

ORIGINAL

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UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of:

THE TWENTIETH ANNUAL MEETING OF
THE ATOMIC SAFETY AND LICENSING
BOARD PANEL

ON

THE PERMANENT HIGH-LEVEL WASTE
REPOSITORY AND OTHER NEAR TERM
ISSUES.

Pages: 1 through 190

Place: Las Vegas, Nevada

Date: December 12, 1988

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HERITAGE REPORTING CORPORATION

Official Reporters
1220 L Street, N.W., Suite 600
Washington, D.C. 20005
(202) 628-4888

1 Before the
2 NUCLEAR REGULATORY COMMISSION

3 In the matter of:

4 THE TWENTIETH ANNUAL MEETING of the)
5 ATOMIC SAFETY AND LICENSING BOARD PANEL)

6 on)

7 THE PERMANENT HIGH-LEVEL WASTE REPOSITORY)
8 AND OTHER NEAR TERM ISSUES.)

9 Metro Room 1
10 Bally's Hotel
11 3645 Las Vegas Boulevard South
12 Las Vegas, Nevada

13 Monday,
14 December 12, 1988

15 The above-entitled matter came on for hearing,
16 pursuant to notice at 9:00 a.m.

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1 came into existence, the composition of the boards changed
2 somewhat so that one of the scientists represents the safety
3 area of the disciplines that I just mentioned, and the other
4 deals with environmental concerns, and in that area we have
5 health physicists, we have a medical doctor, we have water
6 chemists, and people who are familiar with those kinds of
7 environmental issues.

8 The second statute which governs what we do is the
9 Administrative Procedure Act of 1947. That act created a
10 judiciary within the Executive Branch of Government, if you
11 can deal with that concept. It arose out of the need,
12 perceived by the Congress, to give individual citizens some
13 voice in actions taken by executive agencies prior to them
14 becoming effective. It gives, to those members serving under
15 the Administrative Procedure Acts, such as the administrative
16 judges of the panel, judicial independence. A matter which
17 we consider with--guard with great jealousy and concern.
18 Some of the aspects of the operation of people under the
19 Administrative Procedure Act are that, for example, there are
20 no performance appraisals of their work, much as there are no
21 performance appraisals of judges within the judiciary system.
22 Also, they are not eligible for either bonuses or rewards
23 dispensed by the agency under the Civil Service system. And,
24 as I mentioned that we are all extremely jealous of the
25 integrity of the process and the reputation of adjudicatory

1 hearings, in our case within the Nuclear Regulatory
2 Commission. They are actually Administrative Law Judges and
3 Administrative Judges in something like 29 Federal agencies.

4 Let me talk a little bit briefly about the nature
5 of the proceedings that we govern. They are adapted
6 basically to the needs of the proceedings or the issues that
7 are before us and the particular license application. There
8 are broadly two kinds, informal hearings and formal hearings.
9 The informal hearings are much less bound by rules and
10 regulations and proceed in a much more expedited manner
11 because the complexity of the issues or the number of the
12 issues is much simpler and frequently they are--an informal
13 proceeding can be conducted by a single Administrative Judge
14 or Administrative Law Judge, rather than a three member
15 board.

16 The formal proceedings are essentially the
17 equivalent of a trial in a Federal District Court. They are
18 used in connection with complex cases, and they involve
19 things such as discovery then pre-file testimony, the
20 testimony is normally that of expert witnesses, so that the
21 pre-file testimony which is put in before the hearing begins
22 establishes the direct testimony and the trial itself really
23 consists of cross-examination of the witnesses. These
24 complex proceedings result in large records. They can run
25 up to 40,000 pages in the record that the board of

1 Administrative Judges must decide. And the decisions are
2 issued in writing after the completion of the trial. The
3 relationship among the three members of the board is that
4 each of them has an equal vote, regardless of what discipline
5 they represent. And they have full right of dissent, should
6 they so desire.

7 One of the things that has fascinated me as a
8 lawyer in this process, over the last eight or nine years is
9 that whenever there is a dissent it is usually a scientist on
10 a legal ground, or a lawyer on a scientific ground. So they
11 sort of get into each other's discipline. It is very
12 interesting to watch the evolution of all that. Another sort
13 of personal aside is that one of the things that makes this
14 process so dynamic, and I think adds a great deal of
15 integrity to it, is that I believe that logically they come
16 to the solution of a particular problem from opposite logical
17 processes. One of them is inductive and the other is
18 deductive and they are both convinced that their way is right
19 so you get a pretty good natural tension within the process
20 itself.

21 The decisions as I have mentioned are made only on
22 the record which is compiled during the course of the
23 hearing. That record is taken down by a court reporter, all
24 witnesses testify under oath, just as in a regular court
25 proceeding.

1 In the present panel, we have both full-time and
2 part-time members. At the present time we have 15 full-time
3 members and 23 part-time members. The full-time members are
4 composed about half and half of lawyers and scientists. The
5 part-time members are composed primarily of scientists of the
6 range of disciplines that I mentioned before. In my judgment
7 after having had some experience in at least half a dozen
8 Government agencies, this is probably the most senior
9 experienced and distinguished group of people that I have
10 ever been associated with. The youngest of them, I think,
11 has at least 10 or 12 years experience in litigation, and
12 seven or eight in this particular form of litigation. And
13 the average board that hears an issue, it probably represents
14 20 or 30 years of experience.

15 Let me talk a little bit about our annual meeting.
16 We do this every year and have, obviously, for the last 20.
17 Primarily for the purpose of updating our members on current
18 issues in the law and also exploring current technical issues
19 that they either are dealing with now that are evolving, or
20 that may be dealt with in the future. Normally, these
21 meetings are not open to the public. They are closed because
22 they are really in the nature of a continuing education for
23 the panel members and also to encourage the free exchange of
24 ideas. But in this instance, of course, we have a much
25 narrower, specific purpose for being here that being the

1 prospect of the proceeding involving the permanent High-Level
2 Waste Repository. We are holding this meeting at this point,
3 even though the schedule indicates that we will not have any
4 involvement until June of 1990, and at that time, under the
5 proposed regulation, the involvement would involve the
6 creation of the discovery record, which will be a fully
7 automated electronic record. Then, as I understand it, the
8 current schedule would anticipate the filing of the
9 application for the license for the High-Level Waste
10 Repository in 1990, and under the statutory scheme, the
11 proceeding itself would not begin until sometime around 1992
12 or 1993. So what we are here for now is to do sort of a
13 basic educational research exercise in order to prepare
14 ourselves somewhat to deal with these issues. As I am sure
15 you are aware, this will be the largest proceeding ever
16 conducted by the Nuclear Regulatory Commission, and possibly
17 the largest administrative proceeding ever conducted by the
18 Federal Government. I have seen estimates of 13 million
19 documents and 40 million pages of material that are going to
20 have to be addressed and digested and to the extent that they
21 present issues resolved, and also because this is a first of
22 a kind experience, we expect the issues to be somewhat novel
23 and complex. Hence, we thought we better not be standing
24 still at the gate when the proceeding is filed, and that we
25 better have some sort of general background about the kinds

1 of issues that could arise.

2 Specifically, our schedule here is to have two days
3 of open meetings in this room, and on Wednesday we will take
4 a tour of the Yucca Mountain facilities. On Thursday we will
5 revert to our usual format which is a closed meeting in which
6 we will discuss panel organizational matters and technical
7 issues not related to the High-Level Waste Repository.

8 I guess I should close by reiterating that nothing
9 said during this meeting will form any basis for any decision
10 that we might be called upon to make with respect to the
11 High-Level Waste Repository. Any decision of that nature
12 will depend entirely upon the evidentiary record which is
13 compiled at the time of the proceeding.

14 If anyone has any questions about all this, I would
15 be happy to talk to them outside. In the first instance, I
16 would refer you to Dean Kunihiro, who is the Public Relations
17 office for this region. Dean, would you wave your hand there
18 in the back? It is nice to be a person identified as one
19 with all the answers. And also, I think Harold Denton is
20 here. I do not know whether Harold wants to wave his hand or
21 not, but he might--yes, he is in the back back there.

22 Let me turn then to our first speaker, our
23 introductions will be brief and to the point in order not to
24 use up any of their time because we would rather hear from
25 them than from us. Secondly, I might ask each of the

1 speakers if they are asked a question during the course of
2 this process, if they would repeat it so that the court
3 reporter can get it down. I might conclude by mentioning
4 that a transcript will be taken of everything said during
5 these two days and would be available through the Nuclear
6 Regulatory Commission's regular process, Public Document
7 Room.

8 Our first speaker, who will give us an overview of
9 the High-Level Waste Repository Program is King Stablein, who
10 has been kind enough to jump in at the last minute here. He
11 is a Senior Project Manager of the Directorate of the NRC
12 Division of High-Level Waste Management for NMSS. Mr.
13 Stablein.

14 O V E R V I E W

15 MR. STABLEIN: Good Morning. We have some handouts
16 of the view graphs that Paul Prestholt and I are going to be
17 using so I'd like to start these around.

18 I hope you're not too disappointed that John
19 Linehan couldn't be here today. You are getting two for the
20 price of one. Paul Prestholt, our Senior On-site
21 Representative out here in Las Vegas, and myself. I work
22 directly for John Linehan, I'm the Senior Project Manager,
23 and also the NRC's Yucca Mountain Project Manager. I've been
24 involved in this program, working specifically on Yucca
25 Mountain for the last five years and have participated,

1 therefore, in the NRC-DOE interactions that I'll be speaking
2 about today. I've had the pleasure during all that time of
3 working with Paul Prestholt who has been the on-site
4 representative for that entire time. And this is a joint
5 presentation that we're doing. I will deal with the first
6 parts, and let Paul tell you about what the on-site
7 representative does.

8 Paul, could I have the purpose of the talk back? I
9 haven't gotten to the purpose yet here.

10 MR. PRESTHOLT: Fine.

11 MR. LINEHAN: We're going to try to accomplish
12 three things in a short period of time here today. First of
13 all, provide a little background and context for the more
14 detailed talks to follow. You will have some much more
15 detailed talks, especially from Mr. Thompson, my Office
16 Director, this afternoon, who will talk about the overall
17 licensing strategy for the NRC. I'm just going to take one
18 aspect of that after I lay out some general material. But
19 the part that I'll be talking about is in an area that is
20 very active at this time in the program. Then I'll discuss
21 the purpose and status of NRC-DOE interactions in the High-
22 Level Waste Repository Program during the informal or pre-
23 licensing phase of the program. And after that, Paul will
24 takeover and discuss the role of the on-site representative.
25 The key role that the on-site representative plays in this

1 DOE-NRC interaction process.

2 The problem of nuclear waste and what to do with it
3 is not a new problem, it goes back to the 1940's when the
4 first high-level waste was produced. In the 1950's nuclear
5 power plants got started and more waste was generated. And
6 the Federal Government began to recognize its role and the
7 need for somebody to take charge of the problem of what to do
8 with the increasing amount of radioactive waste. And the
9 1960's saw the Federal Government pursue an attempt at a
10 potential repository site in Lyons, Kansas. By 1970, '71,
11 '72, that particular effort went by the boards. In mid-
12 1970's, another attempt was made by the Federal Government to
13 get on top of this very difficult problem. Legislation was
14 passed that set up a plan to have six pilot repositories for
15 nuclear waste by the year 2000. And they were going to be
16 scattered over various parts of the country, with the first
17 one being in the rock material called salt. However, for a
18 number of different reasons, this initiative also faltered.
19 And so, we arrived at the 80's, and there were a couple of
20 consistent threads throughout. The amount of waste continued
21 to increase and the inability to get on top of the problem
22 remained. So that brings us to 1982 and the Nuclear Waste
23 Policy Act, where the Federal Government once again
24 established its role. It took the responsibility for the
25 problem and made a commitment to going with permanent

1 disposal of the waste in a deep geologic repository. Paul,
2 if we could take a look at a deep geological repository.

3 MR. PRESTHOLT: It works better that way.

4 MR. STABLEIN: Flip it sideways. There we go. Now
5 this is not supposed to be an accurate representation of how
6 the final repository will be. This is a conceptual design of
7 the repository at Yucca Mountain just so that we all get
8 kind of a feeling for what we're talking about when we talk
9 about a High-Level Waste Repository. Everyone wants to see
10 it, Paul, so move it up. There you go. Thank you.

11 On the left hand side is the subsurface facility.
12 The geologic repository operations area, where the waste will
13 be deposited and disposed of. In the center of the diagram
14 are the surface facilities where the waste will be handled.
15 It will be received, handled, repackaged if necessary, and
16 then by means of a ramp a mile to a mile and a half long, the
17 waste would be transported to the subsurface facility for
18 disposal. So, the repository is a combination of surface and
19 subsurface facilities tied together by various ramps and
20 shafts. There are other ramps that lead to the waste pile
21 for the material that has to come out of the repository.
22 That's what is called the tuff pile. T-U-F-F is a word you
23 should be hearing a lot in the next couple of days, that is a
24 particular type of volcanic rock, and it is the medium, or
25 rock type, in which the waste would be disposed of if Yucca

1 Mountain ends up being the repository site. So that's the
2 waste pile over there. Okay, thank you Paul. That's just to
3 give a little feeling for the nature of this High-Level Waste
4 Repository, or proposed High-Level Waste Repository. I
5 should mention that in that diagram the waste would be
6 disposed of perhaps a thousand feet below the surface of the
7 ground.

8 After the NWPA was passed in 1982, quite a few
9 major events took place in the high-level waste program. The
10 DOE, Department of Energy, which was charged with sighting
11 and constructing and operating the facility did get its
12 sighting guidelines agreed to by the NRC. They did--the NRC
13 on its part passed the technical criteria and standards in
14 10-CFR PART 60 that will be used to evaluate the proposed
15 repository. DOE came up with nine sites that were
16 potentially acceptable for characterization and published
17 draft environmental assessments on each of these. The NRC
18 and the various other parties commented upon those and DOE
19 went back, looked at the sites, and nominated five of those
20 nine sites for site characterization and published final
21 environmental assessments on those which the NRC commented
22 upon once again. DOE then--all of this being in accord with
23 the process laid out in the NWPA--the DOE then recommended
24 three of those five sites to the President as being
25 candidates for site characterization. And the President did

1 agree with DOE. So the three sites: Hanford, Washington;
2 Deaf Smith County, Texas; and Yucca Mountain, Nevada; were
3 planned for site characterization as the first step in that
4 DOE was developing Site Characterization Plans for all three
5 sites. Which brings us to the 1987 Amendment to the NHPA,
6 whereby Congress intervened in the process and essentially
7 told DOE to characterize only one site, the Yucca Mountain
8 site, and that's where we are today with the DOE currently
9 preparing the Site Characterization Plan for the Yucca
10 Mountain site.

11 This time line shows you the current schedule for
12 the repository program starting with the publication of the
13 Site Characterization Plan, or SCP, this month. In fact, it
14 is supposed to be issued near the end of December. And we're
15 talking about a six or seven thousand page document here that
16 the State and the NRC will have to review and that will be
17 coming to us around Christmas time.

18 The next item on the time line is the SCA, this is
19 the Site Characterization Analysis. NRC is committed to do a
20 review of the SCP in seven months and get comments back to
21 the Department of Energy. Another very important near term
22 event will be the start of exploratory shaft construction in
23 November of 1989. The importance of the exploratory shaft
24 is--and the exploratory shaft facility--is that it is by
25 these 12 foot in diameter holes going down into the

1 subsurface, and the drifts that will go off from those holes,
2 plus a dedicated testing facility in the subsurface, that DOE
3 will obtain much of the data needed to understand how the
4 site would perform in conjunction with the engineered
5 components as a High-Level Waste Repository. Also, the
6 shafts would become part of the repository if the site is
7 eventually selected. And so this is the first step in the
8 construction of the repository.

9 Now you see there's quite a gap between start of
10 exploratory shaft construction in November of '89 and the
11 license application which the most current schedule shows to
12 be coming in, in 1995. There's been some slippage in the
13 schedule and the NWPA Milestones, for many reasons, in the
14 program, so 1995 is when the license application phase of
15 this project would start. You see a three year review,
16 mandated by NWPA to bring us up to 1998 when the construction
17 authorization would be granted if, in fact, the site is found
18 acceptable for construction of the repository. And five
19 years after that the operating license would be granted. So
20 that's the most current schedule.

21 We are currently, obviously, in this December '88
22 to 1995 portion which is the informal phase--the prelicense
23 consultation phase, okay. And that's the part that I'm going
24 to be talking about a little bit today.

25 During this pre-licensing phase, the NRC and the

1 DOE interact and are allowed to interact in order to identify
2 licensing issues early on that could be resolved by DOE prior
3 to license application submittal. This is part of an effort
4 to help insure the DOE comes forward with a complete and high
5 quality license application that can be evaluated within that
6 three year period that was allotted on the time line for
7 consideration of the construction authorization. I need to
8 mention here that by calling these NRC-DOE interactions this
9 does not preclude the state, the State of Nevada is a
10 participant in the process, the affected local governments
11 that is the counties, affected Indian Tribes, and the public
12 are all partners in this process, or they can be if they so
13 desired. The interactions are open, they're documented in
14 meeting minutes and transcripts in many cases, all these
15 materials are placed in the Public Document Room and are
16 available to everybody.

17 Now, the types of interactions that we have with
18 DOE include the document reviews, especially of major
19 documents as I've referred to--draft EA's, the final EA's,
20 the consultation drafts, like characterization plan, the
21 mission plan--all of these documents have been thoroughly
22 reviewed by the NRC staff. Our comments transmitted and
23 usually one or more meetings dedicated to consideration of
24 those comments between NRC and DOE.

25 Then we have NRC-DOE technical meetings and

1 workshops. This project involves a number of different
2 disciplines including geology, geochemistry, hydrology,
3 performance assessment, engineering and materials properties.
4 We have had meetings with DOE since 1979, and of course
5 increasingly more meetings over the past few years as the
6 selection process has narrowed down to now just the one site.
7 But we've had a great number of these meetings which have
8 been attended by the state and some of the affected parties.
9 Also, site visits by the NRC staff where our technical
10 experts actually go out to the site to see how data is being
11 gathered, and to form our own ideas about how the site might
12 be functioning as a potential repository site.

13 And, finally, quality assurance audits where either
14 NRC conducts its own audit of a portion of the DOE program,
15 or goes along and observes DOE's own audits of their program
16 and of course since the burden is on DOE to audit its own
17 program, its good for the NRC to be there observing just how
18 effective and thorough that process is.

19 The current status of NRC-DOE interactions--as I've
20 mentioned before, we've had a lot of technical meetings and
21 workshops, it says 32 on this particular view graph, the
22 number is already increased. We just had a meeting last week
23 with DOE we're having one this week on study plans back in
24 Washington, D.C., later this week.

25 The Consultation Draft Site Characterization Plan

1 was issued in January of 1988. DOE didn't have to issue a
2 draft of the SCP but they did so to obtain early reaction and
3 feedback from the State of Nevada and from the NRC in
4 particular as well as other interested parties and they did
5 receive comments from industry groups, from the USGS, and
6 other sources as well. So that the DOE could factor those
7 concerns into the final SCP.

8 The NRC did take the opportunity to comment on the
9 CDSCP, and we actually expressed more than 160 concerns with
10 the document. All of which we consider to be substantive but
11 of course there was some prioritization and five of the
12 concerns were considered to be of such immediate seriousness
13 and impact to DOE's program that the staff recommended DOE
14 not start their site characterization work until those five
15 were resolved. And I'll briefly touch on those here. The
16 first one is on Alternative Conceptual Models. A phrase
17 which can be a little difficult to get your hands around, but
18 basically how DOE perceives the natural system to function.
19 The processes and events taking place in the natural system
20 in the CDSCP it appeared that DOE hadn't recognized, or at
21 least fully recognized that with the existing limited
22 database, that is that without an abundance of information on
23 the site that its necessary to consider various alternate
24 possibilities for how the site might function, how it might
25 perform as a repository. This need to better understand the

1 site can best be pursued by considering those various options
2 early in the planning of your site characterization program
3 and this is the point that the NRC staff raised to DOE.

4 We also raised three objections regarding the
5 exploratory shaft facility. I've already mentioned the
6 importance of the exploratory shaft and briefly, we had some
7 concerns about how deep one of the exploratory shafts was
8 going into the subsurface. DOE proposed to take the shaft
9 down three or four hundred feet below the repository horizon
10 and into the--what is called the--Calico Hills Unit. A
11 volcanic unit which DOE is counting on as a barrier to
12 prevent movement of radionuclides via water from the
13 repository to the ground water table. And since that time,
14 the DOE has agreed to take another look at that particular
15 approach and see whether it's really necessary to penetrate
16 that far down into the subsurface with this 12 foot in
17 diameter hole; which obviously offers the potential itself or
18 in its construction of creating pathways for the water to
19 escape from the repository.

20 The NRC staff was also concerned with the testing
21 --the description of testing that would take place in the
22 exploratory shaft and shaft facility. Details were too
23 sketchy to enable the staff to determine if construction
24 operations would preclude some of the tests from obtaining
25 the data that the DOE will need to support its license

1 application or even whether interference of one test with
2 another might preclude gathering the data needed.

3 Finally, the NRC staff was concerned with the
4 selection of the shaft location. It is planned to be in
5 Coyote Wash and the potential for flooding and for erosion in
6 that particular wash was considered great enough for DOE to
7 need to take a look at that and establish that the long term
8 performance of the repository, or the ability to
9 characterize a site, would not be compromised by locating the
10 shaft in that location.

11 The fifth objection that the NRC staff raised
12 concerned quality assurance. And here our concern is that
13 the reliability and accuracy of the data gathered during site
14 characterization might well be subject to challenge during
15 the licensing proceeding, if a qualified QA program is not in
16 place prior to when DOE wants to start gathering the data in
17 site characterization. DOE has agreed that they will have a
18 qualified QA program in place before they start new site
19 characterization activities.

20 We've had meetings on all of these objections as
21 part of the process I mentioned of identifying issues early
22 such that DOE can pursue resolution of those issues. And of
23 course, the staff is presently getting ready for the massive
24 review of the SCP which is going to be coming our way
25 shortly.

1 Let me just briefly address in more detail the
2 exploratory shaft facility as an illustration of how this
3 NRC-DOE interaction has been functioning over the past few
4 years. I've already mentioned the importance of the shaft.
5 In 1983, NRC staff first expressed particular concerns
6 regarding shaft construction and design. And we continued
7 to express various concerns over the years 1983-1988 in
8 letters and in meetings with the DOE. Finally, in July of
9 1988, the staff identified the design control process as
10 perhaps being a root cause of why there were so many open
11 items concerning the shaft. By this time, the number of open
12 items was on the order of 125 or 128 individual items. Now
13 those are symptoms of some larger problem, which we were
14 eventually able to identify at least potentially, as problems
15 with DOE's design control process. By that I mean that it
16 wasn't clear how the DOE had successfully incorporated the
17 Part 60 requirements, NRC's regulations, into the shaft
18 design, and that is something that DOE acknowledged the need
19 to establish for us. And in October and November of this
20 year we have had meetings where an approach has been
21 developed whereby the NRC staff can have confidence by the
22 time the SCP comes in that the shaft design, which is
23 contained in the SCP does in fact recognize and incorporate
24 Part 60 requirements.

25 We've also agreed on an approach to resolution of

1 all of those individual open items via a large meeting that
2 took place in October of this year.

3 One last example of how the NRC-DOE interactions
4 work during this informal or pre-licensing phase: Quality
5 assurance, as I mentioned, the CDSCP questioned the adequacy
6 of the existing QA program and DOE did commit to needing to
7 have a qualified program in place prior to the start of data
8 gathering activities. The NRC and DOE met in July to see
9 what NRC and DOE needed to do to make it possible for NRC to
10 accept the DOE QA program prior to start of the site
11 characterization. The plan included 11 document reviews of
12 DOE and DOE contractor QA plans, and observation of 21 DOE QA
13 audits. At this time, there was one major milestone. The
14 NRC staff and review and acceptance of Yucca Mountain project
15 quality assurance plan in October. And the staff has already
16 observed 11 DOE QA audits of the participants. Obviously,
17 there is still quite a ways to go, both in the document
18 review area and in observing the DOE QA audits.

19 And finally, I've already discussed the design
20 control concerns and how those are being addressed in this
21 DOE-NRC interaction process.

22 That concludes the second purpose of my remarks,
23 that is to discuss one of the most active phases of the
24 program ongoing. That is DOE-NRC interactions. I'd like to
25 turn now to the third phase of the talk and that is the role

1 of the on-site representative in this process. And before I
2 introduce Paul, I'd like to show you where he and I both fall
3 on our organization chart. We're both with the Office of
4 Nuclear Material Safety and Safeguards of which one division
5 is High-Level Waste Management. Directed by Bob Browning
6 with the Deputy Director Joe Youngblood. Paul's got the
7 pointer showing where the repository licensing Project
8 Directorate sits in the organization headed by John Linehan,
9 who would have been with you today if possible. I work in
10 Project Management and report directly to John. And Paul, as
11 well as John Gilreay, our other on-site representative,
12 report also to John Linehan. Before Paul gets up here, I
13 might mention the other two branches, the technical branches.
14 One, Geoscience and Systems Performance, that's where
15 performance assessment is considered as well as the geology,
16 geochemistry and hydrology. And the Engineering Branch,
17 which is where the waste package and repository design shaft
18 design are considered and evaluated.

19 At this time, I'd like to introduce to you, Paul
20 Prestholt. As I've said, I've gotten to work with Paul for
21 five years. He's done a lot of good work for me out at the
22 site, and he will tell you what the on-site representative
23 does and how that fits into the DOE-NRC interactions. Paul?

24 MR. PRESTHOLT: Good morning, I am Paul Prestholt,
25 one of the two On-site Licensing Representatives to the Yucca

1 Mountain project. And have been here very close to now five
2 years. Next month makes the fifth year of this offices
3 existence. As the first speaker to address you that actually
4 lives here in Las Vegas, I'd like to remind you that the city
5 does have something more than 600 thousand people spread out
6 through the Las Vegas Valley. That's actually more than half
7 the population of Nevada. And that there's a good deal more
8 here than just the glitter and glitz of the Strip and
9 Downtown. There are people that live here that don't really
10 have much to do with that, believe it or not. Also this city
11 has the highest percentage of unlisted telephones of any city
12 in the United States. That may tell you something.

13 The office located here in Las Vegas was
14 established in January of 1984. The document that led to the
15 establishment of the On-site Program and this office is
16 something we call the Morgan-Davis Agreement. It was signed
17 in June of 1983 by Robert L. Morgan of the DOE, and John G.
18 Davis, of the NRC. And this laid out in very broad language
19 the manner in which the NRC and DOE were going to interact
20 through site characterization to licensing. Since it was a
21 very broad statement of policy, it was obvious that a more
22 specific document was going to have to be developed. So in
23 August, 1984, William Bennett of the DOE, and Robert Browning
24 of the NRC, signed what we call the Site Specific Agreement;
25 that was August, 1984. And then in June of 1985, Appendix

1 Seven to the Site Specific Agreement was signed by Ralph
2 Stein and Robert Browning that outlined the protocols for the
3 activities of the On-site representative; how we reacted and
4 acted within the DOE organization, what our privileges--our
5 obligations--and just generally how we were going to work.

6 Obviously then, the office had been open for a year
7 and a half and I'd been here. So we had to develop within
8 the structure that we knew would finally come out of this--at
9 least we hoped we knew what was going to happen and we did,
10 it worked out fairly well--a manner of operation with what
11 was then called the Waste Management Project Offices, now the
12 Yucca Mountain Project Office, ways that the on-site rep
13 could do the job that he was assigned by my management.

14 The office has been open to the public. It's not
15 behind any of the badge lines that are so dear to the heart
16 of the DOE and the weapons business. The public is welcome,
17 and always has been welcome to come into the office with
18 questions. If they need specific data, my files are open.
19 The only files that are not open are the personnel files and
20 they're in the lower right hand drawer of my desk, and I
21 guard them. As far as our communications, basically
22 telephone and personal contact with the DOE. They are close
23 by, it's just a matter of a five minute drive to their
24 offices. They come to my office. We sit down and we talk.
25 There have been times when the State, particularly Carl

1 Johnson with the State has come to my office and we have
2 discussed activities and items of mutual interest. As far as
3 communications back with Washington, with the Division and
4 the Directorate, we are linked with both fax and of course
5 telephone. Originally we went back to Washington quarterly,
6 that was the original plan, then it was modified so that we
7 went back--I personally went back twice a year and someone
8 from Washington came out here twice a year. At the present
9 time, it's been about a year I guess since I've been back
10 there. Mostly, now, people are coming from Washington to
11 here. And whatever interactions personal nose-to-nose are
12 conducted that way. We did have electronic mail, but for
13 some reason that is not functioning at the moment. So for
14 right now it's telephone and fax and of course the mails--
15 overnight mail--and that type of thing.

