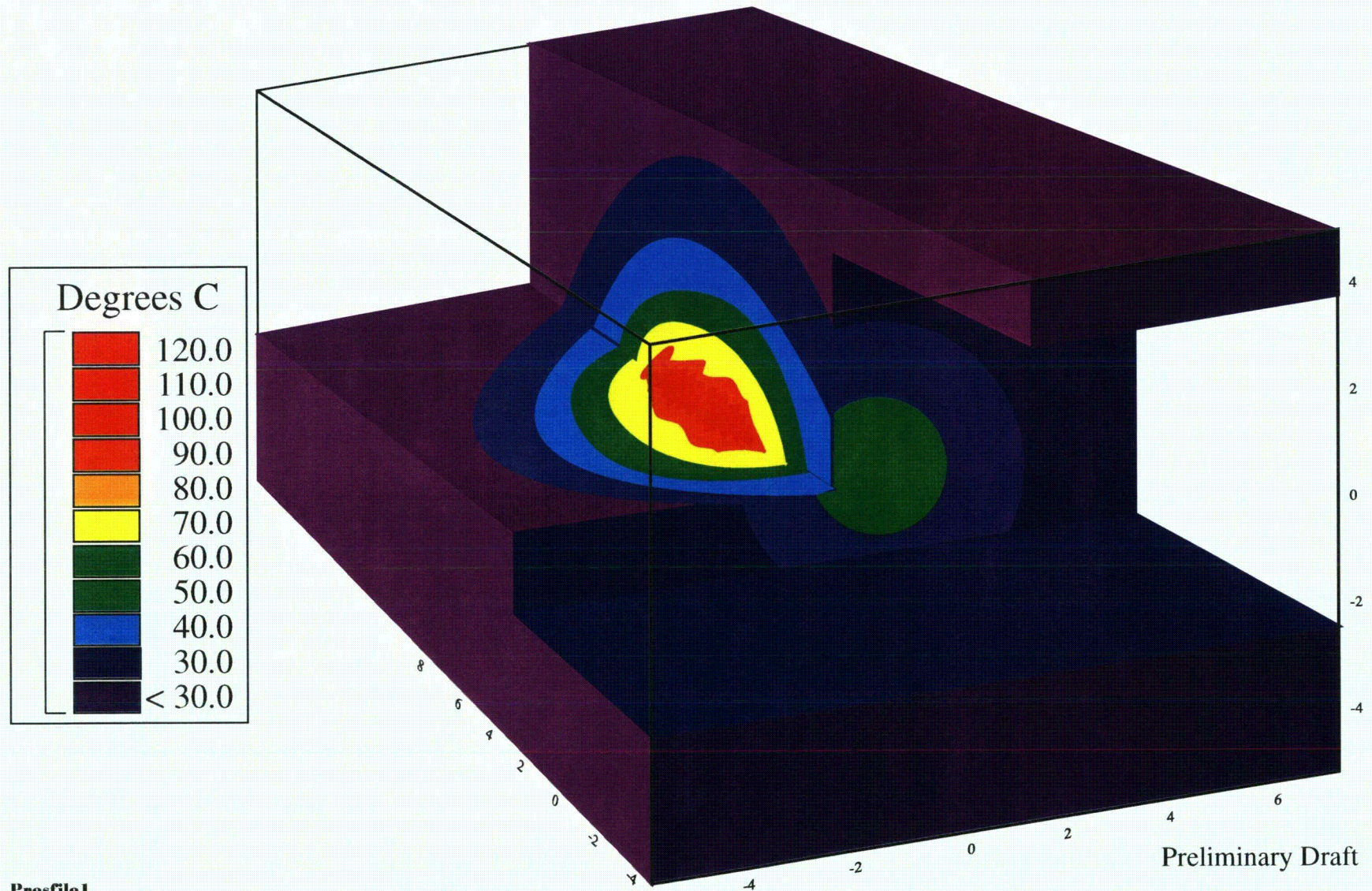




# Core Science - Results

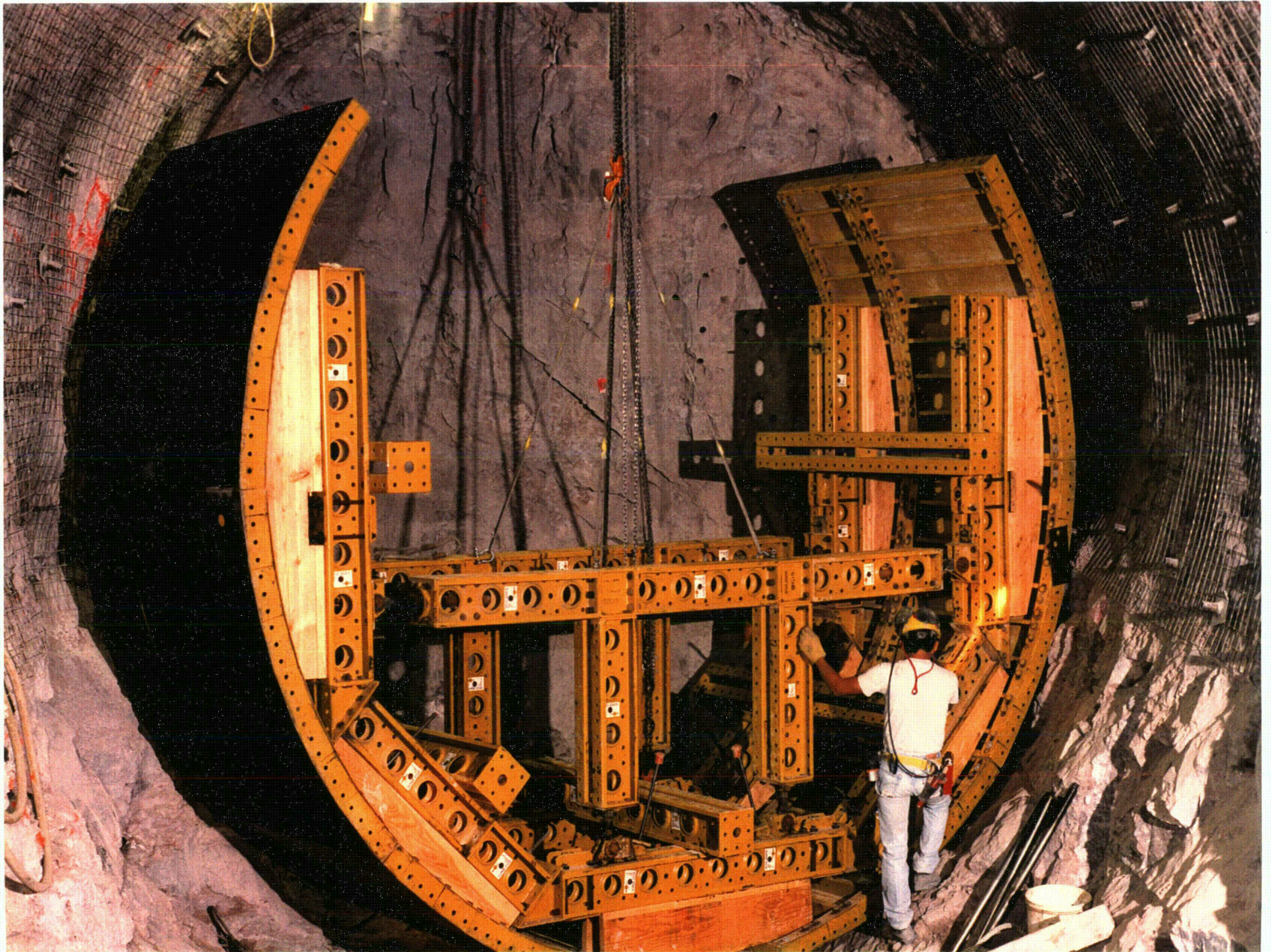
## Single Heater Test: Predictions

*Perspective Isotherms • Cutaway Along Heater • November 30, 1996 (Day 96)*





## Cask Emplacement Liner Installation in the Heat Test Drift Alcove 5





## Renewed Scientific Activities at Fran Ridge Large Block Test





Cooling Coils on Top of Large Block Test at Fran Ridge