16 We're staffed by two full-time on-site reps.
17 Myself, and primarily in the geotechnical areas I'm an
18 exploration geophysicist with a geology background. Mr. John
19 Gilreay who is the other on-site rep is a QA professional and
20 has an engineering background. Mr. Gilreay has been here, I
21 guess since September, and because of the extreme importance
22 of QA to the program and to the future of the licensing
23 effort, it was felt that it was very necessary to have
24 someone with his background here on site. We both, as King
25 pointed out, report directly to the Repository Licensing

1 Project Director and Mr. John Linehan, however, our work does
2 cause us to speak directly to technical people, to division
3 management, whenever that's appropriate. And when technical
4 documents need to be sent back to Washington, normally if
5 they are of specific interest to one technical person I'll
6 send two copies; one to Mr. Linehan and the director, and one
7 to the individual who is going to use that document in his
8 work.

9 The role of the on-site representative in the pre-
10 licensing consultation phase as set forth in both the
11 Morgan-Davis agreement and Appendix Seven, "The purpose and
12 objective of the on-site representative, the OR, is to serve
13 as a point of prompt informational exchange and consultation
14 and to preliminarily identify concerns about investigations
15 relating to potential licensing issues." That is from
16 Appendix Seven of the Site Specific Agreement. And what that
17 basically means is that it is a liaison job. I am required
18 to maintain a knowledge and understanding of the directives,
19 and of the NRC and my particular division. And I interpret
20 to the extent that I can, to the local DOE office. And I
21 relay those questions that come to me from the local office
22 to the appropriate people in Washington within the High-Level
23 Waste Licensing Division and report back to these people. And
24 I feel that this is a very important part of the job because
25 it tends to short circuit the misunderstandings that can come

1 with too many interpretations of things that are said. And
2 too many iterations of the different pronunciations as they
3 come down the line to the individual that actually has to do
4 the work.

5 Now within the Appendix Seven agreement it states
6 that the OR shall be afforded access to all project personnel
7 within the DOE the project records facilities within the
8 geologic repository operations area which is of course, Yucca
9 Mountain, and adjacent areas. The research facilities, that
10 includes the national labs and the engineering organizations
11 that work on the test site, and sub-contractors, etcetera. I
12 do have a "Q" clearance with both the NRC and the DOE. I
13 have a test site badge and I do have within reason, free
14 access to the test site and to the DOE offices. At the
15 moment, the Yucca Mountain project office is not behind badge
16 lines, you can walk in there without "Q" clearances, and that
17 type of thing, but there are occasions still when the
18 Highland Office, which is behind badge lines is--I need to
19 get in there.

20 The important thing of course is that I do have
21 access to the documentation, pre-decisional. I do have
22 access to the individuals that are working on a day-to-day
23 basis on the various activities within the Yucca Mountain
24 project office. And, while I don't copy documents, I don't
25 send documents or receive them for transmittal when they are

1 pre-decisional, I am able to give some of my people back in
2 Washington an idea of what is going on so that they can keep
3 up with their work so they know what to ask.

4 Informational exchange; we extradite the flow of
5 facts and we coordinate exchange of technical and policy
6 information regarding candidate repository site. By contact
7 with both the DOE personnel, State personnel, and local
8 people: local political organizations, the newspapers,
9 etcetera.

10 Consultation; based on our knowledge of the High-
11 Level Technical and Regulatory Policy positions, we help the
12 local organization to understand what the NRC wants. Where
13 there is confusion, we can go back to the proper people
14 within the NRC and get an answer. We then make sure that to
15 the best that we can that there's no confusion in that area,
16 the local DOE organization. We also act as a funnel for the
17 local people to ask questions. Where they originate
18 questions where they have original concerns they can come to
19 my office. Again, I know who to ask back in Washington and I
20 can get answers for them.

21 There have been a number of times when during my
22 activities--yes sir? Time?--I'll go through this last piece
23 very, very rapidly. We do identify concerns as we note them
24 and transmit that information back to both management and to
25 the technical personnel. And basically then it just boils

1 down to a simple statement, we are an information exchange.
2 We work as best we can to smooth the process and we hope
3 we're successful. And if there are any questions?

4 JUDGE COTTER: The question was where the water
5 horizon was with respect to the surface of the site.

6 MR. PRESTHOLT: At the repository, it is roughly
7 2000 feet below the surface. The repository is roughly 1200
8 feet below the surface. So there is a buffer zone between
9 the repository itself, and the water surface.

10 JUDGE COTTER: Thank you very much, Mr. Stablein,
11 Mr. Prestholt. We appreciate you getting us oriented. This
12 is sort of a high-tech conference and I have this high-tech
13 sign that I use in order to try and stay with our schedule,
14 so we'll try to do that as we go along.

15 If you did not get a handout for a particular
16 speaker and want one, please give your card with your address
17 and the handout desired to Elva Leins and it will be mailed
18 to you. Elva Leins is struggling with the map over here.

19 Our next two speakers will address the Nevada view
20 and give us some sense of both the County's concerns and the
21 view of the Western Shoshone Nation. They are Stephen
22 Bradhurst who is a Representative of Nye County, and Ian
23 Zabarte who is a High-Level Waste Program Planner. If you
24 will, gentlemen.

25

N E V A D A V I E W

1
2 MR. BRADHURST: Thank you, Judge. I am Steve
3 Bradhurst. I'm here on behalf of the Nye County Board of
4 County Commissioners. And I asked Elva to put this map up
5 and you can see that there are very few people that can put
6 that map up that high. That's sort of job security for me,
7 whenever I give a presentation I don't need to grab a chair
8 or anything of that nature. But I thought it might be
9 helpful for the members of the panel to have some sense of
10 where Yucca Mountain is vis-a-vis Las Vegas as well as Nye
11 County.

12 Yucca Mountain is located approximately 100 miles
13 to the northwest of Las Vegas. It is approximately 280 miles
14 from the second largest city in Nevada, which is Reno. As an
15 interesting side note, Yucca Mountain is closer to Los
16 Angeles than it is to Reno by some 30 or 40 miles. And the
17 nearest community to Yucca Mountain is the Nye County town of
18 Armagosa Valley. That town has a population of approximately
19 one thousand people. We have another community, the town of
20 Beatty with somewhere in the neighborhood of 1500 to 2000
21 people that is about 15 miles from Yucca Mountain. The
22 other--excuse me?

23 Q. Could you point that out on the map again so we can
24 see it from here.

25 A. Sure will.

1 MR. BRADHURST: Nye County is this very large
2 county. It's the third largest county in the United States.
3 It is 18,000 square miles. And Las Vegas is right here.
4 Yucca Mountain is located right here. The main highway
5 between Las Vegas and Reno comes on like so, through this
6 part of the state. Again, Las Vegas is down in this area,
7 Yucca Mountain located here, and all of this area is Nye
8 County. And right adjacent to Yucca Mountain, as I say, six
9 miles away is the town of Armagosa Valley, and 15 miles away
10 is the town of Beatty. The County Seat is Tonopah, which is
11 located up here.

12 Q. Excuse me, what population did you put for Beatty?

13 A. The Beatty population is growing daily because we
14 have a large gold mine operation that is gearing up. But I'd
15 say at this point in time we're definitely around 1500, and
16 we expect to be at 2000 by the end of the--I should say by
17 February or March of next year. We expect to level off over
18 the next seven years at somewhere in the neighborhood of
19 about 2500 people. The town of Armagosa Valley had--up
20 until a couple of years ago--had over 2000 people, and its
21 largest mining operation American BoraId Company closed down
22 so it has dropped down to approximately a thousand
23 individuals. What is interesting about Armagosa Valley is
24 that the only source of culinary water for that town is water
25 that comes out of the ground as well as for their irrigation.

1 They pull water out of the ground. Hydrologically speaking
2 Yucca Mountain is upstream from the town of Armagosa Valley
3 so if something ever were to get into the groundwater or I
4 should say there was a leak or something that were to get
5 into the groundwater from Yucca Mountain, in time, I suspect
6 it would reach the water source for the entire Armagosa
7 Valley, and possibly Beatty, I'm just not positive Beatty
8 pulls some of the water out of that basin.

9 MR. BRADHURST: I understand that many of the
10 people here will be on a tour of the test site Wednesday. I
11 will be on that tour to welcome you to Nye County, as well as
12 the full Board of Nye County Commissioners will be on the
13 tour to visit with you, that is the two members who have just
14 been elected as well as the hold over County Commissioner.

15 Nye County has been designated by the Nuclear Waste
16 Policy Amendments Act of 1987, that was passed about this
17 time last year, Nye County was designated as an affected unit
18 of local government. Prior to the Amendment of the Nuclear
19 Waste Policy Act, the Nuclear Waste Policy Act for the most
20 part was silent on the involvement of local governments. And
21 Nye County, as well as other local governments asked
22 Congress, when it was apparent that there was going to be a
23 rewrite of the Nuclear Waste Policy Act, to write in affected
24 units of local governments so that we could be at the table.
25 We could be involved in the repository program. Our

1 statement was that when it's all said and done and the dust
2 settles, and people go on to other projects it will be the
3 people in the sitest jurisdiction that live near the site
4 that are going to have to live with this repository day in
5 and day out forever.

6 As far as the affected units local government, the
7 repository--or the legislation says that the sitest
8 jurisdiction is automatically affected and has certain rights
9 of involvement in the program as I mentioned, as well as the
10 Secretary of Energy can designate the adjacent local
11 governments, the adjacent counties as affected, if they
12 petition to the Secretary of Energy, and the Secretary of
13 Energy makes that designation. To date, Clark County, and
14 that's where Las Vegas is located, to the south of Nye
15 County, and Lincoln County, which would be to the right of
16 Nye County, to the east of Nye County, have been given that
17 designation by the Secretary of Energy. Inyo County, over in
18 California, which only about 35 miles from the site has
19 requested that designation and I understand has been denied
20 as well as other counties adjacent to Nye County have
21 requested the designation, and I don't believe they have
22 received it to date.

23 Regarding Nye County's position on a Nuclear Waste
24 Repository, it certainly has been a controversial program,
25 and it will be for many, many years. The County did not ask

1 Congress and DOE to site a repository at Yucca Mountain, and
2 the County feels that the sighting, construction and
3 operation of a repository in Yucca Mountain could profoundly
4 affect the health, safety and economic well-being of Nye
5 County residents. But the County also realizes that it did
6 not have the power and does not have the power to make
7 Congress look elsewhere. And so what the County has tried to
8 do since first being involved in this program in 1983, is
9 tried to be as pragmatic and professional as possible, and
10 raise the issues, attend meetings and monitor meetings, and
11 also be involved with the State and other affected units of
12 local government in assessing the potential socio-economic
13 impacts of sighting a repository at Yucca Mountain. We have
14 had a on-going program since 1986 on assessing the potential
15 socio-economic impacts of the sighting construction
16 operation of a repository at Yucca Mountain. We expect to
17 have a preliminary report, and I say we: Lincoln County, Nye
18 County, Clark County, and the cities down here working with
19 the State of Nevada have come together the last two years,
20 and we expect to have a preliminary report on socio-economic
21 impact of this program of the repository out by February. It
22 is our hope, that given the immense amount of data that we've
23 collected on the socio-economic side of this project as well
24 as the information that will be printed, we hope that the
25 Department of Energy will use this, incorporate this

1 information in the EIS that the DOE will have to prepare on
2 this project.

3 Nye County feels--we've testified before Congress--
4 we feel the ultimate safeguard at this time is the Nuclear
5 Regulatory Commission. That is, that the Nuclear Regulatory
6 Commission has, of course, the permitting responsibility
7 relative to the construction and operation of a repository.
8 We have mentioned that it is our concern that as this program
9 goes on, if there is any additional slowdown, slippage in the
10 program, that maybe Congress will start to look at the
11 program again, like they did this time last year and say how
12 can we expedite it, how can we make it go quickly or
13 eliminate some of the hurdles. And we are concerned that if
14 they come to that point again that they may look at the fact
15 there has to be a permit secured from the Nuclear Regulatory
16 Commission and possibly dilute NRC's involvement or delete it
17 all together. You have to look at the Waste Isolation Pilot
18 Project in Carlsbad, and you can see that there is no
19 requirement as you know for the Federal Government to receive
20 a permit to construct and operate that facility. I don't
21 believe it s in the cards, I don't think that Congress is
22 seriously thinking about that, but as I said, from Nye
23 County's perspective, NRC is the ultimate safeguard, the
24 permitting responsibility of NRC and we sure hope that there
25 is no effort to dilute that responsibility.

1 Regarding our activities, as I mentioned, we're
2 primarily--Nye County has primarily been involved in two
3 areas; one, monitoring the program. We have not geared up,
4 we don't have a large staff, I'm the consultant, been helping
5 the County since July of '83 on the repository program, and
6 we have just a few people and we have a couple other
7 consultants in different places providing us assistance
8 primarily on the socio-economic side. We have deferred to
9 the State of Nevada on the geotechnical assessment of this
10 program as well as of course to the Nuclear Regulatory
11 Commission. We do have a right, by law now, to be involved
12 just as the State, in assessing and overviewing DOE's
13 activity as it relates to the geotechnical suitability of
14 this site. At this point in time, we do not contemplate
15 getting involved in that arena. We may. We also have a
16 right to appoint a person to monitor activity at the site.
17 And we will do that as soon as site characterization starts.
18 Nye County will have an on-site inspector so that we'll have
19 someone who can talk to Nye County Commissioners and the
20 people of Nye County about what's going on at the site.

21 As I mentioned, we also have been working on this
22 socio-economic study and we expect that to be out around
23 February.

24 Regarding Nye County's concerns relative to this
25 project, and I'll be brief and bring this to a close. We

1 feel the program--and I think everyone in this room feels
2 this way, and that is that it must be based on technical and
3 institutional integrity. But given the history of this
4 program, I don't believe that objective has been met. And
5 most certainly the recent disclosures about DOE's activities
6 at the weapons' plants leaves one, particularly those people
7 who may live--may be neighbors to a Nuclear Waste Repository,
8 somewhat concerned about a Nuclear Waste Repository in their
9 backyard.

10 The rewrite of the Nuclear Waste Policy Act last
11 year actually what it did, of course, it focused in on one
12 site. And the concern that Nye County has is that what
13 happens if that site isn't a good site? If issues are raised
14 by the State, by NRC, what have you, to point out that it's
15 not going to be a safe site geotechnically it's not a sound
16 site, it seems to me there will be significant pressure
17 applied to DOE not to disqualify the site because there's no
18 backup site, so that has got to be a legitimate concern, not
19 only of the people of Nye County, but also I think the people
20 of the United States, that there is no backup site and
21 therefore there may be significant pressure applied not to
22 disqualify the site, even in light of, in face of some
23 significant scientific concerns.

24 We feel that NRC's presence is vital to this
25 program to insure that the site is geotechnically suitable,

1 as I mentioned, we think that the NRC is essentially a
2 counter balance to DOE at this point in time, as well as the
3 State in raising some issues, and we sure hope that
4 counterbalance is not taken away.

5 We feel that Congress wanted additional oversight.
6 If you look at the Nuclear Waste Policy Amendments Act of
7 '87, they called for a technical review board to be created,
8 to essentially report to Congress on a regular basis. This
9 board to be comprised of--to be a Blue Ribbon panel and to
10 report to Congress essentially on geotechnical issues. And
11 unfortunately a year later, and this technical review board
12 has not been created, and we think that its time that that
13 board be created. Its to be created by the Administration.

14 Finally, the tenor of dispute between the State,
15 and DOE, and to some extent, Congress, may cause some to make
16 short shrift of the concerns raised by the State and we want
17 to emphasize that those concerns, those scientific concerns
18 raised by the State, we believe are substantive and have some
19 value and we sure hope that because of the battle between the
20 State and DOE and Congress that people do not seriously
21 consider those concerns.

22 I see the sign is up for me to depart and I just
23 want to say I'm pleased to have the opportunity to appear
24 before the panel, and I look forward to visiting with you at
25 the test site Wednesday. Thank you.

1 JUDGE COTTER: For anyone that didn't hear it the
2 question was whether the gold mining operations were close
3 enough to affect the site and I believe the answer was no.

4 Mr. Zabarte is not here at the moment, and so we're
5 going to proceed, and as soon as he is available we'll work
6 him into the program. So, I'd like at this point to turn to
7 the next segment. Well, I guess maybe the thing to do at
8 this point is to take our scheduled break, which was
9 scheduled for 10:15. So we will take a 15 minute break and
10 anyone who is not back here in 15 minutes will be out of
11 order.

12 (Whereupon a short recess was taken.)

13 JUDGE COTTER: To continue with the Nevada View
14 here in getting a little closer to the specifics of the
15 litigation, and I am very pleased that Carl Johnson, who
16 will speak to you first, is available to us. He is Technical
17 Programs Manager of the Nevada Nuclear Waste Project Office.
18 He will be followed by Malachy R. Murphy, who is counsel for
19 the Nevada Nuclear Waste Project Office from the firm of
20 Murphy and Davenport. Mr. Johnson.

21 T E C H N I C A L P R O B L E M S

22 MR. JOHNSON: Thank you. Again, my name is Carl
23 Johnson, I'm Head of the Technical Programs for the Nevada
24 Agency for Nuclear Projects. On behalf of the State, I'd
25 like to welcome everybody to the State of Nevada. I hope

1 this will be a successful trip for you all and maybe even
2 possibly a lucrative one.

3 There's two main items that I want to cover in my
4 remarks today. First I'd like to brief you on the State's
5 organization and the State's program in the High-Level Waste
6 Repository Program and then secondly, I'd like to talk
7 briefly about what we see as some of the technical issues
8 involved in the proposed repository site at Yucca Mountain.
9 And then Malachy Murphy will talk a little bit about what we
10 see as the licensing issues that will be involved in this
11 program, if it goes forward.

12 The State of Nevada got involved in this program in
13 1983 when the passage of the Nuclear Waste Policy Act, which
14 provided funds for state participation in the program--in
15 1983 the State applied and received funding from Department
16 of Energy. From 1983 to 1985 the activities were housed in
17 the Nuclear Waste Project Office which was a office within
18 the Governor's office. In 1985 the State Legislature created
19 the Nevada Agency for Nuclear Projects which has a direct
20 responsibility for the State's oversight of the High-Level
21 Waste Repository Program.

22 What you see on the first slide is the
23 Organizational Chart and the Organizational Structure for
24 the State's oversight activities in the High-Level Waste
25 Program. The office itself, the Agency for Nuclear Projects,

1 has an Executive Director, two Divisions; one is a Planning
2 Division that deals with socio-economics and transportation
3 issues, and a Technical Programs Division which is the
4 Division which I head. Separately we have a Quality
5 Assurance Manager whose responsibilities are to maintain
6 quality assurance for the technical programs that my division
7 is involved with. We have a nuclear level quality assurance
8 program which is currently going through an NRC qualification
9 review. Separately we have a Public Affairs Manager, whose
10 responsibility is to disseminate information to the general
11 public. That's one of the activities which was allowed in
12 the Nuclear Waste Policy Act by the Affected States.
13 Separately we have a publicly appointed Commission on Nuclear
14 Projects. This is a seven person panel made up of
15 individuals from the general public whose responsibility is
16 to review the activities of this program, not only the
17 Department of Energy's, but the NRC's and the State and
18 independently advise our office, the Governor, and the
19 Legislature on items that they think need to be dealt with.

20 The State Legislature also has a committee made up
21 of seven legislators who has a responsibility to also review
22 the project and advise the State Legislature on any laws,
23 regulations, or anything that they feel are warranted in the
24 nuclear waste area. May I have the next slide?

25 My particular office is supported--and mainly

1 supported by a host of technical contractors who provide not
2 only a review of documents, but they monitor field activities
3 and they also conduct independent technical studies that we
4 feel are necessary. Here's a listing of those contractors
5 and the various areas of expertise that they're involved in.
6 This list of contractors are composed of both academics and
7 private sector contractors. This represents approximately
8 150 research scientists in this list. Over 50 percent of
9 them are Ph.D.'s and a few of them are members of the
10 National Academy of Sciences. The next--

11 This list here describes the program goals of the
12 State office. The main one I want to point out to you is the
13 first one, and that is to assure public health and safety and
14 the environment are adequately protected. That really falls
15 under my area to evaluate the technical and environmental
16 adequacy of the programs the Department of Energy is
17 presenting and make sure that if there are issues and
18 concerns, or disagreements we have, those are raised; and if
19 necessary, our office conduct independent studies to verify
20 or confirm the data that the Department of Energy is
21 developing. The next slide--

22 More specifically, here is the list of the
23 objectives of the Technical Programs Division: to determine
24 what the technical issues are, what we see as the technical
25 issues, and I'll discuss those more later on in this

1 presentation; review the relevant information of the
2 Department of Energy, and we do that on an ongoing basis.
3 We've presented extensive comments on Department of Energy's
4 environmental assessment for Yucca Mountain. We did that in
5 1985. And we also presented extensive comments on the
6 Department's consultive drafts, like characterization plan,
7 and I'll briefly talk about those in the latter part of my
8 presentation. Also, we do independent technical studies. I
9 mentioned briefly some of those types of activities to
10 provide confirmation or verification of DOE's data and their
11 conclusions. We also do on-site monitoring basically looking
12 over the shoulder of the Department of Energy and their--
13 while they are doing their field activities. It gives us a
14 good handle as to the type of studies that they do the
15 quality involved in those studies by seeing how the data is
16 collected in the field and gives us some good insight as to
17 what the conclusions might be of those studies. Next mount--

18 Let me switch here a little bit and talk to you
19 about the geology and hydrology of the State of Nevada as a
20 background to some of our technical concerns. Steve
21 Bradhurst, in his remarks earlier, pointed out where Yucca
22 Mountain is relevant to Nye County. I'm going to repeat a
23 little bit of that. Yucca Mountain is roughly about a
24 hundred miles north and west of Las Vegas, where we are here.
25 It's at that red "X" that's at the bottom of the map. The

1 State of Nevada is in a very unique physiographic area. It's
2 in what is called the Basin and Range Physiographic Province.
3 What that means is that the landscape, the physiography that
4 we see is composed mainly of high mountain ranges with
5 intervening basins in valleys. It's also called the Great
6 Basin, mainly because its bounded on the western side along
7 the California-Nevada border by the High Sierra Nevada
8 Mountain Range, and on the eastern side in Central Utah by
9 the Wasatch Mountain front. All of the hydrologic drainage
10 within the Great Basin, is all internal. There are no rivers
11 that flow out of the Great Basin.

12 The area is very active geologically. There are
13 numerous faults within the province. Mainly along the
14 mountain fronts. Many of them are active. There are a
15 number of earthquakes. I would say that Nevada probably
16 ranks certainly in the top five of the states in the
17 continental United States as to the number of earthquakes
18 that occur each year. California probably being the leading
19 one there. But certainly if you would discount the 1906 San
20 Francisco earthquake, I think the second highest magnitude
21 event earthquake occurred in 1933 at Cedar Mountain in
22 Nevada, which is in the central part of the state, just south
23 of Hawthorne, which is basically in this general area.

24 Volcanic activity is also very prominent, I'll talk
25 about that a little bit more, later. But we have a number of

1 volcanic centers, some of them quite young. The state has
2 numerous hot springs which are also evidence of thermal
3 activity very near the ground surface.

4 The eastern part of the state is mainly composed of
5 carbonate rocks; limestones and dolomites. The western part;
6 metamorphic rocks and volcanic rocks. The carbonate rocks
7 are important because they control the abundance of ground
8 water within the state of Nevada. Most of the groundwater in
9 the state all comes from snow melt, mainly in the high
10 mountain ranges in the northeastern part of the state. In
11 the spring, as those snows melt, they infiltrate into the
12 carbonate rocks, and by conduits move in a southwesterly
13 direction towards the Nevada Test Site, Las Vegas, Yucca
14 Mountain, in that general area. And ultimately discharge in
15 a series of springs both south of Yucca Mountain and also in
16 Death Valley in California. We have concern about that which
17 I'll talk about later, because these groundwater supplies we
18 think will be the future supply sources for the city of Las
19 Vegas, in its continued growth. The next slide--

20 This particular slide presents our technical
21 concerns, what we view as the technical issues that need to
22 be resolved before Yucca Mountain can be considered a
23 suitable--or repository site. These particular list of
24 issues are not something that's new, its not something that's
25 unique to the State of Nevada in our activities. As a matter

1 of fact, this list is similar to a list that was developed by
2 the National Academy of Sciences in 1979, when they looked at
3 volcanic tuff as a possible geologic medium for High-Level
4 Waste Repositories. They saw the same types of issues, and
5 requested that these issues be resolved very early before
6 serious consideration would be given to a site in volcanic
7 tuff.

8 We, in the state, first raised these issues in our
9 comment on the environmental assessment for Yucca Mountain.
10 We again have raised these issues in our comments on the
11 consultive drafts, Site Characterization Plan. And a matter
12 of fact, two weeks ago we presented these same concerns as
13 part of a briefing we made to the NRC commissioners and we
14 have requested and so far unsuccessfully to make a similar
15 presentation to the NRC's Advisory Committee on Nuclear
16 Waste. But we have yet to gain an audience with that
17 particular group.

18 What I'd like to do now is briefly go through each
19 of these technical concerns and give you a little bit of
20 perspective as to what our concerns are without going into a
21 lot of detail, the time just doesn't allow it here. Can I
22 have the next slide?

23 What this slide here represent is the conceptual
24 model proposed by Department of Energy for groundwater flow
25 through the unsaturated zone. As I believe Paul Prestholt

1 talked about this morning, is the repository is proposed to
2 be in the unsaturated zone. That means that the rocks
3 themselves are less than totally full of water. The model
4 proposed by DOE is basically that the water infiltrates
5 through the tuff rocks, very slowly, through the unsaturated
6 zone to the water table, and then moves rapidly through the
7 groundwater to the assessable environment.

8 We have a little different view of that in that
9 this particular model fails to recognize that we are not
10 dealing with massive volcanic tuffs; but we are dealing with
11 very fractured porous rocks and therefore there must be--the
12 model of Yucca Mountain, must account for a component of flow
13 through these fractures and faults that occur.

14 Now the next particular slide, which is more of a
15 cartoon but it illustrates the point that not only do we have
16 moisture movement through the matrix of the rock, but we also
17 have rapid flow through the fracture and joint systems.
18 Which, at least based on our initial calculations, would
19 certainly suggest that the flow is so rapid that the
20 particular site may not be able to meet the Environmental
21 Protection Agency's groundwater travel times. Next slide--

22 This basically illustrates what I was talking about
23 previously, and that is the flow of the groundwater table
24 through the Yucca Mountain area. The little rectangle in red
25 up there is Yucca Mountain, the blue arrows point the

1 direction of groundwater flow. Basically the groundwater
2 flow is through and beneath the site down to the Ash Meadows
3 and the Death Valley area which is immediately across the
4 Nevada-California line. The State, in a joint Federal-State
5 program is looking at this groundwater system as a future
6 water supply for Southern Nevada. It's very high quality
7 water. The study is envisioned to last approximately 10
8 years and at that point we'll hopefully be able to come to
9 some conclusions as to the amount of water that would be
10 available for the Las Vegas Metropolitan Area. Las Vegas is
11 certainly considering going into the outlying valleys such as
12 the area around Yucca Mountain and obtaining that water, and
13 then piping it to the Las Vegas area. Next.

14 This is just another slide to illustrate the same
15 thing, it's a cross-section basically from Yucca Mountain to
16 the Death Valley area, basically showing that the carbonate
17 aquifer, which is the main aquifer, or regional aquifer,
18 we're talking about goes underneath the Yucca Mountain and
19 migrates in a southwesterly direction to Death Valley.

20 Now I'd like to turn and talk about the next
21 concern and that is with the tectonics and active faulting.
22 The area described there by the--as outlined in the green is
23 the Walker Lane structural system, which is the main
24 structural feature in Western Nevada which produces most of
25 the earthquake activity, the active fault movement and that

1 sort of thing. As you can see by the little black star
2 there, northwest of Las Vegas, where Yucca Mountain is, the
3 site lies right within this very active zone. As I said
4 earlier, this is the site of the large magnitude seven
5 earthquake at Cedar Mountain. It's also been the site of
6 numerous magnitude sixes, magnitude five earthquakes all
7 within this last century.

8 This is a slide showing the historic earthquakes
9 through 1974. Again you can see the tremendous activity not
10 only in the middle part of the state there, within the Walker
11 Lane zone, but also that concentration of events within the
12 circle which is very near the Yucca Mountain area.

13 Focusing in more on Yucca Mountain, seismologists
14 have divided this earthquake activity into a series of zones,
15 and you can see the Nevada-California seismic zone which
16 contains the early 1930's events; the east-west seismic zone
17 which is the main area that has a lot of seismicity in and
18 around the Yucca Mountain test site area. In this particular
19 slide, Yucca Mountain is that little red dot there just at
20 the border. The boundary is a very nebulous, arbitrary type
21 boundary, so I think with more study the boundary could move
22 either to include Yucca Mountain or move even further away,
23 we don't know at this point.

24 This slide here is meant to illustrate one
25 additional point we have. The main objective, the main

1 mission of the Nevada Test Site is the purpose of testing
2 nuclear weapons. Nuclear weapons mainly are tested in the
3 areas that are underlined in green. We think the nuclear
4 events, the largest of those test events create vibratory
5 ground motion equivalent to magnitude five earthquakes,
6 certainly could have an effect on the stability and structure
7 of the rocks in the surrounding region, which could include
8 Yucca Mountain. We are concerned that there could be a
9 absent of a test-ban treaty, continued weapons testing in the
10 future. Those tests could move closer to the Yucca Mountain
11 site and therefore cause increased concern for the stability
12 of the rocks involved.

13 This particular slide, what's a little pale, its
14 designed to present our concerns about the volcanic rocks.
15 You can see in the Yucca Mountain labeled there in the
16 southern part of the slide there, the three red dots just
17 directly to the west of Yucca Mountain represent cinder cones
18 in Crater Flat. At least one of those cinder cones has been
19 dated at as young as--possibly as young as six thousand years
20 since its last movement. There's still a lot of work to be
21 done on that but that is the youngest since that dating work
22 was done, another cinder cone was found to the north of the
23 Nevada Test Site, which has also had movement or volcanic
24 activity, possibly that young. Some work that we are
25 currently doing in Crater Flat with the University of Nevada,

1 Las Vegas, suggests that some of the other volcanic centers,
2 while possibly not quite as young, certainly have had
3 multiple events which means they have had volcanic activity
4 more than once throughout their lifetime. We're concerned,
5 since we are talking about a ten thousand year repository
6 here that there may be future volcanic activity and that
7 could affect the safety of the repository.

8 Lastly, this talks to our concern with natural
9 resources. As you know, Nevada is an active mining state.
10 They are the number one producer of gold in the United
11 States. I think there was a question earlier of Steve
12 Bradhurst about how close the nearest active gold mine is--
13 the nearest active gold mine is about seven miles directly
14 west of Yucca Mountain. In the--along Bear Mountain, you can
15 see by the symbols which describe the various identified
16 locations of natural resources that Bear Mountain is
17 certainly has a large number of mineralization and mineral
18 resources. Just this last year there has been two additional
19 gold strikes. One at the north end of Bear Mountain. And
20 one directly to the west of Bear Mountain, just outside of
21 the small town of Beatty. Those appear to be going to be
22 major gold strikes and certainly will enhance Nevada's claim
23 as the number one gold producer in the United States.

24 The reason for this is partly because--well, one
25 the price of gold--but, secondly, is volcanic calderas,

1 volcanic centers, which predominate in this particular area
2 of Nevada, are excellent targets for explorationists. That
3 is where gold is found. It was not actively explored in the
4 past mainly because the gold is in fine, disseminated
5 materials, and its only been in the last 10 to 20 years with
6 new advances in the extraction and production has these types
7 of gold centers been actively explored and utilized. I would
8 point out that even Yucca Mountain is looked at, at least by
9 some, as a possible target. There is 10 active mining claims
10 down the ridge of Yucca Mountain. And the prospectors who
11 own that claim actively do their yearly assessment work to--
12 as part of early exploration of their particular claims.

13 Next mount.

14 Lastly, I might talk about a little bit here about
15 our concerns with the consultive drafts, Site
16 Characterization Plan. I know King Stablein in his remarks
17 talked about the NRC's concerns. I don't think with--that
18 there's anything in this list which is much different than
19 what King presented. I would point to one item of concern
20 both from ourselves and from the NRC, and that is the lack of
21 Alternative Conceptual Models. We think that the Department
22 needs to keep an open mind and look at all possible
23 alternatives in both their planning and their
24 characterization activities. We also see that there appears,
25 based on the data that has come out so far, that we may be

1 looking at a site in which there may be a coupled process of
2 activities going on. That, and I mean by that is that
3 tectonic activities affect hydrologic activities. And
4 thermal activities caused by volcanics could affect
5 hydrologic activities could affect tectonics activities. So
6 one cannot explore and characterize this site on a discipline
7 by discipline basis but must have an interactive coupled
8 planning process and characterization process that takes into
9 account these various other activities and disciplines as one
10 is doing exploration. So, as one is collecting hydrologic
11 data and analyzing hydrologic data, they must be cognizant
12 of the effects that could occur from tectonic earthquake
13 activity, fault activity and there's sorts of things.

14 I think that's basically all I wanted to say and
15 present here today. I would like to make one final remark
16 here before I let--maybe open up for questions here before
17 Mal makes his remarks. And that is tomorrow morning you're
18 going to get a full day of briefings by Department of Energy.
19 I think tomorrow you're going to hear something that is a lot
20 different than what I presented here. Department of Energy
21 is very optimistic about Yucca Mountain, they think the site
22 is already a suitable one, and a lot of these concerns that
23 we presented here, are not of concern to the ultimate
24 licensing of this site. Just like to have you keep that in
25 mind, or at least my remarks in mind, when you hear your

1 looking at a site in which there may be a coupled process of
2 activities going on. That, and I mean by that is that
3 tectonic activities affect hydrologic activities. And
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20 different than what I presented here. Department of Energy
21 is very optimistic about Yucca Mountain, they think the site
22 is already a suitable one, and a lot of these concerns that
23 we presented here, are not of concern to the ultimate
24 licensing of this site. Just like to have you keep that in
25 mind, or at least my remarks in mind, when you hear your

1 eight hours tomorrow. Thank you. And at this point I think
2 maybe ought to open it up for some questions before I let Mal
3 talk about licensing here.

4 Q. What he asked is I referred to a ten thousand year
5 repository, is that the State's view, is that DOE's view, or
6 just what. The ten thousand year figure is a figure that is
7 used by the EPA in calculating the performance of the site.
8 Their belief was that by the ten thousand year period the
9 radionuclides would be decayed to the point that they would
10 be equivalent to a natural uranium mine. So that's where the
11 ten thousand year figure comes from.

12 Q. Which of all of those concerns do you think is the
13 one that is going to be the toughest, or the one that would
14 prevent it from being appropriate to have that site?

15 A. The question that he asked is which one of our
16 concerns is the toughest and the most difficult to license I
17 believe is the way you put it. I think I would respond to
18 that, there's two ways. One that is the most difficult to
19 deal with is the unsaturated zone. The technology for
20 modelling, understanding, collecting data of the unsaturated
21 zone is frankly in its infancy. Unsaturated zone was
22 originally the purview of the agricultural community. When
23 they were interested in how to get more water in the top 12
24 inches of soil so they could increase agriculture. But
25 we're no longer dealing with the 12 inches of soil here,

1 we're dealing with some 1700 to 2000 feet of fractured porous
2 volcanic rock. The models and the techniques for studying
3 flow, hydrologic flow in soils, just do not work when we're
4 talking about rock. As a matter of fact there was a
5 conference just in October, I believe, in Tucson, which dealt
6 specifically with advances in evaluation of unsaturated zone
7 hydrology. Their basic conclusion was, and it was scientists
8 from all over the United States, was that they had a long
9 ways to go, and it looked to them like it was going to be
10 tens of years before they could have a good understanding of
11 how to evaluate and model unsaturated flow through rocks.

12 But the second part of your question is that
13 probably the most difficult one to deal with from a
14 licensing perspective is probably going to be the knotty old
15 problem that crops up in anything dealing with nuclear
16 activities, and that is; active faults, earthquakes, seismic
17 design, those various things.

18 Q. What are the principle consequences...

19 A. The question that he asked is what is the
20 consequences of faster flow through the faults and what does
21 that have in relationship to the repository. There is a
22 requirement, certainly within the NRC regulations and it's
23 implied within the EPA, that in looking at sites for a
24 repository, you need to concentrate on sites in which the
25 groundwater flow from the repository to the assessable

1 environment--and the assessable environment is defined as
2 five kilometers from the center of the repository--that that
3 be less than 1,000 years. And by our calculations, at least
4 if you consider a major component of flow through the
5 fractures in the rock, you certainly exceed the groundwater
6 travel time.

7 Let me go back again, that the flow needs to be
8 more than a thousand years, not less. Sorry about that, in
9 there.

10 JUDGE COTTER: Limit the questions at this time
11 perhaps that you can take them outside the proceeding
12 otherwise we are not going to hear from Mr. Murphy--

13 MR. JOHNSON: Be glad to.

14 MR. MURPHY: I would prefer that you continue
15 asking Carl questions on the technical program. One of the
16 greatest sources of frustration which the State has had in
17 the five years I've been involved in this program is our
18 inability to get people to serious look at and consider the
19 technical concerns that the State has. We, today, really,
20 honestly have only the NRC staff in this entire program, plus
21 our environmental friends, who give serious consideration and
22 pay serious attention to the technical issues involved in
23 this program. Congress and the Department of Energy have
24 today given us the back of their hand, so I would much
25 prefer, Judge Cotter, if technical questions addressed to the

1 nature of Carl's presentation continue rather than
2 interrupting at this point in time.

3 JUDGE COTTER: All right.

4 MR. JOHNSON: Okay.

5 Q. You spoke of decommissioning and I was curious as
6 to what circumstances you thought that would be material or
7 significant. Decommissioning.

8 A. The question is in the context of my remarks, what
9 significance decommissioning had. I'm a little bit of a
10 loss, because I'm not certain I used the word
11 "decommissioning", but decommissioning is the final step if a
12 repository is sited at Yucca Mountain. The repository steps
13 basically are this is: the first activity is site
14 characterization, that's the activity we're involved in right
15 now, if at the end of site characterization the site is
16 deemed to be one that looks suitable an application will be
17 presented to the Nuclear Regulatory Commission, if they agree
18 in that application, then they will issue a permit to
19 construct, then construction of the repository will take
20 place, that's planned to be over 30 to 50 years--no, the
21 construction will be on the order of approximately 10 years,
22 at that point, DOE will request a permit to accept waste at
23 the repository, the deployment of the waste, the operational
24 phase will occur over 30 to 50 years, at that point, if the
25 performance of the site still falls within the standards,

1 what will take place is the site will be decommissioned, in
2 other words that the materials will be backfilled into the
3 tunnels and shafts, the surface buildings will be removed,
4 and the site will be essentially decommissioned and just left
5 then for the next 10 thousand years.

6 Q. Have you considered what change in rainfall
7 pattern you might expect in Southern Nevada if we get into--

8 A. This question is about warming patterns and effect
9 on rainfall, and have we considered that in Southern Nevada.
10 The answer is yes we are studying that. We think that at
11 least based on the geologic history of Nevada, and especially
12 Southern Nevada, that certainly within the next 10 thousand
13 years we would--the trend would be towards a wetter climate.
14 Now how much wetter is something that we don't know at this
15 point. We certainly have active studies going on to try and
16 get a handle from past history as to what has been the
17 magnitude of the wetter climates. DOE also has some programs
18 on the board. They have not studied it, theirs is just in
19 the planning stages at this point.

20 Q. You mentioned some possible uses of this original
21 aquifer. Are there any determinations on the age of the
22 water and the original aquifer?

23 A. The question he asked was is has been there studies
24 of the age determination of that regional aquifer. My
25 response is yes, there has been. That particular aquifer has

1 been studied by scientists now since the early 1960's, while
2 I can't give you a definitive number, I think we're talking
3 about thousands of years for the age of those waters. Its a
4 long flow path from northeastern Nevada down to Southern
5 Nevada in Death Valley.

6 Q. Yes, the question asked, and I talked about the
7 nuclear testing, and the equivalency of earthquakes to that,
8 and wouldn't the design basis earthquake for the Yucca
9 Mountain site exceed the equivalency for weapons testing.
10 The largest of the weapons tests which are allowed to be
11 detonated, the equivalency of those is in the magnitude five
12 range--earthquake range. Depending on what the results of
13 what the tectonic studies show that Yucca Mountain, the
14 design basis earthquake from natural events, could exceed and
15 probably more likely will exceed those from the weapons
16 testing. However, our concern is that the weapons testing is
17 an unknown factor. And it's guided by another program,
18 another mission, another set of objectives that are separate
19 from the waste repository issue.

20 Natural earthquakes, again, range up to magnitude
21 seven. We don't know whether the ultimate design earthquake
22 would be a magnitude seven right at the repository or not.
23 But if it's pegged at some distance from the repository and a
24 scenario of moving future weapons testing closer to Yucca
25 Mountain then they are right now, certainly would increase

1 the vibratory ground motion that would come from the weapons
2 testing program and could possibly ultimately exceed that of
3 the natural earthquake.

4 Q. I'd like to emphasize a point that Carl made a
5 little earlier, but it's very, very critical. I'm with the
6 University of Nevada at Reno, and one of the State's
7 sub-contractors, or contractees. And Carl made the point
8 that the DOE can lack an alternative conceptual model for the
9 site. what that means is that the DOE has one view, just one
10 view of the three-dimensional structure off Yucca Mountain,
11 and it's extremely critical that they explore the
12 alternatives. And it's very likely, by the way, that that
13 one view is incorrect, because that particular view, that
14 model, sets the tone, it is the framework for every other
15 study. So, as well as remembering all of Carl's other
16 remarks, that point does need to be emphasized.

17 MR. JOHNSON: For your information, this is Dr.
18 Michael Ellis, from the Center for the Tectonic Studies at
19 the University of Nevada, Reno. Any other questions? Do we
20 have time for Malachy?

21 L I T I G A T I O N

22 MR. MURPHY: Thank you, Carl. Thank you for
23 extending the time for questions for Carl because we think
24 that's the most important message we can convey anytime
25 we're given the opportunity to address a gathering like you

1 folks here today. Let me very, very briefly--because I don't
2 want to interfere with the schedule anymore than is
3 absolutely necessary--go over what's happened in terms of
4 litigation to date, and what we see as significant licensing
5 issues. The State has been involved in a whole variety of
6 lawsuits primarily filed in the Ninth Circuit Court of
7 Appeals and Direct Review of the Ninth Circuit under
8 Section 119 of the Nuclear Waste Policy Act. And the first
9 case involved the State's ability to conduct its own
10 technical program with Nuclear Waste Funds. We prevailed in
11 that litigation. The second case, the only other case that's
12 been decided we lost on the issue of our ability to use
13 Nuclear Waste Funds to litigate; to seek Judicial Review of
14 Actions undertaken by the Secretary of Energy or the NRC or
15 others. We also have still technically pending, about six
16 petitions for review challenging the validity of the
17 Department's guidelines, the Environmental Assessments,
18 various other actions that the Secretary of Energy took in
19 May of 1986. As a result of the passage by Congress of the
20 1987 Nuclear Waste Policy Amendments Act, narrowing the focus
21 of the whole national program down to Yucca Mountain
22 specifically, we went through last spring a process of
23 winnowing down the parties and the issues that still survive
24 in the Ninth Circuit to try to determine just exactly what
25 viable issues are left, which issues have been mooted, for

1 example, which parties are no longer interested in carrying
2 forward with litigation because they've been essentially
3 taken off the hook by Congress. We completed that process
4 in April, and we have not heard a word from the Ninth Circuit
5 to date. Even with respect to some agreed orders, for
6 example, that were sent down. So, our Ninth Circuit
7 litigation, all parties Ninth Circuit litigation is in a
8 period of geologic dormancy at the moment.

9 We also have what we consider to be a very
10 significant case pending here in the United States District
11 Court in Las Vegas, it was filed in the District Court
12 because the principal defendant is the Director of the Bureau
13 of Land Management of the Department of the Interior, and
14 because of the way the Act was drafted, the Courts of Appeal
15 do not have original and direct review jurisdiction over BLM
16 as they do over DOE and the NRC activities, etcetera. And
17 that case challenges the ability of the Bureau of Land
18 Management to transfer the land necessary to undertake
19 characterization and development of Yucca Mountain under the
20 Federal Land Policy and Management Act, without obtaining the
21 consent of the State of Nevada. It also challenges, in a
22 broader sense, the fundamental constitutional underpinnings
23 of some of the activities involved in the program. The
24 ability, ultimately, of the Department of Energy and Congress
25 to locate a repository of this nature in the State of Nevada

1 without obtaining the consent of the State. That case is
2 going through preliminary motions to dismiss, et cetera, we
3 expect and hope it will become active here in the next period
4 of several months. Insofar as licensing, the issues which we
5 see coming--I think the only thing to say at this point in
6 time is that to the extent the State, and the local
7 governments, and the Indian Tribes, and the environmental
8 community-- but I can speak only for the State--but to the
9 extent that we--parties--prospective parties to the licensing
10 proceeding are not absolutely satisfied with the results of
11 the Department of Energy's characterization program, all of
12 the technicals concerns you saw Carl list on the screen and
13 discuss, will be serious licensing issues. And we feel any
14 single one of those issues can and should result in
15 disqualifying this site as a potential repository. We do not
16 think, for example--we're not convinced that this license
17 application is going to be filed if--and should be filed--if
18 the Department undertook to do the kind of things that we
19 think are necessary. If they undertook to develop the kind
20 of alternative conceptual models--we're not at all sure that
21 this site could ever prove to be suitable, and we're not at
22 all sure that it would even be--that an application would be
23 filed, but we can't--we have to assume that one will and
24 therefore the State major emphasis at the moment, as Carl
25 indicated, is our preparation to participate in a licensing

1 proceeding. One issue in that licensing proceeding clearly
2 will be unless the state obtains the resources through the
3 Nuclear Waste Fund, or elsewhere, to conduct our own
4 technical and independent study program, one issue clearly
5 will be of whether or not the Department of Energy has done
6 enough, has looked at enough alternatives with respect to
7 the site, including undertaking some of the studies with
8 enough alternative methodologies. We don't think, for
9 example, that the Department and the NRC can arrive at the
10 necessary reasonable assurance required under the 10 CFR PART
11 60 and the Atomic Energy Act to license this site unless some
12 of the approaches which the state insists on are actually
13 undertaken, either by us or by the Department of Energy and
14 to date we've been very unsuccessful in persuading DOE that
15 there's any need to do that. Clearly another serious
16 licensing issue will be quality assurance. Regardless of the
17 Department's ability to qualify their program for future site
18 characterization activities, we have real doubts about
19 whether they can carry forward and go into a licensing
20 proceeding without serious issues still unresolved with
21 respect to their past activities. They're drilling program
22 that extends back as far as 1978-79, 1980 for example, which
23 was undertaken without any semblance of a qualified quality
24 assurance program. Those things are going to be critical
25 licensing issues from our point of view and to the extent

1 they aren't resolved either prior to or in the context of
2 site characterization they're I guess, issues that some of
3 you people are going to be privileged, and I use that word
4 advisedly, to deal with when this thing ultimately becomes a
5 license application. Thank you for any extended time that we
6 were given, and I'm certainly willing to entertain any
7 questions individually in the back of the room or elsewhere,
8 but I don't think we ought to delay the rest of the program
9 at this point in time. Thanks very much.

10 Q. When you think of a hearing, do you think of one
11 licensing board or five or a dozen, what do you think of in
12 terms of what's going to be happening?

13 A. Well, that depends on how many issues are left
14 unresolved at that time. There have been lots of discussions
15 about that, I personally don't see any problem with the
16 creation of more than one board. Perhaps under one presiding
17 officer I don't know how you might approach that. But
18 certainly I can see some merit to having more than one board
19 made up of people with a variety of technical specialties.
20 This kind of license application has never been undertaken,
21 we're going to be--I'm sure all of us are going to be plowing
22 some new ground from the administration of a regulatory
23 proceedings point of view as well as the technical people are
24 in the geotechnical issues.

25 JUDGE COTTER: Thank you both very much. Before

1 introducing our next speaker I might comment for those of you
2 who are not familiar with the Atomic Safety and Licensing
3 Board Panel, again, to reiterate the uniqueness of this
4 organization. It is perhaps the only science court in this
5 country and therefore has a unique qualification to blend
6 science and law and address those kind of blended issues.
7 Secondly, I would reiterate the independence of these
8 licensing boards. Some of you may not be familiar with the
9 fact that the boards have not hesitated in the past to rule
10 against the NRC staff or any other party who appears in our
11 proceedings even to the point of denying a license for an
12 already completed nuclear power plant. So consequently we
13 are viewed with--I guess I should be careful of the word--but
14 askance sounds fairly neutral by everyone involved,
15 particularly those within the Nuclear Regulatory Commission.
16 We have an obligation which has been enunciated in some
17 cases describing an obligation of a Judge to our proceedings.
18 Our obligation to the public health and safety and the
19 environment means that we are not, as has been said in some
20 cases, simply umpires calling balls and strikes. We have an
21 obligation to the underlying issues. And I would advert
22 finally to another baseball metaphor, I forget the old time
23 umpire who used it, but regardless of how much information
24 and what position any party in our proceedings takes, as the
25 old umpire once said, it's nothing until we call it.

1 I am pleased to present to you our next speaker,
2 Melinda Kassen, who is a Senior Attorney with the
3 Environmental Defense Fund. She has been closely involved,
4 as was Mal Murphy and some others here in this room, in the
5 development of the negotiated rule making for the litigation
6 licensing support system. Melinda.

7 E N V I R O N M E N T A L C O N C E R N S

8 MS. KASSEN: Good morning. I am scheduled to talk
9 for the next half hour but I intend to leave some time for
10 questions at the end just to make sure that everybody is
11 awake, I suppose. I'm going to talk about--I was asked--the
12 title of this is the Environmentalist View of the NRC
13 Licensing of the High-Level Waste Repository. That falls
14 very neatly into two categories; process and substance.
15 I'll spend a little bit of time talking about each one.
16 Judge Cotter gave me a nice segue into the beginning of my
17 remarks on process. The goal seems to me, and I represent a
18 national non-profit environmental organization with 60,000
19 members across the country, is that the licensing be open and
20 fair. And I think we would define fair as meaning that there
21 is a chance that the licensing board would deny the license.
22 That that's the critical parameter, that there has to be the
23 possibility that this is not a rubber stamp. And at the time
24 when this occurs, which is at least I think a decade away,
25 there will be an enormous amount of pressure for there to be

1 a license, especially if Congress has not acted in the
2 interim and there is no alternative sight. So that, from our
3 perspective that is the critical parameter, that the process
4 be fair and that means there's a possibility that there be no
5 license at the end of the process. With regard to the
6 rationale behind this, obviously, in part, from a process
7 standpoint its to build public confidence in the High-Level
8 Waste Repository system and that it's important, as Steve
9 Bradhurst said at the beginning, for NRC to do this because
10 NRC is the forum where environmental considerations will be
11 discussed. NRC is the safeguard to the extent that you have
12 the power to grant or deny a license.

13 Briefly, we have five, I guess, concerns about
14 process. One is the licensing support system which is
15 something that EDF and--you're hearing from several members
16 of the licensing support system negotiating team over the
17 course of the day that was an NRC rule making endeavor
18 whereby the NRC brought together all of the people who might
19 be--who they could identify at this time who might be parties
20 to the licensing process and said let's figure out how we're
21 going to do discovery, how we're going to deal with the
22 massive record in this case. The Conceptual Rule which is
23 Public Comment just closed, which was put out for public
24 comment puts together a computerized system whereby you will
25 be able to search--a party will be able to search for

1 documents which are relevant to that party's case. DOE
2 estimates that there could be as many as 40 million pages on
3 this system and I suppose the concern from our standpoint is
4 a practical one. Can this really be done, we certainly hope
5 so. We were part of the rule. We said we thought it was
6 possible but there is this lingering nervousness about
7 whether this can actually be done and if it can be done,
8 whether it turns into something that is useful, or whether it
9 turns into something akin to the infamous DOE document dump,
10 where they drive up with truckloads of material and say here
11 look at this and you have to sift through and find the one
12 document of concern. We're hoping that the LSS will be a
13 useful tool, but the jury is obviously still out on that.

14 The second concern has to do with the expense of
15 participation. The LSS is a computerized system and on the
16 one hand, it should enable people to sit in their offices and
17 do document searches. On the other hand, the costs of the
18 system are potentially astronomical and the expense of having
19 an appropriate computer to do the searches to keep the data
20 over what is going to be at least a ten year period leaves
21 some questions for not only an Environmental Defense Fund,
22 which is a national environmental group that has a certain
23 amount of resources, but particularly for other kinds of
24 public participants who might not have, or who don't have
25 even the funding that an EDF does.

1 Third concern is what someone alluded to before,
2 the DOE-NRC inter-agency cooperation. There is always the
3 fear, whether it's because we're paranoid or not, there's
4 always the fear that what someone calls interagency
5 cooperation we would call inter-agency collusion and there is
6 this great deal of nervousness about how many deals are being
7 cut outside the public eye, and what kinds of technical
8 compromises are being made prior to the time when the public
9 can have a real role in the process.

10 A further concern has to do again with the LSS
11 rule-making which was almost successful, in that of all the
12 parties sitting around the table, all but one agreed to the
13 rule. However, there was one party, the industry coalition
14 who did not agree to the rule, the rule went out for public
15 comment, and we now have the comments from industry which are
16 negative with regard to the rule. And one of the things that
17 industry is asking for is--for maybe the fifth time, maybe
18 more, maybe less, but certainly maybe the fifth time--further
19 limits on intervention and the rights of third parties in the
20 licensing proceeding. Now this licensing proceeding may be
21 unusual because the environmentalists are not going to be the
22 most vocal opposition simply because of resource constraints.
23 At least if the politics of the situation doesn't change too
24 much in the next 10 years, the State of Nevada will be the
25 most vocal opposition, they certainly will have been the best

1 funded opposition, and so there are questions from that
2 standpoint about whether you can limit intervention if the
3 interventors include the State of Nevada. If Nevada is
4 dealt with in a different way, then interventors are sort of
5 your run-of-the-mill local citizen activist environmental
6 groups. But we have some concerns about as the time gets
7 closer and the political pressures get greater, whether the
8 NRC will be tempted to place more restrictions on
9 interventors, or our ability to participate in the process.

10 Finally, a process concern has to do with
11 maintaining institutional memory over the great number of
12 years that this process will take until completion and that
13 comes up in two ways. One, in terms of whose participating
14 now, and the groups that are participating now, versus who
15 comes in at the last minute, and doesn't have the benefit of
16 the last 20 years of institutional memory. But more
17 importantly, in terms of process, it goes back to something I
18 think that Carl Johnson spoke about and that you see when you
19 look at some of the other long range DOE programs, and the
20 WIPP comes to mind, you'll be hearing more about the Waste
21 Isolation Pilot Plant in New Mexico this afternoon. And that
22 is that from the inception, from the EIS, which for the WIPP
23 was completed in 1980, to the time when the repository is
24 actually close to coming on line, there are all kinds of
25 things that change. And the question becomes ten years

1 later, or eight years later, how much do you have to go back
2 and redo. That's why having a broad range of alternative
3 analyses done now is important because you don't know how
4 many changes there are going to be, and the system, the
5 process, has to be flexible enough so that if there are new
6 or different institutional constraints, system constraints,
7 or technical constraints that come into being five years from
8 now, that they be factored into the system and that the
9 system respond because otherwise what you have is this eight
10 year gap where reality is fixed, and at the end all of a
11 sudden you're looking at a different world, and the potential
12 is there that you have to go back and start all over again in
13 terms of certain technical analyses.

14 The other thing that has to do with process is the
15 pressures on the process. The Nuclear Waste Policy Act
16 requires licensing within three years, I don't think there's
17 anybody who thinks that that's realistic. I don't think
18 there's anybody who really expects that that can be met.
19 However, that is an institutional and process constraint and
20 it's certainly going to be a big worry I imagine for those of
21 you who are on the board, or boards that will be part of the
22 licensing process, and how to deal with that and how to
23 explain to Congress, or to the other pressures what in fact
24 is realistic for this kind of--what may be unique, and what
25 will certainly be the first licensing of its kind.

1 There are other things that will affect the process
2 that will put pressure or not put pressure on the process.
3 Having to do with the wider system decisions. Things like
4 whether there's an MRS and what implications that has for the
5 repository system and for timing. Things like how much waste
6 there is, whether there are more reactors, what the state of
7 the industry is, whether the advocates of nuclear power are
8 successful in pushing nuclear power as being the answer to
9 the Greenhouse Effect and whether there are changes in this
10 country's attitude about reprocessing. I think that another
11 pressure point will be the success or lack thereof of the
12 WIPP program and something that Carl Johnson alluded to, the
13 state of the weapons complex, what's going on at the Nevada
14 Test Site. Also what's going on with clean up and High-Level
15 Defense Nuclear Waste, how much of it there is what kind of
16 pressure there is from the current areas where that is being
17 stored.

18 In regard to substance, I'm not going to talk about
19 specific substantive issues, rather I'm going to talk about
20 where I see the potential pressure point or the conflict
21 between the environmental community and the NRC. The goal I
22 think, with regard to substance obviously is for the
23 licensing board to find that the repository can in fact,
24 isolate the waste. The environmentalist's role in this,
25 because we aren't getting millions of dollars a year, is not

1 going to be that of the Nevada Nuclear Waste Project Office,
2 in fact, in last year's budget, the Nevada Nuclear Waste
3 Project Office had authorized some money for coalition
4 building between Nevada and corridor states, corridor
5 governments, some environmental groups, other people within
6 the process, they were specifically directed to take that out
7 of their budget, that that was not going to be a part of what
8 the Nevada office could spend money on, so we aren't going to
9 be in a position where we have lots of experts who can
10 analyze the data, at most the environmentalist community will
11 be able to do some comparison of data where you have
12 conflicting expert opinions or if at some time, Nevada sees
13 us to be in an adversarial role with regard to this process
14 the environmental community at that point might feel
15 compelled to step in. Or, of course, in the unlikely
16 situation that the nuclear waste negotiator finds a different
17 site, and there is a state that is anxiously awaiting and
18 advocating having a High-Level Nuclear Waste Repository, that
19 would obviously change the tenor of the debate, and the
20 environmental community might take a more active role. I
21 don't think that's very likely, I don't think there's anyone
22 who thinks that's likely, but it is possible under the law.

23 The main area of conflict is going to be over the
24 scope of the licensing. The NRC is going to attempt to
25 narrow the issues as much as possible. We are going to

1 attempt to broaden the issues as much as possible. The
2 Nuclear Waste Policy Act talks about local, regional and
3 national implications of the system, and from our perspective
4 it's imperative not just that the repository be safe, but
5 that the repository be able to isolate the waste, but that
6 the system be able to work in such a manner that everything
7 runs smoothly that you don't have waste piling up on the
8 highways or piling up at the site: that just like a
9 developer doesn't build unless there is assurance from the
10 local governments that there will be roads and sewers and
11 water and taps and all of these other things, so to you
12 don't build a repository unless the rest of the system works.
13 I had the opportunity to go down to the WIPP site last month
14 with a good government--a civic group of people who were not
15 particularly familiar with the WIPP, but a group of people
16 from the League of Women Voters nationwide. And they came
17 back being very impressed, as anyone would be, with the
18 plant--with the facility itself, but carrying great questions
19 which led to their nervousness about the process, about the
20 system, about the management capabilities of dealing with the
21 system. And even though they might have been impressed with
22 the plant, all of those concerns meant they were just as
23 nervous and just as doubtful about the ability of the WIPP to
24 function in the way the DOE hopes that it will. And there's
25 really no difference here. The same kinds of things apply.

1 You've seen--we've seen in the last six months NRC come out
2 with a proposed rule which would narrow the NEPA requirements
3 for the site. That's a rule that came out this summer and
4 EDF along with some other groups I think, commented. That's
5 one example of where NRC is narrowing, trying to limit the
6 number of issues, which of course is in their interest
7 because there's going to be a lot of issues no matter what
8 the scope is, where the environmental community will be
9 pushing to make it as broad as possible, partially because
10 this is the only licensing that there will be. This is the
11 one constraint, and it is unrealistic to think that you can
12 operate the repository in a vacuum. What happens outside of
13 the little box on the map is just as important as what
14 happens inside the little box on the map. And besides that,
15 this is a national program, it is of national concern, and
16 that plays into the sense that you have to look at the
17 program as a system, as opposed to just as an isolated hole
18 in the ground.

19 The second example of this I think is something
20 that Chip Cameron will talk about later this afternoon which
21 has to do with the topical guidelines which are a part of the
22 Licensing Support System Rule. Those topical guidelines are
23 broad ranging, they are based primarily on the--well, in one
24 respect they're based on the list of topics which were
25 analyzed in the environmental assessments back when we were

1 still comparing sites. Again, from our perspective we think
2 that that broad range is appropriate and that it would be
3 inappropriate at this time to take out whole parts of the
4 system or the process. However, I imagine that there may be
5 a battle some time in the near future or perhaps five years,
6 ten years from now, about what is relevant to the system. At
7 any rate, that's where we see the conflict between the
8 licensing board and the environmental community. It has to
9 do with the scope of what's going to be considered in the
10 proceeding. Does anybody have any questions?

11 Q. You mentioned a visit to the site by the League of
12 Women Voters, how long ago did that occur?

13 A. November 15th. Oh, I'm sorry, the question was a
14 visit to the site. When did the League of Women Voters visit
15 the site. By the site, the gentleman is referring to the WIPP
16 site, and or that's what I was referring to, in my comments,
17 and that occurred November 11th--sometime the week of
18 November 11th to 15th.

19 Q. The reason I asked is that I received in the mail a
20 small booklet on Nuclear Waste Management and Storage
21 published by the League of Women Voters, now I wonder if it
22 resulted from that trip.

23 A. No way, I think. The Nuclear Waste Primer which
24 was put out by the League of Women Voters was originally
25 published back I think in 1979 or 1980 if that's the document

1 that you're referring to. Judge Cotter?

2 Q. Do you anticipate that the national environmental
3 groups will form a coalition to intervene or would they
4 remain separate?

5 A. The environmental community tends to be a
6 contentious lot, so it's hard always to predict whether or
7 not we can collectively get our act together and decide on
8 some issues that we have in common. I think that if you
9 looked at what happened in the litigation on the High-Level
10 Waste Repository, all of these cases which is, Mal Murphy
11 explained, are now sort of the ozone that is the Ninth
12 Circuit. Sierra Club was worried about parks, EDF was
13 worried about transportation. One of the reasons that EDF is
14 concerned about transportation is that we are at the
15 crossroads of the system for both the High-Level Waste
16 Repository and for the WIPP. Although I certainly couldn't
17 promise a coalition, I think that what you would see simply
18 because of the resource commitment involved, is that
19 different groups would take different issues and that there
20 wouldn't be, I think that it's unlikely that there would be
21 any overlap.

22 JUDGE COTTER: We know there won't be any overlap.

23 MS. KASSEN: Okay, well thank you.

24 JUDGE COTTER: The speakers are more efficient than
25 the process. We will adjourn until 1:30, and we will begin

1 at 1:30 sharp. You might keep in mind that for the afternoon
2 session and tomorrow's sessions that if you want to ask a
3 question it would be helpful if you would identify yourself.
4 Some people are curious as to who the questioner is, so we
5 stand adjourned until 1:30. Thank you all very much.
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JUDGE COTTER: If you take your seats we can be

fascinated here shortly. Judge Lazo will serve as your

emcee this afternoon. He is the Deputy Chief Administrative

Judge of the licensing panel. A man who combines all that we

do because he enjoys a law degree and a PH.D. in Chemistry.

Bob?

JUDGE LAZO: Thank you. Well, the first topic of

the afternoon is the status of the Licensing Support System,

and our two speakers are Francis "Chip" Cameron of the Office

of General Counsel of the NRC and Barbara Cerny, who is with

the Department of Energy Office of Civilian Reactive Waste

Management. I think, Chip, you wanted to lead off.

L I C E N S I N G S U P P O R T S Y S T E M

MR. CAMERON: Thanks, Bob. I'm going to talk about

the LSS rule-making which adds a new Sub-part J to 10 CFR

PART TWO. It establishes the procedures for the High-Level

Waste proceeding and also the use of a full text electronic

information management system in the High-Level Waste

proceeding, called the Licensing Support System, or LSS.

This rule was issued as a proposed rule on November 3, 1988.

Comments were due in on December 5, 1988, and what I'd like

to do is talk a little bit about the objectives of the LSS

rule-making, summarize the provisions, and briefly address

1 the comments the comments that came in on the rule. And
2 after that I'm going to turn it over to Barbara Cerny from
3 DOE, who's the technical mastermind behind all of this, who's
4 going to talk about the design and development aspects of the
5 Licensing Support System.

6 The genesis of the LSS concept came about in the
7 1983 to 1985 time frame for a number of reasons. One was the
8 provision in 114D of the Nuclear Waste Policy Act of 1982
9 that required the commission to reach a decision on the
10 issuance of a construction authorization within three years
11 after DOE filed the license application. And the NRC was
12 concerned about how we could meet this schedule.
13 Particularly for this repository proceeding, where there's a
14 large number of complex issues involved and enormous
15 quantities of data are being generated to try to reduce the
16 technical uncertainty connected to the program.

17 We have well funded interveners involved in the
18 proceeding, as you heard from Carl Johnson this morning
19 about some of the research that the State of Nevada is doing
20 --well, that's going to all be brought into the licensing
21 proceeding. And we have a multi-million page database to
22 contend with.

23 There was also a concern for providing for a
24 proficient and thorough review of the DOE license application
25 by the NRC staff as well as establishing some systematic

1 process for identifying, resolving, and keeping track of the
2 licensing issues. In effect, establishing some type of an
3 institutional memory for a proceeding that is going to take
4 place over a long period of time.

5 And lastly, there were the document management
6 problems encountered by the Department of Energy in trying to
7 respond to some of the discovery requests connected to the
8 Ninth Circuit litigation that Mal Murphy mentioned this
9 morning.

10 At about this time the Office of General Counsel at
11 the NRC did a preliminary analysis of past reactor cases and
12 we found that these reactor licensing cases took at least
13 five to six years to conduct and that major portions of the
14 proceeding were spent on document discovery as well as the
15 five day submission time periods connected with filing of
16 pleadings in the proceedings. At the same time the Office of
17 Nuclear Material Safety and Safeguards, of which Hugh
18 Thompson is the Director, took a look at the NRC's existing
19 document management system and found that it was going to be
20 severely overtaxed with the amount of documents that were
21 expected to be connected with the high-level waste licensing
22 proceeding. This is when NMSS came up with a pilot project
23 to provide the NRC technical staff with easy access to NRC
24 records through a full text search and retrieval system. All
25 of this resulted in an agreement in principal between the NRC

1 and the Department of Energy to develop a Licensing Support
2 System. And it was intended to do a number of things. One
3 was to facilitate the discovery of documents by providing
4 comprehensive and easy access to licensing documents before
5 the license application was filed--that's a key thought--
6 before the license application came in. Secondly, it was to
7 provide for efficient identification and review of relevant
8 licensing documents, not only by the NRC but by the other
9 parties to the High-Level Waste proceeding and by the
10 licensing boards. Third, we hope to reduce hearing time by
11 providing for the electronic transmission of pleadings. And
12 fourth we hope to facilitate the early identification of
13 licensing issues by putting documents into the system early.

14 Now, for this particular rule-making to implement
15 the use of the licensing support system in the proceeding,
16 the commission used a process called "negotiated rule-
17 making". This is where all of the groups that may be
18 affected by a particular rule-making get together over a
19 period of time and have a face-to-face dialogue on what the
20 issues are in the rule-making and they try to achieve a
21 consensus on what the rule should look like. Then it goes
22 out as a proposed rule. Now this is in contrast to the usual
23 process where the agency develops a proposed rule, largely on
24 its own and then engages in a one-to-one dialogue with
25 interested groups through the public comment process. The

1 commission felt that negotiated rule-making was an
2 appropriate vehicle to use in this case because this was a
3 new and significant change for the way licensing proceedings
4 have been conducted at the NRC. At least, in terms of size.
5 I think that Tony mentioned this morning what the licensing
6 board has been doing with selected proceedings in terms of
7 full text and retrieval systems.

8 But the commission wanted to tap the expertise of
9 all those who had experience with the NRC licensing process
10 and to insure that any group that might be affected by this
11 particular rule-making, was given the fullest opportunity to
12 provide the NRC with their thoughts on how the system would
13 be put together. It was also believed that this would give
14 the system, the LSS, credibility in terms of the people who
15 would use it. In other words, if they participated in
16 putting it together, then they would be more assured that
17 the documents were actually going to be in there. And the
18 last reason why we used negotiated rule-making--it was clear
19 that if we were going to be operating in the prelicense
20 application time frame where the commission does not have any
21 jurisdiction over DOE or other potential parties to the
22 proceeding, that we would need some sort of dispute
23 resolution mechanism that the potential parties voluntarily
24 agreed to comply with.

25 We started the negotiated rule-making in September

1 of 1987, we concluded it in July, 1988. We had seven parties
2 involved in the negotiated rule-making proceeding; the NRC,
3 DOE, the State of Nevada, a coalition of local governments
4 from Nevada, the National Congress of American Indians, a
5 coalition of national environmental groups, and an industry
6 coalition. The end result was that all of the participants,
7 except for the industry coalition, agreed to the text of the
8 proposed rule. And I think that if you look at the rule,
9 it's a fairly comprehensive and detailed rule, and all the
10 members on the negotiating committee worked hard on it,
11 including the industry coalition; but I think it's a
12 significant accomplishment that we reached a consensus of all
13 but one group on the text of the rule.

14 The industry's feeling about the proposed rule, and
15 why they didn't go along with the consensus is that they did
16 not feel that the benefits of the Licensing Support System
17 would outweigh the cost of the system. And they raised this
18 again in their comments on the proposed rule, and I'll go
19 into that in a little more detail later.

20 In terms of the provisions of the proposed rule-
21 making, it can be divided up into two basic segments.
22 There's provisions that concern the information management
23 system itself, the Licensing Support System. And then
24 there's provisions that relate to revisions in rules of
25 practice for streamlining the licensing proceeding.

1 In terms of the LSS provision, the coverage of the
2 rule in terms of what documents are going to go into the
3 system is all documentary material. And this is defined as
4 any material that is relevant to or likely lead to the
5 discovery of information that is relevant to the licensing of
6 the repository. So it's your typical discovery standard.
7 But, the relevance is guided by a set of topical guidelines
8 that Melinda Kassen mentioned this morning that were drawn
9 from the EA's that were originally filed by DOE, and these
10 cover all aspects of the repository. So in looking at those
11 guidelines those determine what each potential party to the
12 High-Level Waste Licensing proceeding is going to have to put
13 in to the Licensing Support System. Now there are exceptions
14 to this requirement for documentary material to be submitted.
15 There's exclusions for such things as reference books,
16 textbooks, press releases, various types of administrative
17 materials. And of course, there are the traditional
18 privileges from discovery that are applicable and NRC
19 adjudicatory proceedings and the exceptions that you can find
20 in 10 CFR 2.790, also apply. These documents for which a
21 party claims a privilege will be in the LSS by a header. In
22 other words, a header is a bibliographic information on the
23 document--author, subject, date, whatever--anything for which
24 a privilege is claimed--attorney work product, deliberative
25 process, whatever--will be described in the system by a

1 header. If the licensing board later rules that a document
2 must come in, then that document would come in to the
3 Licensing Support System in full text. And we also have the
4 standard system for protective orders for certain material.

5 There is also a provision for material that is not
6 suitable for entry in full text, for example, field notes.
7 These have to be submitted to the LSS in an image. In other
8 words, an image being hard copy, microfiche, optical bit, you
9 could draw up an image of a particular document on the
10 system, but you wouldn't be able to search it full text. And
11 then there of course are core samples, which doesn't lend
12 itself to being put in a text retrieval system, which is
13 probably one of the most sensible things that we did in
14 rule-making. The LSS will have to have an identification of
15 the location of those core samples and how the parties can
16 get access to that.

17 The submission requirements for documents differ
18 according to whether they're NRC or DOE documents, or whether
19 they're a document of another potential party such as the
20 State of Nevada local governments. And they also differ
21 according to when that particular document was created. For
22 the NRC and DOE, because they generate the bulk of the
23 documents, all documentary material must be submitted to
24 someone called the LSS Administrator--which I'll explain in a
25 little bit more detail--in three forms. There has to be an

1 image of the document, it can be--could be hard copy,
2 microfiche, optical bit, again. There has to be a header for
3 that document. And this will be a standard header that's
4 developed. And then it has to come in in ASCII, which is the
5 computerized text file.

6 For the other parties, before they gain access to
7 the Licensing Support System, any documents that are
8 generated during that period, they only have to submit an
9 image and a header for all those documents. Once they get
10 access to the Licensing Support System all of their documents
11 are going to have to be in electronic form. So in other
12 words, they'll follow the same requirements that the NRC has
13 to meet in submitting to the LSS Administrator an image, a
14 header, and an ASCII file for each document.

15 These documents, as I mentioned, go to the LSS
16 Administrator, which is going to be a person within an
17 organization in the Nuclear Regulatory Commission. And the
18 rule stipulates that the LSS Administrator can't be any
19 organization that represents the NRC in adjudicatory
20 proceeding and also can't be part of the Nuclear Material
21 Safety and Safeguards management chain.

22 The development, design, testing of the LSS is
23 going to be done by the Department of Energy with the advice
24 of the NRC both through the LSS Administrator and through an
25 advisory group composed of the affected interests, such as

1 the State's local governments, the industry, that's going to
2 be set up through the rule. There's an MOU--Memorandum of
3 Understanding--that we're working on to coordinate the
4 respective duties of each agency, the DOE and NRC, in
5 relationship to the LSS, and also we're developing a charter
6 under the Federal Advisory Committee Act for the advisory
7 committees that will be formed under the rule-making. In
8 terms of the LSS Administrator, there's been a recent
9 commission paper that was submitted to the commission that
10 recommended that a new, independent organization be created
11 within the NRC to handle the LSS Administrator
12 responsibilities. And there would be an internal steering
13 committee to advise the LSS Administrator. The commission is
14 presently deliberating on this particular paper, and I think
15 that within the next month or so there should be a decision
16 on what the commission wants to do in terms of the LSS
17 Administrator, but it may take a little bit longer for the
18 particular individual who's going to be the LSS Administrator
19 to be selected.

20 Terms of access to the system; it depends on
21 whether you're someone called an LSS participant--and this
22 would be a potential party or potential interested
23 governmental participant, or whether you're a member of the
24 public. And access differs also for the public in terms of
25 whether it's the prelicense application phase or after the

1 license application is filed. In terms of what we call LSS
2 participants, these are given full access to the LSS in the
3 prelicense application phase. And this is remote access from
4 a computer terminal wherever that group is located. And it's
5 access to the full text of the documents in the Licensing
6 Support System, with the exception of course, of anything
7 that's privileged.

8 The public, in the prelicense application phase,
9 gets access to NRC or DOE documents at the respective Public
10 Document Rooms of the two agencies. The public can get access
11 to all of the headers to the documents that are in the LSS,
12 in other words, they can do a full text search on the
13 headers, but they will not have access to full text search of
14 the documents themselves. Once the license application is
15 filed, they will get access--full text access to the
16 documents in the LSS, again, of course, with the exception of
17 privileged documents.

18 Now, access is determined by something called the
19 Prelicense Application Licensing Board, the PALB, we haven't
20 been able to come up with a nifty acronym for that so, if you
21 have any suggestions, we'd welcome it. The PALB does a
22 number of things. They rule on requests for access to the
23 LSS. They rule on disputes over the entry of documents,
24 whether something is privileged or relevant, for example.
25 They also look at development and implementation issues

1 connected to the LSS. And they also look at the extent of
2 DOE compliance with the LSS rule-making requirements. And of
3 course they have the same powers as other licensing boards.

4 In terms of the access issue, the topical
5 guidelines come into play here again. If someone comes in
6 during the prelicense application phase and requests access,
7 then the board looks at the factors in one of the provisions
8 of the rule, basically, the same factors as are in
9 10 CFR 2.714 in terms of the petitioner's right under the
10 Atomic Energy Act, the nature and extent of interest, or the
11 interested governmental participant criteria. But all of
12 this as evaluated from the standpoint of the topical
13 guidelines. Now we put a provision or a section in the
14 supplementary information that emphasized that these topical
15 guidelines do not have any--will not be used for the purpose
16 of determining what contentions can be submitted in the
17 licensing proceeding. The four corners of the substance of
18 the proceeding are still being determined. Melinda talked
19 about the commissions NEPA rule-making this morning and that
20 has a very important part of what issues--what contentions
21 are going to come in to the hearing. But it's important to
22 remember that although the guidelines are used for prelicense
23 application access, they're not going to be used in and of
24 themselves for deciding what contentions can be filed during
25 the hearing.

1 A grant of access to the Licensing Support System
2 by the PALB obligates a party to comply with the LSS rule-
3 making in the prelicense application phase and with all
4 orders of the PALB.

5 In terms of compliance--there are six months
6 evaluations of DOE compliance by the DOE administrator and
7 DOE must be found in compliance by the LSS administrator at
8 least six months before they can docket their license
9 application. That is, the LSS administrator has to make a
10 finding that they are in compliance with the requirements of
11 the rule, particularly the document submission requirements.

12 No person can be granted party or interested
13 governmental participant status in the licensing proceeding
14 unless they are in compliance with the rule. And access to
15 the LSS can be terminated if a party is in non-compliance
16 with a licensing board order. The LSS will be used at
17 hearing, there will be electronic transmission requirements
18 for all pleadings. And there will be on-line availability of
19 the LSS during the hearing itself.

20 Those are the LSS provisions. There's also some
21 non-LSS provisions which I'll just quickly run down some of
22 the more important ones. The rule requires petitions for
23 intervention and contentions to be filed at the same time.
24 Any petitions to amend or add contentions made more than 40
25 days after the issuance of the NRC staff Safety Evaluation

1 Report, which comes out 18 months after the notice of
2 hearing, must not only meet the usual standard for late
3 contentions, but must meet an additional standard. The rule
4 requires that appeals be taken from certain types of
5 interlocutory orders, such as the ruling on the admissibility
6 of contentions, they must be filed within 10 days otherwise
7 you lose the right to take that appeal. The rule eliminates
8 the general use of written interrogatories and depositions on
9 written questions, instead substitutes a method of informal
10 discovery. The hearing licensing board is required to
11 consider the NWPAs three year schedule and the early
12 availability of documents under the LSS in establishing
13 discovery schedules. And it provides for the immediate
14 effectiveness review of the initial licensing board decision.

15 The way the rules are now, there's no immediate
16 effectiveness review. In other words, it has to go all the
17 way through the commission on the substance of it. In this
18 rule-making we do provide for immediate effectiveness and
19 review.

20 As I mentioned, the comments are in, they're going
21 to be reviewed by the negotiating committee, that's a bargain
22 we struck as part of the negotiated rule-making and they're
23 going to give their thoughts on the comments to us. They're
24 also being reviewed by an internal negotiating team within
25 the NRC. We hope to go to the commission in January with a

1 draft final rule, and we anticipate a commission meeting on
2 this rule sometime in February.

3 In terms of the comments there's--basically there's
4 seven comments and five are these are from the industry, and
5 mostly they just endorse a comment filed by the Edison
6 Electric Institute and Utility Nuclear Waste Management
7 Group. That was the industry coalition along with the U.S.
8 Council on Energy Awareness that was on the negotiating
9 committee. Again, the cost issue came up. They don't think
10 the benefits in terms of eliminating licensing delay, will
11 outweigh the cost of the system, which DOE has estimated to
12 be 200 million dollar over a ten year period. DOE's
13 estimates also show that for each year of licensing delay
14 eliminated, because of having this full text system that his
15 will save approximately 195 million. So if we have an
16 elimination of one year delay, it pays at least for the
17 initial ten year cost of the system.

18 The industry thinks that the LSS will add time to
19 the hearing process. They predict eight to ten years with
20 the LSS because there's going to be system breakdowns where
21 it'll be unavailable, there'll be an argument over the
22 accuracy and completeness of the database. They think that
23 having the documents available in full text will generate
24 more discovery and they say that the licensing boards will
25 not exercise their authority to limit discovery. In that

1 connection, I might add that one thing that we have in the
2 supplementary information to the proposed rule, is a model
3 schedule to guide the boards through the hearing process.
4 It's guidance only because we felt the need to give the
5 boards flexibility on this. The industry feels that this
6 schedule should be given with "more rigorous direction to the
7 boards". In terms of alternatives suggested by the industry,
8 they think that the microfiche system with all the headers
9 for those documents in full text would work. In other words,
10 they would dump the full text capability at all, and I think
11 that's one of the most important components of this process
12 is full text search capability. And they go through a number
13 of other proposals for changes--the higher threshold for
14 contentions, they say that the NRC is overly liberal in
15 admitting contentions--late contentions, and they have a
16 standard for that. They want to limit the number of
17 depositions to 20, and limit deposition discovery to six
18 months. They claim that the NRC allows its boards to grant
19 standings to parties that fail to meet judicial standing
20 requirements, and a number of other things. We've just begun
21 to analyze these comments and these issues that the industry
22 have raised are not new. They were discussed internally
23 within the NRC and they were fully discussed by the
24 negotiating committee and not adopted.

25 I think that the Internal NRC Negotiating Committee

1 believes that the LSS is cost beneficial and also that the
2 microfiche system suggested by the industry is just not going
3 to work in terms of shortening the licensing process, or
4 providing for a thorough review of the license application.
5 And secondly, you've got to incur some labor costs no matter
6 which way you do this, so I'm not sure how the microfiche
7 system would stand up to the LSS. The LSS cost is a small
8 percentage of the total amount of dollars going into this
9 repository program; and the last thing is--is that the--I
10 think that the rule-making and the thorough review that's
11 facilitated by the full text system should give added
12 confidence to the commission's reasonable assurance finding,
13 or the decision not to grant the construction authorization.
14 I'll be glad to answer any questions either now or after the
15 session. There's a number of people here that were both on
16 the NRC negotiating team internally and on the negotiating
17 committee. I'm sure all of them would be more than willing
18 to talk to any of you who wanted more information on this.
19 Thanks.

20 Q. You said that 200 million dollar estimate is
21 realistic? Where did that come from?

22 A. Well, DOE's contractor, SAIC evaluated the number
23 of pages that were likely to be involved in the LSS looking
24 at the topical guidelines and looking at the number of
25 documents that existed within those guidelines and they

1 figured how much would it cost to put those into full text
2 and to satisfy some of the access requirements that are set
3 forth in the rule. Barbara can talk a little bit more to
4 whether that's realistic, but--I think it's realistic, it's
5 not going to be exactly right on because you--it seems like
6 you--there's a tendency to underestimate costs sometimes.
7 But I think it's within the ball park.

8 Q. To what extent will non-participants in the
9 negotiating, and also people who don't agree with the result
10 of a negotiated ruling, to what extent will they be
11 precluded--

12 A. The question is to what extent will non-
13 participants in the negotiated rule-making, or those who
14 participated in this agreed be able to argue for an
15 alternative to the LSS. Non-participants are going to be
16 bound by the rule-making. The rule is--has been issued as a
17 proposed rule under the Administrative Procedure Act and
18 there was an opportunity for public comment. If the
19 commission does not--in its review of the comments that were
20 submitted by a participant--change the rule and issues the
21 final rule as it's written out then those parties are going
22 to be bound by the rule.

23 Q. Any concern about viruses?

24 A. Concern about viruses. One of the issues that was
25 discussed in the rule-making was the issue of security. And

1 that issue is going to be dealt with in the DOE design with
2 input from the LSS administrator and the Advisory Review
3 Panel so that entire security issue is going to be addressed.

4 Q. Have you decided what search program you're going
5 to use?

6 A. I think I'll let Barbara answer that. I guess I
7 don't need to repeat that question, do I? Since Barbara is
8 going to answer it. That question was what search program is
9 going to be used. Okay.

10 MS. CERNY: That's it.

11 MR. CAMERON: That was easy.

12 MS. CERNY: That was easy. This view graph is
13 really just a transition between Chip and me. Just a very
14 few facts to sort of set the stage for the system description
15 that I am going to be giving you. We've estimated about 25
16 million pages of program documentation by 1995; 40 million by
17 2003. These estimates were made--we did a series of four
18 reports over the past year and these estimates came from
19 looking at the documents that will be produced in support of
20 license application and during the hearing phase and numbers
21 of people working on the program and how many pages are
22 produced per person. They're not--they're really estimates--
23 they're the best we could do but we have to use something so
24 they're you see every time you read about the system.

25 The reviewers and interested parties will be

1 located throughout the U.S. We divided these into usage
2 categories--technical, regulatory, legal, management,
3 public--and made estimates as to what percentage of these
4 different usage groups and technical users we estimated would
5 be about 45 percent; and regulatory and legal, 25 percent;
6 public, only a few percent; same with management, and then
7 some administration. Because how the system will be used
8 will depend on who the people using it are. And the
9 technical users will really use it quite differently than
10 some of the public, or possibly the legal staffs involved.
11 And as Chip--and I really won't cover this at all because he
12 really covered this--that a good proportion of the license
13 hearing time is consumed with the document discovery and in
14 motions practice. And so, when this idea came up a few years
15 ago, the idea was to put together a process that would
16 shorten the document discovery time and facilitate document
17 transmission. And the idea of computerizing all the records
18 in the program that are relevant to licensing by both--by all
19 the parties as Chip talked about, I won't really talk about
20 anymore, if you just go on to the next we'll get into the
21 size of it.

22 Now, in the course of doing the studies this year--
23 looking at the usage groups, how it would be used, how big it
24 is, what it would be used for--we came up with these
25 estimates. And you can see the number of pages growing and

1 then for those of you who like bytes and such things, that's
2 the size in gigabytes. I'd just like to maybe say a few
3 words about what these different categories are, if you know
4 this please go to sleep, and for those others it may be
5 useful to understand what the system will really do.

6 As Chip touched on, bibliographic data--they're the
7 headers to the records--the title, the author; if you have
8 correspondence, who it's to or who it's from; key words to
9 help you search--we have about seven thousand of them now
10 that are relevant to this database. And all that's indexed
11 so you can search on any word in that header information. If
12 you use bibliographic systems, these are the records in the
13 bibliographic system that describe the information.

14 There will also be the full text in ASCII
15 representation so every word is searchable, but of course
16 when you do that you don't have graphs, you don't have
17 equations. Footnotes come out possibly in a strange way.
18 Letterheads don't appear. Signatures as they really occur
19 don't appear. And so basically the pages are rearranged so
20 that you have every word, but you are missing a lot of
21 information. But you can search on every word.

22 And then the bit-mapped images--that's a way of
23 storing what the original page itself looked like so if you
24 have something that looks like this--that's what will appear
25 up on your screen. But you can't search on it, because the

1 way the computer does it, is it--I'll talk about the scanning
2 process as part of how we capture information. And it just
3 goes across at 200 to 400 dots per inch and it says it's
4 black or it's white and it just comes out. The reason it's
5 called bit-mapped is it comes out with a string of bits and
6 it does it 300 dots this way, let's say, and 300 dots this
7 way. And so it tells you whether it's black or white and it
8 stores that in the computer and it takes a lot of storage
9 even if you compress it, which you do. So, but then when it
10 comes back up on the screen, it's an exact replication of
11 what the page looks like.

12 So, the idea is that you can go in and you can
13 search the header, let's say, because you might know the
14 author and you might want to just start with a search that's
15 that confined. Or you can go and search for that author in
16 the full text. And when you find a page that you want you
17 can say--all right--but let me see the original page because
18 there may be a graph on it you want to see or there may be a
19 signature and then you can pull that up on the screen.

20 So that's basic background of how we're proposing
21 to do this. And we estimate we'll need 350 to 400 work
22 stations located throughout the country for the general
23 public. They will be in the Public Document Rooms, you will
24 not be able to just sit in your home and get a password to
25 the system if you're a member of the general public you'll

1 have to come to where they are. But if you're a party to the
2 hearing you'll be able to get a password to log onto the
3 system. You know, we had to do that so we can size the
4 system. Otherwise it would be very difficult to know how
5 many people could be using it. And the ten year life cycle,
6 as Chip mentioned, is estimated at 200 million. And I'd just
7 like to say a few words about the process that we went
8 through in coming up with that because it's really a little
9 different than most cost benefit analyses that are done for
10 computer systems.

11 Because this system--when I first came to this
12 program a year and a half ago I tried to do a cost benefit
13 analysis for the system as a system, in a traditional way.
14 You look at a process that's manual that you're automating,
15 or you look at an aged technological base that you want to
16 replace with newer technology and you can show a cost
17 savings. Well, in this case it became very clear that the
18 LSS in itself, as a system, could not be justified. But
19 rather it had to be justified as part--as imbedded in an
20 administrative process. And that it's very justifiable if you
21 do it that way. And so when we started then doing them--
22 okay, what I mean by that is that the system itself--there
23 are other ways to get this information that people want.

24 Microfilm, microfilm systems, computerized index-
25 to-microfilm systems, and that will get the information. I

1 couldn't really show what time it would save by just saying I
2 have a full text system on optical disk as opposed to a
3 microfilm system--without the process that the NRC is going
4 through with giving guidance on schedules to the boards as
5 well. Because if you--where some of EEI's comments come in
6 --if you just put the computer system out there it indeed
7 could lengthen the discovery process. So you have to also
8 take that part of it into account. And so when I did the
9 cost-benefit that was really one of the points that we made
10 in it.

11 Another was that you had to--well, you looked at
12 the cost avoidance to the program for every year that the
13 license was delayed--if the NRC felt, you know, they could do
14 it in the three to four years, would make a shot at it--every
15 year that it was delayed would cost \$200 million. That's
16 factored into this cost-benefit analysis. But then when we
17 looked at what architectures--computer architectures--were
18 actually were costing, we didn't even cost a traditional
19 microfilm system with a computerized index because we had the
20 rule-making process. And the rule is very specific about the
21 full text and image components of this system, and the
22 variance that we chose had to meet the rule. So when we came
23 down to costing, there was really very little variation that
24 would do that. So the cost of the system--of the variance--
25 ranged from 180 some million to 230 million, and really the

1 case that was around 200 million met the rule the best and
2 what the people said--the users said--they needed so that's
3 the one we used in our justification.

4 Now this system was declared a Presidential
5 Priority System by OMB because of its size, its complexity,
6 and its national importance--which means I've been working
7 very closely with OMB over the past year and a half in the
8 justification of the design of the system. And they have
9 agreed that the way we have gone about it really shows how
10 you can achieve productivity, or increase productivity, in
11 public administration through the use of a computer system.
12 It isn't--that's what I started out by saying--the system you
13 don't justify on its own but rather as part of an
14 administrative process. And as of September, we had a go
15 ahead from the management end of OMB from the Office of
16 Information and Regulatory Affairs with whom I've been
17 working very closely all year.

18 The budget side of course as you know, none of our
19 budgets are yet set--so that side we're still working on.
20 But as far as a technical go ahead--they believe we know what
21 we're doing; that the system is feasible; that as far as our
22 analyses of the users, what their needs are, we understand it
23 as well as it can be understood at this point. Of course it
24 gets better as time goes on. So that's where we are now,
25 and we also--we have a design as part of that cost-benefit

1 analysis of course--we had to do a design for the system
2 which I'll talk about.

3 Now, so the general capabilities then of the LSS,
4 well what will it do? It has hardware and software
5 components. I have some configuration diagrams for those of
6 you who like those so we'll talk about those in a little bit.
7 And it has headers and searchable full text of all documents.
8 And that means that people can go in and they can search on
9 the header and it'll tell them--let's say you pick Yucca
10 Mountain and you find you have a million hits and you say
11 that's no good at all; so you can then go back and refine it.
12 And when you get down to a number of hits that you think are
13 reasonable, then you can actually ask for the full text, or
14 you can search the full text. Then you can ask to have it
15 printed out or you can ask for the image of it. You can
16 browse images so that if you see a page--if you search the
17 full text and then you see a page--you think you're
18 interested in, you can ask to have the image brought up. And
19 you can browse a number of images if you like. And then if
20 you want you can print them out.

21 And, of course, electronic mail as Chip mentioned
22 is just going to be very important both before and during the
23 hearing, okay?

24 Now the reason we're looking at optical disk
25 technology and not microfilm has to--one of the big reasons

1 for having all of this up is timeliness. And we'll be able
2 to do demand printing from these images, then. We estimated,
3 at the peak, that 10 million pages a year will be printed.
4 And that in doing this needs analysis we found that
5 overnight delivery is adequate for the large documents, and
6 people want to be able to browse and print locally the small
7 documents. And that this was actually a least cost solution
8 compared to--we made an estimate at what size documents we
9 would print locally and what size we would ship overnight.
10 And if we had to look at the microfilm we'd have to pull all
11 of these out and print them all off, we couldn't do an
12 electronic transmission. Then we'll have local display of
13 documents on the high-resolution work stations and the
14 graphic display--the data, the maps, the drawings, as I said
15 that the scientists are very interested in--and then be able
16 to review the original pages since when you do your
17 optimization for full text searching you lose the form of the
18 page. And you can also see original signatures, letterheads,
19 et cetera. Okay.

20 Now, we divided the system into five modules. One
21 thing we were very concerned about is the feasibility. Is
22 this possible? It's the biggest system of its kind ever
23 built and we were concerned as to whether it was feasible.
24 So we broke this down into five modules and looked at the
25 feasibility question. And the criteria that we used were

1 that the system had to be produced without unreasonable
2 technical risks or costs. It had to be based on proven
3 technology; compared to similar systems that are produced,
4 demonstrated or marketed; that it's not dependent on future
5 technology to fulfill the primary mission of license support
6 by 1998, and yet we could do technology insertion throughout
7 the system life cycle--that is the data capture stations for
8 example, will procure the first one and then within the next
9 year or two we'll keep adding to this--so as technology
10 improves you can substitute components.

11 So the five components then: we have the Data
12 Capture System, and the Search and Image Systems--search and
13 Image--and Telecommunications, and the Work Stations. And so
14 the first one is the Capture systems and this we have to get
15 moving on right now because we have a backlog of information.
16 This will do all the scanning of the pages, capturing the
17 ASCII text, doing the microfilming, and what comes out at the
18 end of it are optical disks and tapes, that then will be fed
19 into the Search system. Now the locations of these we know
20 we'll have one at the Forestal, one in Las Vegas at DOE-NRC,
21 and there are going to be three more and where they'll go
22 will depend on the volume at these various locations. And
23 the reason we picked six was because of this feasibility
24 issue, we know that there are systems in production today
25 that can do 3,000 pages a day, and our maximum was 18,000, so

1 that's the reason for six of them.

2 Now the Search and Image system, though these were
3 two components for our feasibility study, these will both be
4 located at the University of Nevada, Las Vegas. Now the
5 reason the system is there is because Congress, in the Energy
6 and Water Appropriations Act, just this past July, directed
7 DOE to put the system at UNLV. And to set up a cooperative
8 agreement over its use with the University and we're
9 involved in doing that. Now this will be the LSS to the
10 user. The Capture systems have to be incorporated as part of
11 our everyday business of document collection, both in DOE and
12 NRC and for the other parties. But this will be the big
13 mainframe, this will be where you call in when you do your
14 searches. It will have all the full text and the headers.
15 We'll have user assistance there--electronic mail facilities.
16 And the Image system will also be there for either printing
17 and delivering overnight, or that's where you'll call up when
18 you do your searches--your browsing of your pages. Now we
19 might go into a CD ROM kind of technology if you need images
20 --a large number of images, and then we can mail out those--
21 but that hasn't been decided yet.

22 Now the third--Work Stations--we agreed to provide
23 two levels of work stations. One is basically a PC. If
24 you're a party to the hearing and you're sitting anywhere at
25 all, you can get a password and log on and you can see the

1 text portion. The level two work stations will give you your
2 images. They're high resolution work stations. They're PC
3 based also, but they really have to be in centralized
4 locations or you have to have access to a local area network.
5 Because of communications, because of the large pipe it takes
6 to ship images.

7 And then the Telecommunications assumes that there
8 will be these clusters of local area networks and they will
9 be throughout the country.

10 Now I'd like to just take a few minutes and tell
11 you about the schedule that we see now. Of course, you know,
12 this changes, but at the moment--last year we did award the
13 Design and Implementation contract to SAIC-McLEAN. And 1988
14 I really looked at as the information engineering phase of
15 this. It's when we did our needs analyses--the negotiated
16 rule-making, the survey of the users--in some senses the
17 negotiated rule-making is the most complete needs analysis
18 ever done. And we backed that up with a survey of users
19 because we needed to resolve more technical issues than the
20 negotiated rule-making went into.

21 We did the status-scope analysis from which we got
22 the estimate of the volumes of documents; our conceptual
23 design--they're the configuration diagrams you just saw; did
24 the cost-benefit. And then there were some areas where we
25 simply--keeping in mind this idea of minimizing risk and of

1 showing feasibility--where we simply didn't know how users
2 would use the system. Because you can only ask people up to
3 a certain point how they would use a system they've never
4 seen and can't imagine. And for that now we're doing a
5 prototype. And I just want to interrupt the schedule to tell
6 you what we're doing with the prototype.

7 This is really an instrument to test bed. It will
8 contain 200,000 pages of representative full text images and
9 header information. And we're picking, very carefully,
10 picking a set, not randomly. The SCP, its references, that
11 gets us up to 70,000 pages. The administrative record, some
12 of the correspondence around it. A sample of technical data
13 sets that will go as--you know, starting with the field
14 notebooks and the computer analyses, and samples of these
15 kinds of records that we also have to collect. And we will
16 then give this to people to use. So what we're going to be
17 doing is getting experience with the scanning and capture.
18 We have two sub-contracts out and SAIC is doing a third of
19 these subsets, so we're really starting to get some
20 interesting comparisons about how this information can be
21 captured.

22 And then we're using existing hardware and software
23 in the program because one thing we don't want to do is
24 jeopardize the procurement by going out and specifying
25 hardware and software for a prototype and then try to explain

1 but why that doesn't scale up. So we're just using what we
2 have around, and we can do that.

3 Then we're going to monitor and analyze retrieval
4 sessions for the different user groups. So some of you
5 people may well be asked to use this, so we get an idea of
6 what you would really do if you sat down in front of a system
7 like this.

8 And from that--well before the prelicense
9 application board--preapplication license board--what are
10 you calling it--gets set up, we're still--I'm still dealing
11 with the technical sub-committee that was formed during the
12 negotiated rule-making sessions, just to keep getting
13 technical input. And then from this prototype we're going to
14 be determining system design specifications and weighing cost
15 and performance against user behavior. You know, I've become
16 quite a student of obituaries of big systems. What gets
17 them. And one of the things you have to be careful of is
18 that the performance--you know, you can get maybe 95 percent
19 of the performance you want at a reasonable cost, and that
20 last five percent kills you. So we're going to try to be
21 careful there. And then we're going to be developing
22 hardware and software specifications based on the rule on the
23 needs analysis, and what we have learned from actual user
24 behavior.

25 Where we go from here? 1989 will be the design and

1 initial procurement. Of course, the prototype, the capture--
2 we're developing capture system specifications right now and
3 we hope--these are calendar years--by the end of '89 to
4 install the first capture system and begin with DOE's back
5 load. And then we're working--we're starting to work now
6 with NRC and are really looking forward to naming an
7 administrator because we need the administrator badly.

8 We have to develop standard capture procedures. DOE
9 has a record system, NRC has a record system, and all of the
10 information that goes into the LSS has to come from these
11 systems, so we have to coordinate the capabilities within the
12 existing environments so that we all end up with a
13 standardized way of inputting into the LSS.

14 1990--Procurement and installation. We'll be doing
15 the database management system procurement. And the answer
16 to the question about have we chosen a system is no. We're
17 going to be doing a functional specification and all of this
18 will be, you know, an open competitive procurement. In fact,
19 we're going to go out first with a request for information to
20 the vendors saying is this something that you could bid
21 against. And then going out with the RFP.

22 The database management system must be done first
23 so that you'll have your software so then we know what
24 hardware that software runs on. Obviously, it can't be a
25 system that only runs on one hardware, or you're not going to

1 have a competitive procurement. But, we're going to do that
2 first, then procure the remaining capture systems and begin.
3 That's when NRC and DOE either Washington or Nevada--
4 depending who didn't get it--will get it.

5 --do the search and image system specifications,
6 and all along the way of course, this must be reviewed by
7 DOE, by the State consultants, and others who NRC will say
8 should be involved.

9 1991--we're looking at the final procurement
10 installation and integration. This really turns out to be
11 quite a big systems integration problem. We'll do the search
12 and image system procurement complete--developing the
13 software that ties all of this together. And install the
14 communications, and again, it will always be reviewed by the
15 appropriate parties.

16 1992--will be the final system integration. The
17 original RFP that SAIC--the original contract that SAIC was
18 awarded through the RFP that they bid on said they must have
19 four million pages loaded. I don't know if we'll hit that or
20 not, but we're aiming for that. And then do the installation
21 and acceptance tests. That's when it will be turned over to
22 the NRC to administer and UNLV to--will have their--who
23 operates it--it'll have to be a contract through NRC. And
24 it'll be available then to users.

25 And in '93, we hope to have the majority of the

1 backlog data loaded by all parties and 1994 the certification
2 that LSS is substantially loaded--that comes out of the
3 rule, and that will be a certification by NRC.

4 That's it. God and procurement being willing.
5 That's the big risk by the way. If I had to name one right
6 now, it's the procurement process. ADP procurement is very
7 difficult, but we'll do our best. Yes?

8 Q. My name is Peter Block and my question is, looks
9 like you've met all the needs beautifully, its a pretty
10 complicated analysis. Have you analyzed if it exceeds the
11 capacity of the users to use it. I have a concern that
12 there's so much there that the actual time that's going to be
13 put into using it be justified. --Is there really enough
14 capacity in those groups that will use the machine to justify
15 the expenditure?

16 A. They say there is. Oh, I'm sorry and it's right
17 here in front of me and I didn't read it. The question is,
18 is there enough capacity within the user community to really
19 utilize such a complex system, is that essentially the--

20 You know, I go back to my original comment on--
21 this is the system, in order to get a buy-in from all the
22 parties, this is the system they said they needed. And
23 that's what I'm designing, too.

24 Q. That's my concern, for \$200 million I want to go
25 beyond what they said they needed because there are interests

1 other than the interests of the people who said they needed
2 that.

3 A. No, well, all right. If you look at the \$200
4 million dollars, \$114 million is data capture and entry.
5 It's through the capture process. Eighteen percent is
6 hardware and software, that's all it is. And then there's
7 maintenance and operation, and telecommunications. Now, the
8 sensitivity analysis we did in the cost benefit looked at
9 where you could cut cost. And you could cut cost by volume
10 of data and by percentage in full text. And I could cut some
11 tens of millions of dollars off this, but the point is,
12 you're not going to get a buy-in because of the topical
13 guidelines no one would agree to what to cut. So you save
14 that at the risk of not getting a buy-in and the other side
15 of cost avoidance to the waste fund is that \$200 million, not
16 just to DOE but to the Waste Fund because that includes on-
17 site storage for those years. And you say is it worth that
18 trade off and my answer is no. And that's how I've gone
19 about this. Maybe they can't use it all.

20 MR. CAMERON: Barbara, isn't the--won't the
21 structured indexing make the system fairly easy to use?

22 MS. CERNY: Well I don't think that was the
23 question.

24 MR. CAMERON: I'm not sure what the question was.

25 MS. CERNY: Well, I think what the question is the

1 complexity of the system, having these three components.

2 Q. What is the question up front?

3 MR. CAMERON: Well I didn't understand what Peter
4 meant by the complexity of the system. If you're talking
5 about actually using the system to find documents through
6 your structured indexing that's going to be fairly simple for
7 the user. I'm not sure what he meant by does it exceed the
8 capacity of the user.

9 MS. CERNY: You know, it isn't going to be fairly
10 simple. I mean it can't be fairly simple. I, yeah, a novice
11 user will be able to sit down and use it. But the only
12 people I think who will be able to really get the maximum
13 from the system are those who understand what's in the
14 system. And I see a lot of user help being provided through
15 the operator of this system. We'll see if I'm right on this
16 but--

17 Q. --can't cope with things in their brain of that
18 size.

19 A. That's the right question. The question was
20 there's just so much information in there can people really
21 use it. And that is the right question. What we're trying
22 to do, is what Chip was alluding to, these various levels of
23 searching. I mean, we started out with people saying all
24 they wanted was the full text, and I really believed that you
25 had to index it very, very carefully and have pointers to

1 documents, attachments to documents, trails through the
2 database in addition to segmenting the database. Otherwise,
3 yes, you'll never--you'd never--you'd get a million hits.

4 And we're very aware of that. I hope we can solve
5 it. I mean, its early days. Mal?

6 Q. I think the other point that needs to be made, and
7 I think that point is perfectly valid, nobody has got the
8 brain power necessary to assimilate the mammoth record that's
9 going to be generated in this process, and what those of us
10 on the negotiating committee were looking for was a system
11 which will permit us to locate that very small fraction of
12 documents which were important and which our brains could
13 assimilate. In a fairly efficient way, rather than having to
14 move our wives and family into a warehouse of documents which
15 we thought would be impossible--We look at this as a way to
16 manage that very--

17 A. Did everyone hear that or do you want that
18 repeated? Mal said that the negotiating committee was very
19 concerned about this and they didn't want to move their
20 families into a warehouse while they searched through
21 documents, and that this is a way to try to limit the number
22 of documents that would have to be searched through
23 searching, doing computer searches. Yes.

24 Q. My name is Charles Bechhoefer. Has any provision
25 been made for handling documents which are allegedly

1 proprietary or classified. What happens when a proprietary
2 document is inserted into the system.

3 A. First of all, there's no classified information in
4 the system. And as far as proprietary documents, they'll be
5 noted that they are there by header, but that they will only
6 be entered if--no, I'm sorry I'm answering privileged. No,
7 proprietary documents--legally--

8 MR. CAMERON: Well, they'll be treated the same
9 way--

10 MS. CERNY: The same way--

11 MR. CAMERON: --as they're treated under hard copy.
12 There'll be a header--

13 MS. CERNY: Header.

14 MR. CAMERON: --for it to show that it's in the
15 system, and if it has to be examined, it'd be examined under
16 protective order.

17 MS. CERNY: That's what I thought.

18 MR. CAMERON: It won't go in the system full text.

19 Q. You can't just go to a work station and pull it up.

20 MS. CERNY: No.

21 MR. CAMERON: No. You won't be able to do that.

22 MS. CERNY: No. Proprietary documents, you see
23 that's why I have my legal counsel here Will be handled
24 that same as they are now under hard copy with a protective
25 order. Yes.

1 Q. Could everybody hear me because I have a fairly
2 lengthy question and a comment.

3 A. Well, would you like to come up here?

4 Q. I would love to come up there.

5 A. Come.

6 Q. My name is Mike Ellis and I'm with the University
7 of Nevada in Reno. I'm working for the State of Nevada, and
8 I have a concern that I believe is far more serious than
9 those you've heard in the last couple of comments, and I'm
10 completely astounded by this whole process. It's a
11 wonderful, wonderful technical feat that we can do this. But
12 there's a question of funding priorities. \$200 million
13 dollars to collate and be able to look through all this data
14 and information, but the content of this system is being
15 grossly underfunded. Let me give you an example. Part of my
16 job is to look at some of the active faulting or earthquake
17 potential close to Yucca Mountain. I have not been able to
18 do this for several months now, because the DOE's funding to
19 the State of Nevada was cut from \$23 million dollars to \$16
20 million dollars. Compared to \$200 million dollars, \$16
21 million dollars, five of which is for non-scientific purposes
22 is nothing. So the content of this system is useless. So
23 there's no point in spending that much money on the system if
24 there's nothing good inside it.

25 A. Thank you.

1 Q. I am Greg Shawn, also with the panel, and I think I
2 see something that may have irritated the industry about this
3 whole thing. In the way that these systems can be made to
4 work by clever people. Especially by clever people whose
5 purpose is to snarl the proceedings. This system, it seems
6 to me, in a measure feeds upon itself. That is data is drawn
7 from it. New motions are drawn up. These require other
8 answers. All of which go back into the system and it grows
9 and grows. And someone who is expert enough with the system
10 can well use this, not to save time, but in a dalliatory
11 fashion. Is there any way we can do anything about that
12 whatsoever?

13 A. People who want to use the system--they find
14 information in the system and then there are new
15 contentions, and then you feed more information back into the
16 system and in fact it will add time, not shorten time. Is
17 that fair?

18 Q. Fundamentally, it--let me speak--

19 A. Just come up here. If we can continue. Are we
20 running out of time?

21 Q. You're almost out of time.

22 A. We're out of time? We're out of time. Go ahead.

23 Q. The point is, I see a potential for delay in the
24 system, in that it can be made to feed upon itself. Those
25 who are clever enough and can use it well enough can use it

1 to assemble documents of various kinds; motions, pleas,
2 requests, submissions, filings, which will generate other
3 motions, pleas, and filings that will also enter into the
4 system. And the system can be used by someone very familiar
5 with it not to advance the process, but to snarl the
6 process. And my question is, what is being done about that
7 if anything or is it just something you can't do anything
8 about?

9 A. The answer to that, Fred, is that that's what we do
10 for a living.

11 MS. CERNY: The answer to that is really where I
12 started out saying that this system in itself is not
13 justifiable. And I really believe that. It is only
14 justifiable if it is part of an administrative process where
15 the NRC gives guidance or better on how the discovery process
16 will be handled.

17 MR. CAMERON: Yes, and those are why there are
18 additional provisions in the LSS rule-making to try to
19 establish time limits and other criteria for how the
20 proceeding should be conducted.

21 Q. So, then the answer is you are doing something.

22 A. Yes.

23 JUDGE LAZO: Well, thank you Barbara and Chip. It
24 is quite clear from your comments that you are engaged in a
25 very exciting project. We are going to shift ground just a

1 little bit now and talk about the Waste Isolation Pilot
2 Project. Our speaker is Jim Bickel who is Project Manager
3 for the Department of Energy's Office in Albuquerque. Jim?

4 W A S T E I S O L A T I O N P I L O T P R O J E C T

5 MR. BICKEL: Again, my name is Jim Bickel. I have
6 to kind of correct a little bit as to my title. I'm the
7 Assistant Manager at the Albuquerque Operations Office. I
8 have Projects and Energy Programs. So, under that job I not
9 only have the Waste Isolation Pilot Plan, which I'm here
10 today to talk about, but I also have Uranium Mill Tailings
11 Remedial Action Program, plus other activities that we have
12 on-going at both Sandia and Los Alamos National Labs.

13 I have with me here today, not my chief counsel,
14 but I have my environmental health and safety specialist from
15 Carlsbad, Tim Campbell. Tim works for Westinghouse. I'm an
16 engineer by training and preference, so when we start talking
17 about things like RCRA and NEPA, and those kinds of things I
18 may rely on Tim to help me answer some of the questions.

19 First of all, the WIPP mission is to provide an R
20 and D facility to demonstrate the safe disposal of defense
21 program waste in an underground repository. And we are
22 exempted from NRC regulation and that's Public Law 96-164.
23 What I'm going to do first is just sort of give you a current
24 status of where we are at WIPP. I'm going to go kind of fast
25 through the first part of it, and then I'll tell you what the

1 issues are that we're still facing. And I think when we get
2 to those issues that there will probably be a lot of
3 questions so I'm going to move kind of fast here on you at
4 first.

5 We're located in the southeast corner of New Mexico
6 near Carlsbad, New Mexico. We're 26 miles southeast of
7 Carlsbad, New Mexico. The formation that we have, we're
8 talking about bedded salt, and I'm sure most of you know what
9 the advantages of bedded salt are, but one of the things
10 certainly is that it behaves like a plastic under pressure.
11 And that is, it's sort of self healing and the waste that we
12 implaced in the WIPP site, the room's well closed and totally
13 encased that waste. We take no credit at all for the 55
14 gallon drums that we implace the waste in, in the
15 underground. We know with time that they will breach and
16 ultimately we'll end up with a waste imbedded in the salt.
17 Our best estimates at this time is its going to take between
18 70 to 80 years before the rooms completely enclose and encase
19 the waste. And that assumes that we backfill the material
20 with salt, and perhaps other materials like bentonite.

21 Why at WIPP? Well, first of all, there's a very
22 large underground seabed in that area. It covers a five
23 state area. You can see it there. And we're sort of down in
24 the southeastern corner of it. As far as the formation
25 itself, the WIPP site is located in what we call a Salado

1 formation. That's about a 2,000 foot thick deposit of salt.
2 We do have an aquifer above it. There's not a lot of water,
3 it's very brackish. Really it's brine. And the rock is sort
4 of saturated. However, when we did drill the initial shaft,
5 we had water flowing into the mine at the rate of about one
6 and a half gallon per minute. Once we lined the shaft that
7 is now zero. We have no water coming down the shaft; very
8 easy to control in terms of mining, one and a half gallon per
9 minute is a very, very dry mine.

10 This is the site above-ground as you see it now.
11 The large structure you see there is called the waste
12 handling building. On this side down toward me, I'm not sure
13 this will reach but--you see three air locks there. Those
14 are the air locks in which the contact handled waste--and
15 I'll describe to you in a minute what we mean by contact
16 handled waste--that's the air locks in which they come. The
17 building itself is 93,000 square feet. We maintain a
18 negative pressure in it, so the airflow is into the building
19 in the event that we did get a leak or a breach or something
20 happened during transportation and when we opened up our
21 shipping containers if there was contamination it would
22 insure that it remained in the building. The building itself
23 is constantly air filtered at all times through HEPA filters.
24 The high structure you see is the overhead hoist for the
25 waste handling shaft. Straight across from it you will see

1 the construction salt handling shaft. Let me--point for me--
2 the construction salt handling shaft. That was the original
3 shaft which we drilled, the one I was talking about a gallon
4 and a half per minute. That's the one that we're talking
5 about. All the salt that we've taken out of the site up to
6 this point in time has come up that shaft. It's stored
7 where Tim is pointing there. So far we've brought up 750,000
8 tons of salt. And I believe that in order to put that in
9 other terms, if you had a football field you could stack it
10 373 feet high. That's how much salt is now on the surface.

11 Over here is the remote handling building and
12 that's where we handle our remote handling waste which will
13 be coming into the WIPP site. You can see the parking lot up
14 here this is where the workers park and have a good time.
15 And over here is the exhaust building and normally when
16 we're running and we have radiation monitors on the air
17 exiting the underground, normally we would vent directly to
18 the atmosphere, right through the area right there. But in
19 the event that we did detect radiation, then the air flow
20 would be diverted through the filter building which has a
21 bank of HEPA filters so that the air would then be filtered
22 through that building.

23 As far as the facility itself, there's the four
24 shafts. You've got the exhaust shaft, waste shaft,
25 construction salt handling shaft, and the fourth shaft that

1 we're just now completing is the air intake shaft. So there
2 are four shafts. The area you see down here is to the south
3 and that is where we will be storing the waste. We have
4 eight panels and there's seven rooms per panel. The heavy
5 white area is the room itself. The blue is still salt that
6 still remains in tact. Those rooms that you see there are
7 300 feet long, they are 33 feet wide, and 13 feet high.
8 Later on I'll show you a few pictures of what the underground
9 looks like and what that panel one looks like.

10 To the south, we have the Sandia's experiment's
11 where they're doing all those experiments. And you see one
12 there called the heated pillar, I'll show you a picture of
13 that and what that looks like. Right now we have about nine
14 miles--I'm sorry--ten miles of drifts that we have mined out
15 in the underground.

16 As far as the organization down there, we have a
17 project office. And the Project Officer down there is Jack
18 Tillman. You may have been thinking that's who you were
19 getting today. Jack reports to me. I left him there.
20 Somebody has to do the work so that's where Jack is.

21 You can see the State of New Mexico has what we
22 call an Environmental Evaluation Group. That group's been in
23 existence for about 10 years now. And they represent the
24 State of New Mexico on all environmental matters where WIPP
25 is concerned. The senior most individual in that group has

1 been there for 10 years, Bob Neil. And then his number one
2 lieutenant is Dr. Lokesh Chataverde, and he's been on the
3 project for nine years. They have about 10 scientists right
4 now, of various disciplines, so it is a very knowledgeable
5 group; a very effective group, and certainly they're
6 overseeing everything that we do. We in the Department of
7 Energy pay their budget, but that money flows through New
8 Mexico Tech, in Socorro. They actually, administratively at
9 least, report to the President of New Mexico Tech, although
10 they're in constant contact with the Governor of New Mexico
11 and his staff.

12 Sandia Corporation is our brains as far as the site
13 characterization, the experimental program. And during the
14 Performance Assessment, which is the thing that we got to
15 demonstrate during our five year demonstration period. We
16 have to be able to demonstrate that we can conform with 40
17 CFR 191. And that means that we've got to show that we do
18 not exceed the EPA standards out to 10,000 years. So we're
19 really plowing some new ground in that area.

20 Westinghouse is the management and operating
21 contractor. And as you can see, they're the largest
22 contingency down there. They're approximately 560 people.
23 Right now, at the WIPP site, there are Westinghouse
24 employees; the DOE, we have a contingency down there, I
25 believe right now we're about 23, the chart says 26, but

1 there are about 23 DOE employees there; Sandia has 47 people,
2 some of those are at the WIPP site, others are in Albuquerque
3 and they commute back and forth. Mesa Airlines has made a
4 great deal of money out of us and Sandia travelling down to
5 the WIPP site. We have a very small presence there of
6 Bechtel. Bechtel did some of the original design work.
7 That's almost phased out now. They've done a little bit of
8 work on this fourth shaft--this air intake shaft--but since
9 that's completed they should be pretty well phased out.

10 The first kind of waste that I'm going to talk
11 about--and I'll just real quickly show you how we implace it
12 in the underground--is contact handled waste. Ninety-seven
13 percent of the waste destined for WIPP is what we call
14 contact handling. By that--it's in 55 gallon drums, it's
15 alpha emitting waste. You go up, stand next to the drums,
16 and you literally come in contact with it. Hence, that's how
17 it gets its name. This gives you an idea of what is in it.
18 We're talking about glassware, metal rings, here you see some
19 solidified sludge in the second one. In the third one you
20 see pipes and things like that. In the fourth one you've got
21 booties, gloves, smocks, the kind of garbage that you'd
22 expect to see in any kind of laboratory operation. And
23 that's what constitutes the contact handled waste. Again,
24 that's 97 percent of the waste which will go to WIPP.

25 This is a picture of one of the air locks that I

1 was showing you. And those are some mock-ups of what our
2 Trupact container--that's a shipping container--that we'll be
3 shipping it in. Those are simply mock-ups. I will get in a
4 little more detail on where we stand on Trupact in a moment.
5 But the trailers pull up--and you can see that blue trailer
6 there--that's the trailer that it pulls up on. We can ship
7 three per trailer and they're taken into the air lock. And
8 again, the purpose for the air lock is to maintain the
9 negative pressure in the waste handling building. This gives
10 you an idea of the relative size of one of these containers.
11 I forget exactly how tall they are. Do you remember, Tim?

12 MR. CAMPBELL: Ten feet.

13 MR. BICKEL: Ten feet. They're ten feet tall. Each
14 one of those Trupacts will accommodate what we call two seven
15 packs--55 gallon drums, and I'll show you those in just a
16 moment, what I mean. We have three stands where we can
17 handle these Trupact containers in the waste handling
18 building when they come in. This shows one of them at one of
19 the docks getting ready to take the lid off. There we're
20 taking the outer lid off the Trupact container. Here they've
21 taken the air lid off and you can see the top of the topmost
22 seven pack of barrels sticking out a little ways. They're
23 starting to pull the seven pack out now. This shows both of
24 them coming out.

25 Once they're out they're placed on a lift and taken

1 to the vice--that shovel device that we have there, which
2 will take it into the waste handling shaft, which again is
3 in the waste handling building. It's placed in the elevator
4 to go underground. Once it gets underground we have an
5 underground transport vehicle it's placed on. That's a
6 picture of it going through the underground. When it gets
7 down to where it's being implaced then it's implaced in
8 stacks using a forklift.

9 This gives you a view of what panel one looks like.
10 This is the seven rooms that I was telling you and this is
11 panel one. Now we haven't mined anything beyond this. What
12 we will do is as we fill up panel one, then we will start
13 mining panel two. We will use the backfill material from
14 panel two to fill in the panel one. So we don't have to take
15 all the salt up to the surface and bring it down again. And
16 we'll backfill in that manner.

17 Remote handle--this is three percent of the waste
18 that's destined for WIPP. And here we're talking about beta
19 and gammas that has to be heavily shielded. We have an RH
20 cast that we use to ship that in. It has mitigators. The
21 cast that we're talking about is very similar to the cast
22 that was used at Three Mile Island--PMI. Only it's three-
23 quarter scale model smaller than the one that was used there.

24 The view that you just saw shows after the shock
25 mitigators were taken off the ends of it, the device is then

1 set upright. A collar is put around it. It's starting to be
2 moved into the hot cell area. We have 140 ton door over here
3 which rides on an air cushion. Once it gets into this
4 facility here, this door goes shut, and then the cast is
5 taken up into the hot cell. This gives a picture of what it
6 looks like in the hot cell. Once it's in there we wipe it--
7 make sure that no damages occurred during transit--that
8 there's no radiation. Once that determination has been made
9 it is then lowered into what we call a facility cast. This
10 cast actually goes to the surface and back down into the
11 underground. It lives its whole life there and the canister
12 is placed in it. It's very heavily shielded so that it
13 presents no danger to the workers, and then, again, that's
14 done up in the hot cell. It's then taken to the underground.
15 This is a picture of that cast in the underground.

16 We then have a 41 ton forklift which lifts that
17 device up, takes it down to where we're going to place it and
18 what we'll actually do in those rooms where we're storing the
19 contact handled waste, we have drilled out holes in the side
20 of the drift which are 38 inches in diameter, 18 feet long.
21 And what happens is, is again we have the cast in the
22 facility device. There's a ram here and it pushes that
23 canister back into the wall. Now the reason we have these
24 inserts right now is that we have to maintain retrievability.
25 We made a commitment, at least verbally, that we will

1 maintain retrievability for the first five years. And that
2 means pull CH and RH. If it was not that we put those
3 sleeves in there, over a period of time the room is closing
4 and we would not be able to retrieve those casts. That's the
5 reason for the metal liners. Once we're out of the period of
6 time that we have to maintain retrievability, then we would
7 probably not use the liners.

8 Experimental programs and again, I'm not going to
9 spend much time on this. Sandia are the people that do it.
10 They did the site characterization for us. We have a lot of
11 in situs's experiments now going on in the underground. And
12 Sandia Corporation are also the people that are going to do
13 the Performance Assessment for us.

14 The thing that we're trying to determine in the
15 underground with the type of waste we have, we are really
16 talking about three rates which determine how things are
17 going to react in the underground.

18 We have the rate at which the rooms are closing.
19 We have the rate at which brine is flowing into the room.
20 And we also have the rate at which this waste, which has
21 organics in it, generates gas. And those are the three
22 things that when you cut through our experimental programs,
23 those are the three things that we're trying to get a handle
24 on so we can really predict what's going to happen during the
25 room closure. What it's going to look like when the room

1 closes. Are we going to have brine pockets? Are they going
2 to be interconnected? You know, it's these sorts of things
3 that we're trying to determine. And then of course you've
4 got to be able to project that out to 10,000 years. And
5 that's quite a challenge.

6 I told you that I would show you the circular room.
7 This is a picture of what it looks like. It's a completely
8 round room and it has this circular pillar in the center of
9 it. That pillar is 30 feet in diameter. Those are heater
10 blankets that are around it. Sandia has heated that to
11 accelerate the room closure. The reason that we made a
12 circular room like that is we're talking about two-
13 dimensional models. I never have asked but I'm sure they're
14 in polar coordinates. And by doing that then one of the
15 approximations you don't have to make is with the geometry of
16 your room. And it gets that assumption out of it.

17 We are gathering data on this as far as room
18 closure is concerned. And the thing you've got is, you have
19 a lithostatic pressure pushing on that column. So I told
20 somebody it was kind of like me with time. It's getting
21 shorter and squatter and the same things happened to me. But
22 the thing I guess we have learned out of that is that the
23 room closure is about three times faster than we initially
24 predicted it would be. Now, actually that's good news if you
25 take it into account in the design of your facility and the

1 fact that the faster the room closes the less opportunity
2 there is for gas to be generated or brine to flow in.

3 This is just a view--and I put this one up just to
4 give you an idea of what one of the experimental rooms looked
5 like. I believe these are high-level waste experiments.
6 Since the decision has been made to not have a repository in
7 Deaf Smith County, we are in the process of winding up all of
8 our high-level waste experiments that we were doing at the
9 WIPP site. We do have experiments going here where we place
10 barrels in backfill material--various backfill material--and
11 see how they're going to react. How long it'll be before the
12 barrel is breached. Again, we take no credit for the barrels
13 for containing the waste. We know that in time that they
14 will breach and we will have waste outside.

15 This is simply gives you an idea of some of the
16 experiments we're doing with remote handled waste and you can
17 see them here. We have heaters in there and all we're
18 trying to do is simulate the heat that would be generated by
19 the RH waste, and again looking at closure rates--brine and
20 flow--and trying to get the rock mechanics and that sort of
21 thing.

22 One of the things, when we walk away from this, is
23 we've got to have plugs and seals. We've got to be able to
24 plug up the rooms, seal the rooms. The shafts that we dug,
25 we've got to be able to seal those up. So that, again, if we

1 do have accumulation of water or whatever that we don't have
2 cross talk.

3 The thing you're looking at there is one of the
4 ideas that we've come up with is we kind of make it similar
5 to adobe blocks, but we use powdered salt and add a little
6 bit of water--two to three percent water--put it under
7 pressure and we get like adobe blocks. And that's what
8 they're implacing there. Measuring to see how well it closes
9 and how well it seals. The idea being is the nearer you can
10 get to the native rock when you close, the more likely
11 whatever it is that you have done will be in harmony with the
12 environment.

13 Environmental programs--we have a radiological
14 baseline program and an ecological impact program. And to
15 get the baseline on what's really going on down at the WIPP
16 site we do that within a 50 mile radius we take all kinds of
17 measurements. The State of New Mexico has a parallel program
18 they just about duplicate everything that we do.

19 Here you can see they're out taking a look at the
20 plant life and that sort of thing. That's the waste handling
21 building in the background.

22 Waste transportation--just to put things in a
23 proper perspective there are 500 billion packages shipped
24 across the United States every year. That's all goods. One
25 hundred million involve hazardous waste; 2.3, or 2.75

1 packages involve radioactive material of one sort or another.
2 And just to get things in the right perspective with WIPP,
3 at the maximum, we're not talking in excess of a thousand
4 shipments per year going to WIPP.

5 This shows you where the waste will be coming from
6 to go to WIPP. There are 10 generating sites. Most of the
7 waste is either at Rocky Flats or at Idaho National
8 Engineering Laboratory. We had the Governor Rohmer from
9 Colorado down last Saturday and one of the questions he asked
10 us is how much waste do I have going through Colorado and of
11 the total of that number is 66 percent. So most of it is
12 coming from that direction. That's mostly contact handled
13 waste.

14 The remote handled waste primarily comes from
15 Hanford and Oak Ridge, again that's very small in comparison
16 to the contact handled. Most of that waste is generated as a
17 result of the Navy Submarine Programs.

18 Real quickly I'll talk just a little bit about the
19 following things there, and tell you what we're doing in
20 those areas as far as transportation is concerned. We have a
21 waste acceptance criteria. In that we have to insure that
22 all the generation sites use Type A packages that there are
23 no liquid forms, no explosives, or no pyrophorics. The
24 transporter itself will be NRC certified, early on this was
25 not the case. About a year and a half ago, when we abandoned

1 the box design that we were pursuing, we went to a
2 cylindrical design, and at that time we agreed to go for NRC
3 certification. In retrospect, that's probably one of the
4 smartest decisions we ever made. The design we have is non-
5 valent. It's doubly contained, it's been tested full scales
6 under accident conditions, I'll show you a little bit of
7 that. We even have somebody from NRC there witnessing those
8 tests. And again, Trupact II is what we'll be handling for
9 RH tests. A company by the name of New Pack is building that
10 for us. They're located up in the Seattle area. They're also
11 the contractor that will be designing and building the RH
12 casts. However, we are putting all of our priority right now
13 on the CH, since that constitutes 97 percent of the waste,
14 that's the thing we need to get moving. That's what we need
15 for our experimental program, so that's what we're
16 concentrating on.

17 This gives you an idea of what they will look like
18 going down the road. I don't think you could miss them. The
19 thing you see here is our real time trapping system. I'll
20 show you a view graph of that in a second. But we have a
21 satellite trapping system so we'll know the location of those
22 shipments at all times. We'll pre-notify the States, if they
23 so desire.

24 This gives you a view of what Trupact II looks
25 like. As you can see, it has an inner containment vessel, an

1 outer containment vessel, 10 inches of styrofoam, and then a
2 -- stainless steel, outer skin. The idea is that the outer
3 skin and the foam will absorb whatever impact we get as a
4 result of an accident. And one of the things we had to do in
5 order to successfully show this was can comply with NRC
6 requirements, is maintain the seal in both the inner and
7 outer containment vessels after it's gone through a very
8 extensive test program.

9 This shows a view of the first unit that we were
10 testing. This is a 30 foot drop onto a non-yielding surface.
11 We used battleship armor to drop it on. That's a very severe
12 test. We now are testing our second and third units, we have
13 a design flaw on this one. I don't think it was a major one.
14 It was very easily rectified and what we're doing now is
15 we're testing the second and third prototypes. We just
16 completed testing on the second prototype. We dropped it
17 three times from 30 feet, we had five tests where we dropped
18 it on to a 40 inch in length spike. And again, what we do
19 there in working with the NRC we select what we think are the
20 vulnerable points on those casts, and that's where we drop
21 it. Sometimes we drop it multiply in the same area to
22 inflict as much damage as we possibly can. Once that's done,
23 then its submerged into a liquid fuel fire--RP 1 fuel--the
24 requirement is we have to keep 1475 degrees fahrenheit for a
25 30 hour period. This particular test was up around 1800 to

1 2000 degrees and it burned for 38 minutes.

2 As far as driver qualification we have a contract
3 with Don Trucking. They will come up in the Farmington area,
4 Four Corner area of New Mexico. Some of the requirements we
5 lay on them is that the drivers have to be at least 21 years
6 of age, they have to have two years experience. The company
7 has to have an extensive training program. The drivers have
8 to have a good driving record. They certainly have to have a
9 drivers license and an annual physical.

10 The other thing we have is a very extensive program
11 where we go throughout the states, training the states on
12 emergency response. Right now our emphasis has been on what
13 we call the border states. These are the states which the
14 first shipments will go through. So what you have, you have
15 Idaho, Colorado, Utah, Wyoming and New Mexico. That shows
16 you when we started the tests there. We have three different
17 kinds of courses. The first is the First Responder Course,
18 and that's for the firemen, the state police, those people
19 who would be the first people on the scene--and that's a
20 one-day course. We've had over 1600 people in those five
21 states attend that course. We have Command and Control. As
22 you know in any emergency probably the most difficult of all
23 aspects is to command and control. That's a two-day course
24 and, again, we've had over 700 people attend that course.
25 And then finally, assuming the worst of all circumstances,

1 and that is, if we do have an accident and we do have a
2 material spill, then we have a Mitigation Course, we have put
3 on. What we're trying to do now is train the trainer.
4 Hoping that the states will pick up and perpetuate what we've
5 done. Quite candidly, I think that the we--DOE--are going to
6 end up in the training business, as long as we have a WIPP,
7 that's the way it's going to turn out, but--you can always
8 try.

9 This is a very busy chart and I'm going to talk
10 about each one of these individually. But this is really the
11 flowchart, these are the things that we need to get done
12 before we can open WIPP. So, what I'm really doing now is
13 I'm getting into the issues. I hope I'm doing all right on
14 time.

15 One of the things that we're going through right
16 now is our Operational Readiness Review. When we started out
17 we had over 16,000 items that we had to go through. That is
18 now down to about 88 items. Those items are primarily in
19 completing the fourth shaft that I talked about, after we
20 complete the fourth shaft, the air intake shaft, then we've
21 got to go in and balance the underground. The idea being is
22 that we always want the air flow in the underground to be
23 from the workers toward the waste, so that, again, if we ever
24 got a breached canister that there wouldn't be any workers
25 downstream of it. So we've got to very carefully get the air

1 flow in the underground the way we want it. We're predicting
2 that we'll be through with everything that needs to be done
3 inside the fence by April. And I might also say that those
4 are the things that we can control. However, there's some
5 things that we can't control that have got to be done also.

6 As far as the Pre-operational Appraisal is
7 concerned, we've completed--there's three phases--we've
8 completed Phase I, which is the non-nuclear. That is
9 anything that really doesn't involve the handling of nuclear
10 wastes; the fire system, things like that; the ventilation
11 system in the waste handling building, those kinds of things.
12 Phase II will be the nuclear. And then, normally, Phase III
13 would be checking out the underground flow system. That's a
14 long pull in the pen. On the Phase III we will probably have
15 our headquarters environmental health and safety people
16 participate in that Phase III assessment and at that time we
17 hope that we will be able to demonstrate to them that we
18 closed out everything that was found in Phase I and Phase II.
19 Final Safety Analysis Report--we're currently writing that,
20 that's one of the things that falls under Tim. But final
21 approval of that Final Safety Analysis Report is contingent
22 on successfully completing the Operational Readiness Review.

23 Trupact--as I said, we have tested one unit; the
24 second unit, we tested it--we dropped it three times, we had
25 five punch tests, we'll probably be having the fire test

1 on that unit either Thursday or Friday of this week. We hope
2 in early January to start the testing on the third unit.
3 There will be some cold--at least one cold or two cold--30
4 foot drops on that unit at minus 20 degrees. So the test may
5 have to take a little bit longer. However, we think that we
6 have a structurally superior design. It's a very unique
7 design as far as shipping containers go. We're very hopeful
8 and very optimistic that we'll be able to present a very
9 clean SAR to the NRC before certification.

10 NEPA--right now, again, Tim and his people are in
11 the process of doing an Environmental Assessment to look at
12 what changes have occurred since we did our original
13 Environmental Impact Statement back in 1980. We at
14 Albuquerque are taking the position that there really isn't
15 very many things that have changed and, again, I can only
16 speak for the Albuquerque operations office, not for the
17 Department of Energy; we feel that the Environmental
18 Assessment is sufficient. Not everybody agrees with me on
19 that, within the Department of Energy and other places. So
20 it still remains to be seen whether we'll have to go back and
21 do another Environmental Impact Statement.

22 The other thing we have is something we used to
23 call the Five Year Test Plan, however, we changed it, we call
24 it the WIPP Compliance and Operational Plan. And these are
25 the tests that we plan on doing during the demonstration

1 period to get the data that we think is necessary to do the
2 Performance Assessment to show that we are in compliance with
3 40 CFR 191. Once we have done that--if we successfully do
4 that--then it will become a permanent repository and we'll
5 open up the full operation.

6 Volume I is the experimental program, Volume II is
7 Operational Demonstrations where we'd like to bring in
8 additional waste and really check out the operation prior to
9 getting the thing going in a steady state operation. We hope
10 to have that done in March of this year. We just briefed the
11 National Academy of Scientists, which is one of our oversight
12 groups along with the Environmental Evaluation Group, they
13 both are very active participants in this. We're trying to
14 respond to the comments which they have previously given us
15 as far as that plan is concerned.

16 Brine seepage--I'm sure anybody that's heard of
17 WIPP has heard of the brine problem. When that hit the
18 papers it really wasn't anything new there. We had reported
19 some of the data that we were getting at least six months
20 before that to the National Academy of Scientists and to the
21 Environmental Evaluation Group. However, a group of
22 independent scientists did pick up on it. It did get a lot
23 of publicity. We are trying to generate more data. The NAS
24 did look at the issue and they said that while it could be a
25 problem the consequences of it and the probability of it

1 were--I think their words, very unlikely--and they suggested
2 that we continue to proceed with plans to place waste in the
3 underground. Since then we are gathering more data. The
4 more data we've gathered, the lower the porosity appears to
5 be. We're really pushing the state-of-the-art as far as the
6 measurements that we're making on porosity. And with the
7 passage of time we are becoming more and more confident that
8 it is a non-problem.

9 RCRA--and this is why I have Tim here. Basically
10 we have two problems on RCRA. One is that nobody in the State
11 of New Mexico has the authority to regulate mixed waste, due
12 to a regulatory snafu. The way we're attacking that problem
13 is that when the New Mexico legislature reconvenes, they will
14 have to amend their Hazardous Waste Act so that it does not
15 exclude WIPP. Right now it does. And the shipping sites
16 that we have--at least Idaho and Colorado--cannot ship to a
17 non-designated facility and so therefore they can't ship
18 wastes to WIPP.

19 Meanwhile, in order to speed up that process, we're
20 working on an MOU with the State of New Mexico, which in
21 effect recognizes that they already have authority. We can't
22 do anything until they get the authority but we're proceeding
23 getting everything done just like if they did have the
24 authority, we're just trying to save time. So that's the
25 first thing they were talking.

1 The second one is what's called the "Land Ban".
2 And this again is why we're, we--and a lot of other people
3 are precluded from placing hazardous waste in the underground
4 that has not been processed with whatever is available as
5 far as the state-of-the-art is concerned. And if that's
6 broken into three parts, there's three lists. The first list
7 went into effect I believe in November of this year, and the
8 second third will be a year from now, and the third third a
9 year after that. We're talking mostly solvents right now. A
10 lot of our material does have solvents in it. And a large
11 percentage of our material--like 85 percent--of the waste
12 destined for WIPP is mixed waste. We do have some that
13 isn't, but most of it is. So we have to find a solution on
14 the mixed waste. The approach that we're taking right now--
15 we've been talking to EPA extensively about this, and one of
16 the things that--one of the possibilities would be to have
17 EPA designate mixed waste as a newly designated material.
18 Which means that it would give us a two year period in which
19 to work the problem, during that two years there is a
20 provision in the legislation to go for a no-migration
21 petition. We think that in order to get a no-migration
22 petition that that process is a very extensive process--it's
23 almost like going to Performance Assessment--to literally
24 prove that you have no migration; no with a capital N, is
25 going to be a very difficult thing to do and we think that'll

1 take at least 18 months in order to do that it's going to
2 require a lot of paperwork. For right now, that's the
3 approach that we're pursuing, I'm not saying that's the
4 approach we're going to take but that's what we're looking at
5 right now. I got ahead of myself didn't I?

6 MR. CAMPBELL: Go back one.

7 MR. BICKEL: I was on Land Withdrawal. Excuse me.
8 Land Withdrawal--we cannot implace any waste in the
9 underground at WIPP until we amend the current land
10 withdrawal that we have from the BLM. It's BLM's land, that
11 land has to be turned over to the Department of Energy. We
12 are currently operating under an administrative withdrawal.
13 And again, that withdrawal does not allow us to place nuclear
14 waste either on the surface or in the underground. There's
15 one of two ways we can go on this. We can go administrative
16 land withdrawal which is only good for a specified period of
17 time, or we can go with legislative land withdrawal, which
18 is probably what a lot of you read about in the last session
19 of Congress. We really got wrapped around the axle on this
20 one. We had one version that was making its way through the
21 Senate, we had another version--or two versions I should say,
22 that were going through the house. The New Mexico delegation
23 is not in agreement on what the legislative land withdrawal
24 should have in it. So we literally got into a real quagmire.
25 When Congress reconvenes, this is another thing that we've

1 got to address. There's a lot of pressure on us--when I say
2 us, I mean the Department of Energy, to not pursue the
3 administrative land withdrawal. However, then when you talk
4 to people like Governor Andrews of Idaho, you know, he
5 doesn't agree with that approach. He feels like we should
6 pursue the administrative land withdrawal. There are other
7 people that do, too. So again, we're kind of caught in the
8 middle, but right now I can just say the Albuquerque
9 Operations Office, since we are located in New Mexico, our
10 preference is to go with the legislative land withdrawal. I
11 don't know what the Department of Energy will decide, or what
12 they're strategy will be. As you know, we're going through a
13 transition right now, we're going to have new players and
14 certainly this is going to be one of the key items that the
15 transition team is going to have to take up.

16 This is my next to last slide and all I wanted to
17 do here is show you that we literally live in a fishbowl. We
18 got everybody looking at us and its real funny. I told the
19 WIPP Project Officer just this morning that I feel like we're
20 in a ping-pong game and we're the ball and we get slapped by
21 one person and he makes a little topspin on it and then the
22 next guy comes back and he puts a little bottomspin on it,
23 then it gets slammed a few time; but it's certainly
24 interesting. Those of you who are working on a High-Level
25 Waste Repository, I don't envy you and don't call me.

1 So in summary we feel that the facility has been
2 designed for the safe storage of disposal of Truwaste. We
3 feel like we have a very good transportation system. We
4 certainly have some environmental issues that we still have
5 got to resolve, and the land withdrawal also needs to be
6 resolved. So with that, I'll open up to any questions
7 anybody might have. I apologize for going so fast but--

8 Q. Greg Shawn again. How do you manage to demonstrate
9 in five years compliance with regulations that talk about
10 millenniums.

11 A. The question is how do we demonstrate in a five
12 year demonstration period what's going to occur over a
13 10,000+ year period. Well, first of all, the main thing that
14 you've got to demonstrate is what's going to happen during
15 the 70 to 80 years that it takes to get room closure and
16 that's what we're predicting that it'll take. And what'll
17 you have at that point and time when the room does seal back
18 and the waste is entombed in the waste medium. So most of
19 our experiments of what we're really directed at is knowing
20 what exists at that period of time. Are there brine pockets,
21 if they're brine pockets are they interconnected this sort of
22 thing. As far as beyond that if you know what you've got at
23 the end of the 70 to 80 years, our position is that salt has
24 been there for 225 million years, so if you end up
25 essentially with what you had before you went in there and

1 started mining, there's every reason to believe that it'll be
2 there tens of millions of years to come. As far as the
3 probability assessment is concerned, I think that you're
4 leading up to is that Sandia is doing that, and that's a
5 problemistic analysis. And everything that we do is based on
6 probabilities. We have to come up with a scenario tree where
7 we look at all the various scenarios that can happen. What
8 are the mechanisms that can cause water to migrate or
9 whatever. And the thing that we're finding is that the only
10 real tough one that we've got where it's tough at this point
11 in time, but we hope we'll be able to demonstrate is the
12 human intrusion scenario. And what you're worried about
13 there is you have to worry about some person--we can only
14 take credit for institutional markers and things like that
15 for 100 years--so from 100 years up to 10,000 we've got to
16 demonstrate that some guy doesn't come along 2,000 years from
17 now--he knows that there's minerals in the area, potash and
18 gas--drill down into the repository and when he does that he
19 hits a pressurized brine pocket and you've got nuclear waste
20 intermixed with that, he brings it to the surface, and it
21 exceeds the standard. The probability of getting a drill
22 hole based on the EPA standards and probabilities, it might
23 be NRC, which is it? EPA? Is that we can have based on the
24 numbers they gave us, that we can have 4.2 intrusions into
25 the repository based on the volume that we got and the

1 statistics and everything over the 10,000 year period.

2 Q. Repeat the question?

3 A. Who are we going to demonstrate that we can in fact
4 meet those standards? And there have been a lot of
5 discussions on that. Certainly we will have to be able to
6 demonstrate it to the satisfaction of the National Academy of
7 Scientist. We'll have to be able to demonstrate it to the
8 satisfaction of the State of New Mexico's Environmental
9 Evaluation Group, and again, this has not been decided at the
10 highest levels of the department. We talked about it, and
11 the way we're leaning right now is that we would go to the
12 EPA to make that determination.

13 Q. Given that you're going to have to do modelling to
14 demonstrate compliance with the EPA standards, and given that
15 the room closure rate is 70 years, why do you need to put
16 waste down there for five years? What are you going to
17 learn?

18 A. There's certainly been a lot of controversy as to
19 whether we needed to place waste in the underground. That's
20 a comment that's been leveled at us--Congressman Richardson,
21 the EEG, the National Academy of Scientists, to be quite
22 candid, they were very critical of our first draft of the
23 experimental plan, where we were talking about taking this
24 heterogeneous waste, placing it in five rooms and then trying
25 to make measurements as to what that gas rate would be coming

1 off of that waste. And you know, we felt like we needed
2 enough in order to do a statistical evaluation. We have gone
3 back and we've done a lot of soul searching over the last six
4 months or so looking at that, and again, what I'm telling you
5 is still a fluid process, there have not been any firm
6 decisions made, but what we're looking at now is a series of
7 laboratory tests where Sandia Laboratory would very carefully
8 mix some waste up in the laboratory setting and run
9 experiments. The second thing that we're looking at is just
10 some intermediate scale tests where we would take like four
11 drums of waste, we would place it in bins, boxes, whatever
12 you want to call them and we would add slurry--various
13 quantities of slurry, backfill material, whatever. And kind
14 of run a series of parametric studies as to how it would
15 react, what would be the gas generation rate, and that sort
16 of thing. Those tests that I'm talking about, with the bin
17 test, would not have to be done at the WIPP site.

18 The third thing that we're talking about, and I'm
19 getting into a land where we still got differencing opinions
20 in the department, but there still is some talk that while
21 that data would not be available to be fed into the
22 Performance Assessment, we would still like to do a series of
23 tests where we did bring in some small quantities in the
24 rooms--I've heard the number four or five rooms--like 2000
25 drums per room and place the waste there, and again to run

1 some various experiments. But the third thing that I just
2 described to you is still up in the air, we haven't made a
3 decision on whether we're going to do that or not.

4 Q. I'm Frank Vixen, with the University of Nevada, as
5 an interested citizen--

6 MR. BICKEL: Everybody's an interested citizen
7 where WIPP's concerned.

8 Q. --now there's a controversy in geology about how a
9 salt diaper is formed. They seem to be caused by a
10 lessening density combined with high hydrostatic pressure.
11 Have your people modelled these kinds of systems?

12 A. The question is what have we done as far as
13 modelling the mechanisms by which the brine flows in through
14 the underground repository.

15 Q. --and then goes up as a diaper.

16 A. And then goes up as a diaper. I'm afraid you're
17 getting beyond my--the only thing I can tell you is that the
18 thing that we're finding as far as what we think is causing
19 the brine inflow into the mine, is that it is much like a
20 very dry sponge. When we mined the mine out, the pressure in
21 the mine itself is atmospheric. Right outside you go back
22 into the wall about 30 inches you've got isostatic pressure,
23 which is about 2200 psi, and you get some fracturing when you
24 mine it. So what happens is, is that there is water that
25 when the salt was formed, you had a seabed which was drying

1 out, but there were minute particles of water which were
2 trapped in the crystalline structure. So what happens is, is
3 that with that pressure differential, it's like squeezing the
4 sponge and you squeeze that water out. And one of the things
5 that makes us think this is the correct mechanism is that we
6 do notice that when we first mined we see more water coming
7 in than we do with the passage of time, it's sort of
8 exponential. Now as far as mechanisms to get it to the
9 surface, any pathway that we create--that's the reason we
10 have our Sealing and Plugging program, we plan to seal and
11 plug the rooms, the shafts. We'll plug the shafts at the
12 bottom, we'll do it up the key way, we'll do it at the top,
13 and in between we'll fill it up with backfill salt and try to
14 speed up the closure as fast as we can. Now I don't know how
15 good a job I did--

16 Q. I'm curious, you said that when the plans for a
17 repository in Deaf Smith County were cancelled, then all of
18 the research programs on salt and rock mechanics were
19 terminated, are being terminated. It seems that you'd still
20 be interested in that, why were they all terminated?

21 A. I'll let the high level people answer that
22 question.

23 A. You're talking the law required that they
24 terminate all those other activities. That when they passed
25 that they said they focused the resource of the nation on the

1 Yucca Mountain, and to terminate the other activities. So
2 they're required to phase out in 90 days.

3 JUDGE LAZO: Jim, thank you very much for a very
4 informative talk. Now we have coffee and soft drinks in the
5 back of the room let's take a fifteen minute break and try to
6 be back by 3:45 please.

7 (Whereupon a short recess was taken.)

8 JUDGE LAZO: Could we come to order please? Now
9 let us try and start please. We're running a little bit
10 late. Our next speaker is Hugh Thompson. Hugh is Director
11 of the Office of Nuclear Material Safety and Safeguards for
12 the NRC. His topic is the High-Level Waste Repository
13 Licensing Management Problems and Assessing Performance. Let
14 me just remind you again, if the speakers would identify
15 themselves when they stand up with questions, it would be
16 helpful for the reporter. Hugh, we have run over a little
17 bit, but we are not going to cut you off or get the hook
18 just take whatever time you need.

19 H I G H L E V E L W A S T E R E P O S I T O R Y

20 MR. THOMPSON: Thanks. You'll be the first one
21 that's never cut me off I'll tell you that. Well, first I
22 want to thank all the lines for arranging and having the
23 foresight of scheduling this meeting so that I could leave
24 the arctic east at 16 degrees this morning and arrive here
25 very, very warm. In fact, I had enough time yesterday to

1 switch planes from leaving from Washington, D.C. after Dallas
2 beat the Redskins to fly to Baltimore so I didn't have to pay
3 that \$10 tax on the Dallas airport there. I bring you
4 greetings from the NRC's holiday party. It was an excellent
5 celebration we had the night, with the chairman and Senator
6 Stello, but I must admit I had a long time explaining that
7 there was no truth to the rumor that Tony scheduled this
8 meeting on the 12th because the licensing panel last year
9 only bought two tickets to the party. So, we're watching you
10 Tony, I don't know about this.

11 One of the things that's been very important to me
12 and to Vic Stello has been for the regulatory process to
13 receive the appropriate amount of attention in the local area
14 in which the repository is situated. And in particular, I
15 was a little disappointed when I opened up the what's
16 happening in Las Vegas, and saw that the Asphalt Plant
17 Maintenance folks were noted, but the NRC meeting here wasn't
18 noted. So I don't know whether you did such a good job or
19 not, but I certainly appreciate--

20 Actually I was a little disappointed in the
21 schedule when I looked around and saw that Sergeant Leins was
22 having the troops muster about 6:15 to sneak out of town to
23 head in Nevada, and come back after sunset. So I don't know
24 how you guys are going to get your exposure to the State of
25 Nevada, but I think--Carl, we'll trust you and Mal to make

1 sure the folks are properly aware that this distinguished
2 group is here; that they do have a very important role, quite
3 frankly, in the program; and that's why we wanted to be out
4 here today to talk about what I thought--where our major
5 overview of the program--and I don't know how I got to talk
6 about the Performance Assessment activities because I may
7 stretch myself a bit today. If I stretch myself too far
8 we'll be talking to you later. But in any event, we'll kind
9 of give you a bit of the Performance Assessment activity now.
10 Elva, is you could pass out some--there will not be a quiz
11 right after this--so you can have a fairly reasonable
12 expectation. We did have some handouts that will cover the
13 presentation.

14 Certainly, I will try to make up a little bit of
15 the time. My body said happy hour started about an hour ago
16 so--

17 You've already got the second slide, Jack's ahead
18 of me here. A couple things that we wanted to talk about
19 here is the big picture. I won't discuss transportation very
20 much because although that is a very key important thing, it
21 really will not likely come before the licensing board. I'll
22 touch briefly on the MRS--which isn't in your handout, but
23 just so you know where we are there--focus on the repository
24 and then talk about Performance Assessment.

25 I think it would be helpful, Tony, that after I get

1 back, and after you've had a chance--and the members of the
2 panel--to digest the conference here, I'll ask you if you can
3 identify any other areas of uncertainty or any other
4 procedural activities that we may ought to reconsider. I
5 know you addressed it a few years back but I think we're all
6 a little bit smarter now than we were back--well, I'm
7 smarter, I think we're all smarter. At least I'm more
8 knowledgeable maybe we can see if there are other areas of
9 uncertainty that may be apparent to you now that were not
10 apparent to you before.

11 Well, I guess we'll let you re-endorse your
12 recommendation. I think we have adopted a number of those
13 activities, I think there were a number that were not
14 adopted, as I remember at that time, and maybe we ought to
15 re-think those things. I do know--is this being recorded?
16 Well, that's going to take away all the jokes but that's all
17 right.

18 Well, the first thing we have here is the MRS. As
19 you know, we are required to license the MRS, and we issued
20 our PART 72 in final form to cover MRS--this is not in your
21 slides so you don't need to--that's what the blank side of
22 the other page is there if you want to take notes on it--a
23 couple of key things that I want to mention on MRS. The
24 first one is, it's a one-step licensing process. We're
25 looking at that as one area where we would look at the whole

1 kit and kaboodle together. And it's one that probably is
2 conducive to that because we've looked at a lot of those
3 facilities, they aren't that complex. And it's one where I
4 think we can really have administrative process that will
5 allow us to do that. We would have a notice for a hearing
6 and I would anticipate there would likely be a hearing in
7 these cases. And we right now do not have the statutory
8 mandate to adopt DOE's Environmental Impact Statement as we
9 do in the repository licensing arena.

10 And in that case, the role that the staff currently
11 has with respect to the preparation of the Environmental
12 Impact Statement and any related hearing activities that
13 might be associated with that are still not clear.

14 My own personal expectation is that it makes sense
15 for us to adopt DOE's Environmental Impact Statement
16 consistent with CEQ guidelines to the extent practicable.
17 Recognizing that the CEQ comments on PART 51 about the
18 mandatory adoptions of those guidelines now are before the
19 staff for review and before the commission for adopting. So
20 I would anticipate that whatever guidance we would get from
21 that process will probably go a long way in establishing what
22 we would look for, for the EIS for the MRS.

23 One last thing right now, we really don't have much
24 activity on-going with respect to the MRS--simply because DOE
25 has the various constraints placed upon it with respect to

1 the MRS review commission and the Nuclear Waste Policy
2 Amendments Acts which kind of stopped the termination of the
3 MRS in Tennessee at least for the near term. And we aren't
4 expecting to spend many resources in this area. If the
5 current time frame holds true, we would not expect an
6 application from DOE until about 1995.

7 Now if I turn to the next slide, which is what I
8 would say is our current High-Level Waste Milestone Chart.
9 And a milestones kind of basically come out and tell you that
10 the staff is starting now. The staff is starting its major
11 interaction both in a reactive and a pro-active mode to the
12 real efforts of DOE. The first one is this month, toward the
13 end of this month, we expect to have DOE's initial Site
14 Characterization Report. This is the one that will trigger
15 the public meeting in the State of Nevada in a few months.
16 It's the one in which we will give our comments on the
17 exploratory shaft. And if you look at the repository program
18 itself, it's basically in about five phases. The first one
19 is called the Pre-Application Phase. And the Pre-Application
20 Phase would be where we are now. That's the Site
21 Characterization Plan review, and that's prior to submission
22 of their construction permit application.

23 Now the next phase would be the Formal Licensing
24 Phase. That's the one that you're going to be directly
25 involved in, of course you will be involved in some aspects

1 of the pre-application, but both of those will be very
2 important roles for you to play, particularly the licensing
3 one, and that's the two phases where most of our program
4 today is focused.

5 The third phase will be an Operational Phase, in
6 which--the period of time when the repository's open. Then
7 we'll have a Permanent Closure Phase. We will license the
8 closure of the facility. Then there will be a License
9 Termination Phase.

10 I doubt that many of us will be employed in the
11 Nuclear Regulatory Commission when they finish these phases,
12 so--and we talked earlier about having a system in place that
13 maintained the continuity of the activities; the information
14 that was available; those are some--this is a long term
15 program. With respect to a couple of those things, I think
16 its kind of interesting to note--and I think maybe you heard
17 a little bit about it today; between the milestones of key
18 importance right now, the submittal of the Site
19 Characterization Plan at the end of this month, and about a
20 year from now the starting of the Exploratory Shaft Facility;
21 that activities that the staff has on-going right now with
22 respect to the Quality Assurance Program that DOE has on the
23 way, as well as the design aspects of the Exploratory Shaft--
24 are very, very important to me and to our staff to making
25 sure the program gets off on the right foot--with respect to

1 those activities.

2 We have lessons learned from utilities and other
3 licensees who started down the road, did not have an approved
4 QA program, they had data that they couldn't use, they had
5 materials now they couldn't justify, so we think it's very
6 important if DOE is not going to waste money that they
7 properly characterize the site's using a program that has
8 been approved by NRC and that the Exploratory Shaft Design
9 clearly addresses the Waste Isolation criteria required by
10 PART 60. Those are key things that we'll be doing in the
11 near term with the staff interfacing with the State of
12 Nevada, the Counties, and DOE in looking at those issues.

13 Just as a kind of an interesting thing, when I
14 looked at this on the--remember there's that old story of the
15 power of 10. Well I have my own schedule of 10 here. About
16 10 years from now the CP decision will have been made
17 whether to start construction or not. About 10 months from
18 now there's an Exploratory Shaft decision would need to be
19 made as to whether the DOE can start. About 10 weeks from
20 now the staff will be in the middle of their SCP review.
21 About 10 days from now, DOE will be finalizing its submittal
22 to get it ready for submitting to NRC, about 10 minutes from
23 now I'm going to be seeing who's going to be falling asleep
24 in this lecture, and about 10 seconds from now Jack is going
25 to change the slide.

1 Existing framework--our key regulatory framework--
2 and that's what we are--we do our aspects in the framework--
3 is PART 60, that's our health and safety aspects. PART TWO,
4 which is the rules of practice which you obviously are
5 involved in, but both also involved in PART 60 in the
6 interpretations and determinations that we have to make.
7 PART 51 deals with the Environmental Impact Statements and
8 our requirements there. We'll talk about that in just a
9 minute because that is one of the other changes that are on-
10 going. We also have numerous branch technical positions--or
11 technical positions--in fact they are a little bit more than
12 branch technical positions, and one regulatory guide.

13 We have found that in developing this, since these
14 regulations are for the first repository, and there certainly
15 don't seem to be a lot of them on the horizon and they're all
16 very site specific in this respect, the formal process of
17 going to regulatory guides may not be as appropriate for this
18 as technical positions. We want the review process to be the
19 same, but it may be we're not quite mature enough to go
20 through the process to develop regulatory guides to the
21 extent that if you have to make a change to a regulatory
22 guide its a very elaborate, very structured, very methodical
23 approach, and the time frame we're working on right now the
24 staff resource and effort seems to be, in my view, better
25 developed at providing technical positions. Jack you want to

1 try another one.

2 We are looking at PART 60. It was developed a
3 number of years ago with the best judgments of the staff and
4 the public to make comments on it. We're looking at a couple
5 of key areas. One is the effort to resolve potential
6 licensing issues by reducing uncertainty. One of our key
7 elements in the Center, which we have down in San Antonio, is
8 looking at all our rules and regulations with respect to are
9 these uncertainties that should be properly clarified. Now,
10 there are going to be a lot of uncertainties particularly the
11 ones related to site specific activities that it will not be
12 appropriate to go into rule-making at this time, but there
13 are ones dealing with definitions and methodology type that
14 may or may not be appropriate for us to do that.

15 One of the key things since we have a very limited
16 statutory time frame to do our licensing review, that's your
17 role and my role. That's to insure that DOE understands what
18 information they have to provide for us and to address. So
19 one of the things we want to make sure is that we have a
20 reasonable probability that DOE understands regulations that
21 they're going to be expected to meet.

22 And with that, then, we believe that the staff can,
23 and the NRC can make its three year licensing determination.

24 With respect to the uncertainties, we kind of look
25 at them in three aspects. The regulatory, the technical, and

1 the institutional.

2 The regulatory is the ones I just mentioned to you
3 about what's the definition of Disturbed Zone, what's those
4 types of meanings that are going to be very important in the
5 hearing and ones which the parties and the public should
6 clearly understand, as well as DOE, ahead of time but ones
7 that really will not be as important from an effective
8 licensing program and can be resolved now.

9 Other ones are technicals. How do we go about
10 addressing the technical criteria. Many of those may really
11 await the results of the Site Characterization activities.

12 And then institutional ones, these are ones that we
13 have dealing with the Environmental Impact Statement for
14 example about what extent are we able to adopt the DOE
15 Environmental Impact Statement, what role do we have
16 vis-a-vis EFA and EPA's regulatory changes on groundwater
17 standards, and that we have to go through a process of
18 adopting those to make sure that we have our regulations in
19 affect.

20 Regulatory uncertainties, I look at them as
21 primarily the NRC role and responsibility. We are the ones
22 that are called upon to make the framework in which the
23 decisions will be made and we need to insure that this is
24 done reasonably well. Currently we have before the
25 commission SECY 86-285, a number of rule-making activities

1 that we see that are potentially ones that could be useful in
2 addressing some regulatory uncertainties. The one thing
3 about those is that the resources that we have to go through
4 the full rule-making process obviously takes away from
5 resources that we have available either to do the Site
6 Characterization Plan reviews, or to do some of the
7 development of the other branch technical positions.

8 And also rule-making has its own litigative risks
9 that would tie up resources that if you go forward and do not
10 have a substantial basis for your activities we can find our
11 resources being tied up on that one. Likewise the regulatory
12 guide that we have is one that's quite appropriate to
13 develop and that's the standard format and content. DOE
14 needs to know how to communicate that information to us.

15 If we look at technical uncertainties, this is what
16 I view as principally the DOE responsibility. That's why
17 they've got all those big bucks, that's why they are out
18 there doing the Site Characterization activities and that's
19 what we look to them to do to our satisfaction. And what we
20 have to have is a framework into which to independently
21 evaluate and audit those activities so that we can have
22 reasonable confidence and can develop a staff's position and
23 present that position to you in a normal adjudicatory hearing
24 and have you make a judgment as to whether the standards
25 have been met.

1 Right now we're going to focus some aspects on
2 those areas, and try to identify those that have the higher
3 uncertainty associated with them. And on our technical
4 positions, the key element--when I say the technical
5 positions--that's what the staff is going to be developing as
6 its acceptance review. And it's what is the staff's review
7 plan, and how we're going about doing our own review of
8 those areas. And that's where we currently have 10 developed
9 and there are 22 that are under development. And that's kind
10 of what I look at as a pro-active. That's the things that
11 we're doing not in response to DOE's submittals or dialogues
12 or issues that have been raised because of DOE, what we're
13 doing now in those aspects we call reactive. We kind of
14 react to TVA--not to TVA--that's another common agency, I'm
15 not sure what they're doing, the guide did that to me, he
16 said good luck on TVA--but the DOE technical meetings that
17 we've had up here we've mentioned some others on QA and
18 Exploratory Shaft, and we are auditing the activities that
19 are on-going at the site. There are not many activities on-
20 going at the site as you will kind of go out there and see
21 tomorrow. But the DOE, before they start up any significant
22 new Site Characterization Activities, NRC should be on board
23 with the QA program and then monitor those technical
24 activities.

25 Once we have the Site Characterization and Plan the

1 program will automatically update. It has about a six month
2 update time frame associated with it and that's another area
3 in which the staff resources will be looking at the updates
4 and the study plans. Auditing those activities out there,
5 there are eight major contractors that are on site that will
6 be doing things that will be important for us to audit.

7 Let's see. I'm going to be on slide nine now.

8 When we talked about reducing institutional
9 uncertainties, again the two key ones that we're talking
10 about, and you heard one of them today was the Licensing
11 Support System which is the negotiated rule-making which has
12 been developed. As well as some other changes to PART TWO
13 which are included in that package consistent with negotiated
14 rule-making activities and the PART 51 which was the
15 Environmental Impact Statement adoption. That, both of those
16 are out for public comment now and we will be going down to
17 the commission to resolve those. There are likely to be
18 others to come out of the program that will be very useful in
19 establishing a better framework hopefully for us to do our
20 licensing review in a timely and efficient fashion.

21 Licensing Support System--I know you've spent some
22 time on that and there was only a couple things I wanted to
23 add. In the first part of it, one of the comments you may
24 have heard today is it seemed to be a system for lawyers.
25 Well, it's really also a system for the technical review

1 folks. The technical reviewers have a significant amount of
2 material that they have to be aware of that my staff is, and
3 one thing we want to make sure is that we have the capability
4 to have full text retrieval, search capabilities to make sure
5 that we do a thorough job in our audit.

6 So when you're looking at the potential benefits of
7 that system, I think it has a significant benefit for our
8 staff being able to go through hundreds and hundreds and
9 hundreds of documents, that are going to be very important
10 for us to do that. And be able to do it in a timely fashion
11 and be able to use the key word search capabilities if we
12 think it has the capability to be developed I think it will
13 be very useful for us. Any system can be misused, and I
14 think it's again as Tony said before he left, your job is to
15 insure that the licensing process is effectively utilizing
16 and complies with the regulatory standards that we have for
17 these administrative hearings.

18 The thing I want to focus on is the Licensing
19 Support System to me provides an expectation--in a system
20 that would support an expectation of a clear, scheduled
21 hearing that's consistent with the three year licensing
22 review process. I mean that's the whole purpose behind it;
23 includes the discovery issues, and because it includes the
24 schedule, what I would call the schedule template, there's
25 some key things that in my own view are essential if there's

1 going to be reasonable results for this big effort that
2 we're putting out in the Licensing Support System. And I
3 guess I'll identify that in just a moment.

4 I don't think I have anything else to add on that
5 one. The other one has the negotiating people and that's
6 pretty much the same, the issues were ones I think have been
7 applied earlier. And what I would add to the issues is that
8 if there's any question in your mind that you are going to
9 be able to effectively establish a schedule, then when we
10 talk about the next page I'll kind of show you where I think
11 that would kind of come forth.

12 One other thing that's in there is a index of kind
13 of the materials to be included in the system. And to me
14 they are very appropriate but there are two that seem to
15 stand out as potential, as I would say it, misleading
16 categories. And the two that are the potentially misleading
17 categories--and I say misleading categories simply because if
18 the rule-making process proceeds as we anticipate that it
19 would proceed and consistent with the statutory mandate, the
20 Alternative Site Evaluation, that is alternative to Yucca
21 Mountain, it is not clear how much material would actually
22 need to go into the system to support our licensing
23 activities as to support to the appropriate questioning of
24 alternatives under the NEPA statement that DOE has. The
25 system may in fact be very useful for allowing DOE to

1 evaluate, and that may be the reason its in there, but it
2 ought to be very clear to the participant's and the parties
3 that because that category of information is being put in the
4 licensing support system that undue expectations that there's
5 going to be a NEPA hearing debating alternative site
6 selection seems to me to have a potential to mislead the
7 public and mislead others.

8 The same way as with transportation. Clearly our
9 regulations have--when we have certain responsibilities for
10 transportation--we don't have a lot of responsibility for
11 transportation routing. That's the Department of
12 Transportation, we have a Cash Certification, which is PART
13 71 I think--if I get my parts all right. Anyway, and we have
14 a different framework for making those judgments than in a
15 adjudicatory licensing hearing. And to have transportation
16 included in the Licensing Support System as a subject matter
17 which was negotiated by the parties may in fact--you may
18 thing the Governor of Nevada may want to put all sorts of
19 discussions about transportation and response capabilities in
20 the system because he thinks he's going to be able to
21 litigate that at the hearing. And so it's going to be
22 important that false expectations not be created by including
23 that bit of information in the system.

24 Now the next page shows where I think you're going
25 to come to bat and my--just so the State of Nevada doesn't

1 fall off if they are still here--there is a typo on that
2 paper where the commission doesn't make a decision 250 days
3 after submittal while we're still doing our review. That
4 should be 1,250 if you want to correct your document. I
5 apologize for the QA on this, but I did catch it anyway.

6 But this schedule to me is exceptionally important
7 in the board's ability to manage the hearing, and in
8 particular what I would see is the evidentiary hearing
9 period, which is not long. It is 90 days. That's from 700
10 to 850. And what that says to me is that given the
11 information that's going to be presented to the board, if the
12 staff finishes their Safety Evaluation Report early, then
13 there's more time for evidentiary hearing. I think we're
14 saying that they are time frames that have to be established
15 for parties presenting the information; they have to be times
16 established for parties in cross-examination. And the
17 judgments that you make, and the ones that we're looking at,
18 is looking at that evidentiary hearing being done in a 90 day
19 period. That's a 90 calendar day period. So those--to me
20 if there are major issues from this board--this panel, that
21 that is not a do-able thing, we need to make sure we hear
22 that or the commission needs to make sure they hear that; and
23 know that the part of the program--that we are moving forward
24 to adopt--the Licensing Support System, has some questions
25 about it. And that kind of leads me to the next one, this

1 independent review capability we've been talking about is the
2 License Application Review plan.

3 The thing that we need to do, the thing that my
4 staff will be doing is focused on having a full, a very well
5 defined Licensing Review Plan with review criteria
6 established, and the plans in place and with a Performance
7 Assessment strategy. And this is a new area for us, we
8 haven't looked at Performance Assessment as the key
9 foundation for your licensing decisions. And the standard,
10 the reasonable assurance standards that we've had in the
11 past; is--you're going to have less reasonable assurance
12 because the period is going to be longer. And it's going to
13 be ones dealing with probability. So it's going to be a
14 different standard--we don't have a lot of case history to go
15 out and interpret what you're doing in this case--so it's
16 going to be a real challenge on that.

17 And so I guess we'll move on to the Performance and
18 Standards which kind of brought me around to the stories I
19 can't tell but I'll tell half of those I can tell I guess.
20 But Magruder High School, where my daughter goes to school,
21 had a play this past weekend. And they were selected--it's
22 called Brighton Beach Memoirs. Brighton Beach Memoirs is
23 when--I didn't know what it was until I got there and I saw
24 this little sign that says PG, parental guidance suggested,
25 and there are scenes of x, y and z. So I didn't really let it

1 bother me too much and then you get into the play and there
2 are rather exciting dialogue that Neil Simon wrote in the
3 play that certainly the movie will not be going to the
4 grandparents who go--but the Performance Assessment was that
5 the kids did a super job. They were selected by the
6 International Thespian Society to go to Muncie, Indiana. And
7 they were judged based on their performance. There were no
8 standards, it was not based on how well the lines were read
9 or how many miscues there were, it was kind of the
10 performance of getting the message across as opposed to; did
11 they show up? did the lights come on? which is more the
12 deterministic type of reviews that we've always done in the
13 past. And certainly the play will go on and the elements are
14 the ones which I always found was performance.

15 (Pause.)

16 Well we are early in the stage of performance
17 assessment. But let me tell you what performance assessment
18 is as we see it today. First it is, Jack it's on the next
19 page there, that's where it is. It's a term for the
20 quantitative, mechanistic assessment of disposal system
21 performance. --that's 15. Did you drop them all or just one
22 of them?

23 And what it is, it's very similar to the
24 probabilistic risk assessment that you're probably more
25 familiar with in the reactors. Waste Performance Assessment

1 is concerned with the physical processes over very long
2 periods of time. It's going to be important for us in site
3 evaluation, that is the actual site determinations. It'll be
4 useful in evaluating the engineered features--that is the
5 waste canisters, et cetera. And obviously its going to be
6 the key criteria that we'll be making in the licensing
7 decisions. And what we're trying to do, we're trying to
8 avoid in our situation the circumstances others may have
9 found themselves having a repository built and still trying
10 to define whether their site could meet the Performance
11 Assessment standards. At least, when we go through our
12 review for this construction permit time, based on the Site
13 Characterization Activities, we intend to have a reasonable
14 level of assurance that the performance standards can be met.

15 Our regulations will incorporate the EPA standards.
16 That again, is once those standards have been finalized. And
17 it'll look at containment requirements, it'll look at
18 individual protection as well as groundwater protection and
19 there are various probabilistic aspects associated with each
20 of these determinations.

21 The individual barrier performance is based on the
22 Waste Package containment, the Engineered Barrier Release
23 systems and groundwater travel times. And below that you
24 have some kind of performance objectives. For instance, the
25 waste package containment's supposed to provide waste

1 isolation for the 300 to 1000 year time frame. The
2 Engineered Barrier System release rate shouldn't be more than
3 one per 10,000 year period. And the groundwater travel time
4 should be 1,000 years to the accessible environment.

5 And these are all looking at activities at
6 developing scenarios, developing methodologies, developing
7 database, that will be used in the licensing hearing
8 associated to project each of these. We'll also look at
9 various individual protection activities such as the 25 --
10 body during the first thousand years and the various
11 groundwater protection standard.

12 Well why don't we apply performance assessment?
13 Well, in performance assessment we rely on the natural
14 systems and it's because it involves activities that have been
15 going on for so long and they have sources of uncertainty and
16 they must perform for these thousands of years. That is, we
17 don't anticipate not having the system to have to be modelled
18 that long for that lengthy period. And again, the nature of
19 the repository licensing regulations is based on performance
20 standards. Now the performance standard again, I mentioned
21 earlier, is a different the higher reasonable assurance
22 standards that you'd normally experienced in the reactor
23 licensing process.

24 We look at four elements of performance of
25 standards. The first one is to identify and screen the

1 scenarios. That's identifying the events and processes that
2 could conceivably result in a physical release and combine
3 that event with release to the environment. It's a broad
4 review, and you kind of look at all combinations of these,
5 and it could be hundreds and hundreds. And then it's
6 hundreds and hundreds with respect to the various isotopes
7 that you're going to make a determination against. So what
8 we're trying to do is be very smart and identify these
9 scenarios in a way that we can focus on the few scenarios
10 that are the key critical ones for determining whether or not
11 the site meets its performance standards.

12 We'll also identify future changes in the climate.
13 There you know, when you're looking at a 10,000 year period
14 there could be significant changes that would be required to
15 look at. Most of us have trouble figuring out what the
16 temperature is going to be next week, much less 10,000 years
17 from now.

18 We can use performance assessment to screen out the
19 implausible. Those things that just really can't reasonably
20 be expected to happen. There is a certain criteria to screen
21 those out. There's the volcanoes down in the southeastern
22 part of the United States. And use it as individual barrier
23 performance when you consider anticipated events and the EPA
24 standards which requires us to consider anticipated and
25 unanticipated events.

1 The second phase of performance assessment is the
2 consequences of these activities. And the ability to develop
3 a model that would let you evaluate those consequences.

4 The third one would be the sensitivity and
5 uncertainty of the data. That's not on your slide but that
6 goes basically with the data there. It's the uncertainty
7 associated with the parameters and the data that you have and
8 then you put all those together to come up with your
9 regulatory compliance.

10 Well where do we stand with respect to the
11 responsibilities performance assessment. And the current
12 situation is that the primary burden rests with DOE although
13 it is a regulatory standard that must be met, DOE is the one
14 who is developing with various oversight activities
15 associated with justifying the Yucca Mountain site. NRC is
16 not going to do that work. We are going to be independent of
17 that work. Our job is to have a review process. A review of
18 DOE's program, and if necessary development of our own.
19 Licensing models that will give us our capability to look at
20 them independently. In that area, we have what we call some
21 pro-active work and to provide us that capability to do that.

22 This pro-active activity at one time was being done
23 by Sandia and because of our concerns about Sandia being a
24 DOE contractor, we are refocusing those activities to the
25 office of research and our own staffs in Washington, and we

1 will probably eventually have our center down in San Antonio
2 sufficiently knowledgeable in that, but Guy Arlotto and his
3 people are a key element in our ability to do this
4 performance assessment aspect.

5 We are looking at the rule-making that we'll have
6 to adopt once EPA finalizes their rule to do that. And then
7 just the technical positions as to what it means. Likewise
8 we will need to develop the assessment capability that I was
9 just talking about.

10 And now it comes to play primarily when we start
11 reviewing DOE Site Characterization Activities. Performance
12 assessment early on is one mechanism for us to be able to
13 assure ourselves that DOE is looking at the right information
14 with respect to site characterization activities.

15 Again the focus of the program on three categories
16 of technical uncertainty and with these just to summarize;
17 scenario uncertainties, the model uncertainties, and the data
18 associated uncertainties with this. This is a new area for
19 us, we will probably be monitoring very closely what the
20 Department of Energy is doing for that WIPP facility in order
21 to assure that those people who are making the assessments
22 early on will benefit from their efforts to do that.

23 So finally, and just kind of in conclusion here, we
24 do see the licensing of the High-Level Waste Repository as a
25 unique--it's a first of a kind facility--and its focus on

1 performance assessment will be kind of a new licensing
2 standard that we'll have. We'll need to evaluate performance
3 over tens of thousands of years which in itself is a major
4 challenge.

5 We just talked about the uncertainties and our
6 strategy over the coming two year time frame is to look at
7 those areas where it is appropriate for us to reduce the
8 regulatory uncertainty and develop technical positions so that
9 DOE understands where we are so that we can minimize the
10 impact on the licensing process and make sure it is focused
11 on those key technical decisions that we need to make.

12 So with that if there are any questions I'd be
13 happy to try and answer them. Yes?

14 Q. My name is Charles Bechol. On what do you base
15 your opinion that transportation routing issues will not be at
16 issue? Given the fact that in reactor licensing cases--

17 A. The question was what is my basis for my statement
18 that transportation is not likely to be considered an issue
19 at the repository licensing and furthermore he didn't believe
20 that the staff had developed a generic impact statement.
21 Generic environmental assessment to support the regulations.

22 First, the area where the staff in the past has
23 normally evaluated transportation routing has been
24 Environmental Impact Statements. That is the area that
25 Congress mandated the staff to adopt DOE's. It will be

1 litigated. It will be litigated as part of DOE's
2 Environmental Impact Statement. And that will come early in
3 the process. My anticipation is that is the forum in which
4 that issue will be litigated.

5 Secondly, the staff is updating its environmental
6 assessment that has been developed for the PART 71 licensing
7 application in the certification program. That current
8 environmental assessment addressed the transportation system
9 that existed or was projected way back when reprocessing was
10 the key element. So we will be updating that document. That
11 document will be done independent of the repository
12 licensing. I anticipate doing that document well before the
13 1995 time frame. So those two events, its not that it won't
14 be done, they will be done in different forum.

15 MR. THOMPSON: Peter?

16 MR. BLOCK: Peter Block--I'd like to make a
17 brief statement up there. Hugh, I was impressed by the
18 presentation but not by the 90 day estimate for the
19 evidentiary hearing. As a judge, I probably have a different
20 answer to this question than every other judge in this room,
21 but I do know that I don't know how long a hearing is going
22 to take until I see what the issues are. And my guess is,
23 that in a hearing like this, which you concluded was unique
24 and deals with issues that have never been heard before, that
25 the length of the hearing will probably be longer than the

1 restart of Three Mile Island II. It will probably be longer
2 than whether or not the emergency plan for Shoreham is
3 adequate. And I just do not see how you could possibly think
4 that 90 days is going to be adequate for an evidentiary
5 hearing. Unless your so good at summary disposition motions
6 and so on top of all the technical stuff that the staff
7 actually makes it clear there are no genuine issues to go to
8 hearing. I could see the staff being so good that we might
9 be able to get to that point. But it is pretty unlikely with
10 as well funded intervenors as we have.

11 MR. THOMPSON: Pete, I thank you for the well
12 focused--staff, I'm sure I'll take that message back. King,
13 make sure everybody gets that message would you?

14 I think that's a key element. And what I would see
15 in my own view is what that would require is submission of
16 testimony and limitations on direct testimony as part of the
17 evidentiary hearing. As one would do in the Supreme Court,
18 they set time frames for presentation before those
19 distinguished gentlemen and then they take the record--the
20 only way I see it being done you allow the parties to make
21 the best use of the "period of time that is available".
22 Recognizing the statutory time frame of three years, you may
23 have enough time and you can "write a quicker decision" if
24 you allowed more direct testimony, more cross-examination to
25 get more issues on the table. What I see your challenge is

1 the way this LSS is set out is to be able to adopt, embrace,
2 construct, whatever a hearing framework that's looking at 18
3 months from the time the staff safety evaluation report is
4 issued.

5 Obviously the Licensing Support System would
6 provide the parties the capability to have the best
7 documented articulated case that can be presented because its
8 going to be transparent in the entire time frame. And I
9 think that's the other key element you have a transparent
10 process, people aren't going to have surprise issues. State
11 of Nevada, their information's in there; NRC, all our
12 information is in this thing. So the process is on-going for
13 years in being able to have that information available so
14 that people are not surprised. To me the surprise will be if
15 you guys can a 90 day evidentiary hearing, I'll have to agree
16 with you.

17 I understand the commission was giving you some
18 guidance the other day on how long to run those hearings.
19 But I don't know, we haven't heard that for sure.

20 Q. The name is Foster. One of the on-going rule-making
21 you have here is to amend PART 51 to adopt DOE's
22 Environmental Impact Statement. Can you tell us how NRC
23 plans to handle the impact statement. How it gets involved
24 with it, what it does with it?

25 Second part of that, you mentioned you thought the

1 transportation would be litigated as a part of the EIS, is
2 that a separate litigation or is that combined with the
3 litigation for the license itself?

4 A. Okay, a two part question, one was what role would
5 NRC play in the review of DOE's Environmental Impact
6 Statement itself? And then when it was litigated--if the
7 transportation issue were litigated would it be litigated as
8 part of the repository licensing activity? Did I catch that
9 last part right?

10 C. Is the litigation of the impact statement separate
11 from the litigation of the repository.

12 A. My answer to the first part is the staff will
13 review the Environmental Impact Statement as it would any
14 other Environmental Impact Statement circulated to it by
15 another Federal Agency. We'll review it on a draft phase.
16 We'll put our comments in. DOE will be responsible for
17 addressing our comments, EPA's comments, the public's
18 comment, as part of the Environmental Impact Statement, then
19 they will publish a final Environmental Impact Statement that
20 will reflect the Department of Energy's position with respect
21 to that proposed activity.

22 Chip, you might refresh my memory, on the legal
23 process that occurs once they make that decision I believe it
24 then is subject to review once that's the final agency
25 decision. And I don't know whether it's a regular or an

1 appeal board, do theirs go to an appeal panels or do they go
2 to a licensing hearing?

3 MR. CAMERON: You mean in terms of the--

4 MR. THOMPSON: If a DOE impact statement was
5 challenged it would go to a regular Circuit Court?

6 MR. CAMERON: Yes, it would be in Federal Court for
7 litigation and indeed, that's one of the pieces of
8 information DOE has to submit to us when they file the
9 Environmental Impact Statement. Whether it's been challenged
10 and whether its been found adequate or inadequate. So it
11 would be separate from the NRC adjudicatory hearing in terms
12 of whether the statement was adequate under NEPA.

13 MR. THOMPSON: I guess that answers the second
14 question that it would be a separate proceeding, independent
15 of NRC's and probably well before NRC's. Because their
16 Environmental Impact Statement would need to be issued before
17 they decide to submit the Construction Permit Application. At
18 that time it would be a final Environmental Impact Statement.

19 And our Environmental Impact Statements would be
20 independent of both of those activities. And it supports our
21 general rules on transportation. You know, what is the
22 standard that we have with respect to those transportation
23 asks. Mai?

24 MR. MURPHY: I think you may be anticipating
25 commission action somewhat in your last statement. I think

1 the NEPA rules that are currently pending some of the
2 comments are already filed, raise issue with that. We say
3 for example, that rules should be adopted that would permit
4 the parties to litigate before the licensing panel the
5 adequacy, the adoptability of the DOE EIS. You may be
6 accurately forecasting what the commission is going to do in
7 adopting the rule.

8 MR. THOMPSON: I was only giving my current
9 expectation. I agree that as I mentioned that is out for
10 public comment and there's certainly--when you look at where
11 I see the program going, that's the way I see the program
12 going right now. Peter?

13 MR. BLOCK: I'm concerned that if it just went the
14 other way and the only challenge was before the court of
15 appeals what would happen if in the licensing proceeding some
16 of the technical assumptions were overturned by the licensing
17 board that they don't accept the DOE findings of what the
18 risks are.

19 MR. THOMPSON: Okay, I'm not quite sure I got the
20 connection in there. This is the question of whether or not
21 --let's say the site was designed for rail transportation and
22 in the context the rail car and if the appeal board says don't
23 take a rail car in there--

24 MR. BLOCK: No, we're talking about the EIS and
25 there might be certain factual assumptions as to what the

1 risks and impacts are, and they may be affected by what
2 happens in the licensing hearing on the technical issues in
3 which case I don't see how what was done before could be so
4 final.

5 MR. CAMERON: When we want the situation, the rule
6 for proposed rule provides that in that particular case--and
7 we find that it is not a factor we just adopt the DOE--

8 MR. THOMPSON: For that particular aspect--

9 MR. CAMERON: If the licensing decision is based on
10 something that is different than it was in the DOE EIS which
11 is the situation that you're talking about--

12 MR. THOMPSON: And I guess in that case there would
13 be the burden on -if we required through the licensing
14 process our own review--or if your review required some
15 modification or change that had an environmental impact then
16 we would have to come back and justify that position with an
17 Environmental Impact Statement and I imagine it would be
18 directed by the board at that time but the staff would then
19 have to do an Environmental Impact Statement supplement that
20 would support that decision, that's correct.

21 Q. I'm Bob Jackson with a question. I'd like to
22 address a point you made about branch technical positions
23 versus reg guides. You spoke about continuity, the need for
24 continuity in the licensing process, and if my recollections
25 are correct the NRR has a tendency to go away from branch.

1 technical positions because they were not adequately reviewed
2 or seemed to be not adequately reviewed and didn't hold for
3 the long term as staff changed opinions changed. I
4 understand the logic of what you've offered here its a one of
5 a kind, first of a kind situation, therefore we use branch
6 technical positions but how can you be sure that seven,
7 eight, ten years from now that they would hold.

8 A. Well, I think that the key element there is that
9 the branch technical review process has many of the same
10 elements that a reg guide does, and they are for purposes of
11 the review process changed after-- the process to change a
12 reg guide technical aspects would be the same type of clear
13 thorough review before you changed the branch technical
14 position. It would not have the administrative trappings
15 outside of that. And that's essentially the saving in it.
16 You know what we're trying to do is develop one acceptable
17 way to staff, not the only acceptable way.

18 Q. Would that have the same legal strength in a
19 hearing as a regulatory guide.

20 A. Neither one has any strength in a hearing. The
21 strength is a hearing at that time will be the staff and the
22 guy who stands up and says this is the staff's position.
23 Well, since there are no more questions I'll turn it back
24 over to you and let you have it.

25 JUDGE LAZO: Thank you we are adjourned.

CERTIFICATE

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This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of: TWENTIETH ANNUAL MEETING OF THE ATOMIC SAFETY AND LICENSING BOARD PANEL

Name:

Docket Number:

Place: Las Vegas, Nevada

Date: December 12, 1988

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken stenographically by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

121 *Steven U. Hopkins*

(Signature typed):

STEVE HOPKINS

Official Reporter

Heritage Reporting Corporation

OVERVIEW

HIGH-LEVEL WASTE REPOSITORY PROGRAM

and

STATUS OF NRC-DOE INTERACTIONS

KING STABLEIN, SENIOR PROJECT MANAGER

and

PAUL T. PRESTHOLT SENIOR ON-SITE REPRESENTATIVE

NRC OFFICE OF NUCLEAR MATERIAL SAFETY

and SAFEGUARDS

PRESENTATION FOR

ATOMIC SAFETY AND LICENSING BOARD PANEL

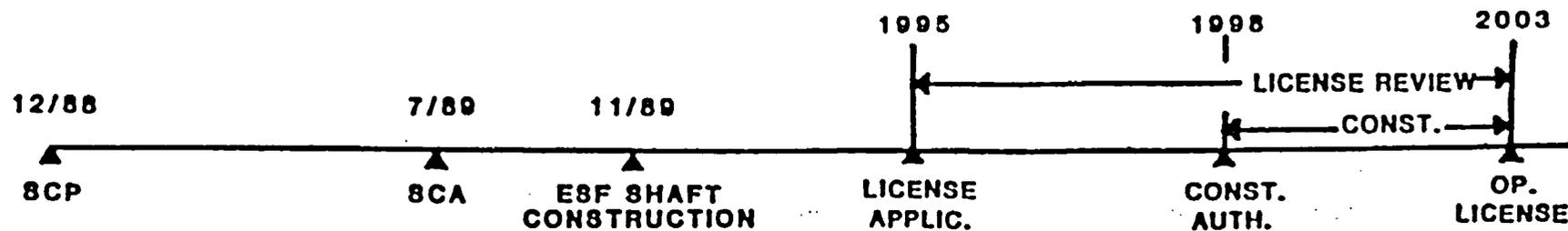
December 12, 1988

PURPOSE

- **PROVIDE AN OVERVIEW OF THE HIGH-LEVEL
WASTE REPOSITORY PROGRAM**
- **DISCUSS THE PURPOSE AND STATUS OF NRC-DOE
INTERACTIONS IN THE HIGH-LEVEL WASTE
REPOSITORY PROGRAM**
- **DISCUSS THE ROLE OF THE ON-SITE
REPRESENTATIVE IN NRC-DOE INTERACTIONS**

NUCLEAR WASTE POLICY ACT OF 1982 (NWPA)

- **LAYS OUT MILESTONES AND RESPONSIBILITIES FOR THE OVERALL NUCLEAR WASTE MANAGEMENT PROGRAM, OF WHICH THE HLW REPOSITORY PROGRAM IS ONE PART**
- **1987 AMENDMENT (NWPAA) DESIGNATED YUCCA MOUNTAIN, NEVADA SITE AS THE SOLE SITE TO BE CHARACTERIZED**



SCHEDULE--HLW REPOSITORY PROGRAM

NRC/DOE INTERACTIONS

- **DURING PRE-LICENSING, NRC AND DOE INTERACT IN ORDER TO IDENTIFY ISSUES EARLY THAT COULD BE RESOLVED BY DOE PRIOR TO LICENSE APPLICATION SUBMITTAL**

- **TYPES OF INTERACTIONS INCLUDE**

- **NRC REVIEWS OF DOE DOCUMENTS**
- **NRC-DOE TECHNICAL MEETINGS AND/OR WORKSHOPS**
- **SITE VISITS BY NRC STAFF**
- **QUALITY ASSURANCE (QA) AUDITS**

CURRENT STATUS OF NRC-DOE INTERACTIONS

- 32 TECHNICAL MEETINGS AND WORKSHOPS
CONCERNING THE YUCCA MOUNTAIN
SITE TO DATE

- CONSULTATION DRAFT SITE CHARACTERIZATION
PLAN (CDSCP) ISSUED JANUARY, 1988
 - NOT REQUIRED BY LAW

 - NRC STAFF RAISED 5 OBJECTIONS
 - ALTERNATIVE CONCEPTUAL MODELS

 - EXPLORATORY SHAFT FACILITY
(ESF - 3 OBJECTIONS)

 - QA

- SCP REVIEW PREPARATION

EXPLORATORY SHAFT FACILITY (ESF)

- 1983 - 88 **DEFINED OPEN ITEMS**
- 7/88 **IDENTIFIED DESIGN CONTROL
AS ROOT CAUSE**
- 10/88 **PROPOSED APPROACH TO CLOSURE OF
OPEN ITEMS**
- 11/88 **REACHED AGREEMENT ON APPROACH
TO BE FOLLOWED TO DETERMINE
ACCEPTABILITY OF ESF DESIGN
IN SCP**

QUALITY ASSURANCE (QA)

- CDS CP OBJECTION QUESTIONED ADEQUACY OF EXISTING QA PROGRAM. A QUALIFIED QA PROGRAM MUST BE IN PLACE PRIOR TO START OF NEW SITE CHARACTERIZATION ACTIVITIES

- NRC-DOE AGREEMENT WAS REACHED IN JULY, 1988 ON NRC AND DOE ACTIONS AND SCHEDULES NEEDED TO ALLOW NRC STAFF TO ACCEPT THE DOE QA PROGRAM BY START OF EXPLORATORY SHAFT CONSTRUCTION
 - 11 DOCUMENT REVIEWS

 - 21 QA AUDITS

- NRC STAFF REVIEW AND ACCEPTANCE OF THE YUCCA MOUNTAIN PROJECT QUALITY ASSURANCE PLAN IN OCTOBER, 1988

- NRC STAFF OBSERVATION OF 11 DOE QA AUDITS OF PROJECT PARTICIPANTS

- DESIGN CONTROL CONCERNS FOR ESF (DISCUSSED PREVIOUSLY)

DIVISION OF HIGH-LEVEL WASTE MANAGEMENT

DIRECTOR R.E. Browning

DEPUTY DIRECTOR B.J. Youngblood

**REPOSITORY LICENSING
PROJECT DIRECTORATE**

J.J. Linehan

PROJECT MANAGEMENT

**ON-SITE
REPRESENTATION**

**QUALITY ASSURANCE
SECTION**

**SPECIAL ANALYSIS
SECTION**

**GEOSCIENCES AND SYSTEMS
PERFORMANCE BRANCH**

R.L. Ballard

**HYDROLOGIC TRANSPORT
SECTION**

**GEOLOGY-GEOPHYSICS
SECTION**

**SYSTEMS PERFORMANCE
SECTION**

ENGINEERING BRANCH

J.O. Bunting

**ENGINEERING
SECTION**

**SYSTEMS ENGINEERING
AND
CHWRA MANAGEMENT
SECTION**

OFFICE OF THE NRC ON-SITE REPRESENTATIVE

- **LOCATED IN LAS VEGAS, NEVADA**

- **OPEN TO THE PUBLIC**

- **LINKED TO NRC HEADQUARTERS BY TELEPHONE,
ELECTRONIC MAIL, AND FACSIMILE CAPABILITY**

- **STAFFED BY TWO FULL-TIME ON-SITE
REPRESENTATIVES AND ONE SECRETARY, ALL OF
WHOM ARE PART OF THE REPOSITORY LICENSING
PROJECT DIRECTORATE (RLPD). OR REPRESENTS
THE DIRECTOR, RLPD, AT THE SITE FOR ALL HLW
REPOSITORY SITE ACTIVITIES**

**ROLE OF THE NRC ON-SITE REPRESENTATIVE (OR)
IN THE PRE-LICENSING CONSULTATION PHASE**

"THE PURPOSE AND OBJECTIVE OF THE ON-SITE REPRESENTATIVE (OR) . . . IS TO SERVE AS A POINT OF PROMPT INFORMATIONAL EXCHANGE AND CONSULTATION AND TO PRELIMINARILY IDENTIFY CONCERNS ABOUT INVESTIGATIONS RELATING TO POTENTIAL LICENSING ISSUES." (APPENDIX 7, NRC-DOE SITE-SPECIFIC PROCEDURAL AGREEMENT)

"THE NRC OR SHALL BE AFFORDED ACCESS TO PERSONNEL, PROJECT RECORDS AND FACILITIES AT THE RESPECTIVE SITE, GEOLOGIC REPOSITORY OPERATIONS AREA AND ADJACENT AREAS, RESEARCH FACILITIES AND OTHER CONTRACTOR AND SUBCONTRACTOR AREAS." (SITE-SPECIFIC PROCEDURAL AGREEMENT)

ROLE OF THE NRC OR

• INFORMATION EXCHANGE

- EXPEDITES FLOW OF FACTS, INFORMATION, AND PLANS REGARDING SITE CHARACTERIZATION ACTIVITIES BETWEEN DOE'S PROJECT OFFICE AND NRC TECHNICAL STAFF AND PROJECT MANAGEMENT**
- COORDINATES EXCHANGE OF TECHNICAL AND POLICY INFORMATION REGARDING THE CANDIDATE REPOSITORY SITE BY FREQUENT CONTACT WITH STATE AND LOCAL GOVERNMENT OFFICIALS AND REPRESENTATIVES OF AFFECTED INDIAN TRIBES**

• CONSULTATION

- BASED ON KNOWLEDGE OF NRC HLW TECHNICAL AND REGULATORY POLICY POSITIONS, ARTICULATES AND CLARIFIES THOSE POSITIONS IN MEETINGS WITH DOE, THE STATE, LOCAL GOVERNMENTS, OR TRIBAL OFFICIALS**
- INFORMS NRC STAFF OF AREAS WHERE, BASED ON DISCUSSIONS WITH DOE AND OBSERVATIONS OF DOE ACTIVITIES, CLARIFICATION OR GUIDANCE BY THE NRC STAFF MAY BE NEEDED**

ROLE OF THE NRC OR

- ♦ **PRELIMINARY IDENTIFICATION OF CONCERNS**
 - **PROVIDES QA REVIEWS, AS DEEMED NECESSARY, AND LEADS NRC TEAMS OBSERVING DOE QA AUDITS, IN ALL AREAS OF THE DOE SITE CHARACTERIZATION PROGRAM TO PROVIDE COMMENTS, EVALUATIONS, AND RECOMMENDATIONS TO THE DIRECTOR, RLPD, AS APPROPRIATE**
 - **AS THE OR JUDGES TO BE APPROPRIATE OR AT THE SPECIFIC REQUEST OF THE DIRECTOR, RLPD, OBSERVES, REVIEWS AND EVALUATES ON-SITE ACTIONS UNDERTAKEN OR SPONSORED BY DOE RELATED TO SITE CHARACTERIZATION**
 - **IDENTIFIES SPECIFIC CONCERNS WITH SITE CHARACTERIZATION PLANS AND ACTIVITIES TO THE DIRECTOR, RLPD, AND/OR NRC TECHNICAL AND PROJECT MANAGEMENT STAFF**