

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

Title: COMMISSION MEETING WITH STATE OF NEVADA ON HIGH-LEVEL
WASTE PROGRAM

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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
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4 COMMISSION MEETING WITH STATE OF NEVADA ON HIGH LEVEL
5 WASTE PROGRAM

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7 Public Meeting

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10 THURSDAY, DECEMBER 1, 1988

11 One White Flint North

12 Rockville, Maryland
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14 The Commission met, pursuant to Notice, at
15 10:00 a.m., the Honorable Lando W. Zech, Jr., Chairman of the
16 Commission, presiding.
17

18 COMMISSIONERS PRESENT:

19 LANDO W. ZECH, Jr., Chairman of the Commission

20 THOMAS M. ROBERTS, Commissioner

21 KENNETH M. CARR, Commissioner

22 KENNETH C. ROGERS, Commissioner

23 JAMES R. CURTISS, Commissioner
24
25

1 NRC STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

2

3 S. Chilk, SECY J. Guttman

4 W. Parler, OGC R. Loux

5 C. Johnson H. Swainston

6 M. Murphy

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P R O C E E D I N G S

CHAIRMAN ZECH: Good morning, ladies and gentlemen.

Today the Commission will be briefed by the state of Nevada on the status of the state's high level waste program for the Yucca Mountain site. You may recall that the state of Nevada had met with us about a year and a half ago; since then there's been a major legislative restructuring of the Department of Energy program. The Nuclear Waste Policy Amendments Act of 1987 has focused to characterize only the Yucca Mountain site for the repository recommendation. Nevada's presentation today will address issues which are of great interest not only to the state of Nevada but to the Nuclear Regulatory Commission as well. It's my understanding that the NRC Staff has been actively interfacing with Nevada's Technical Oversight Program.

Today's briefing will be conducted by Mr. Robert Loux. Mr. Loux is the Executive Director of Nevada's Nuclear Waste Project Office. It's my understanding that the office reports directly to Governor Richard Bryan.

This is an information meeting this morning. Because of another appointment that the Commission has, we will need to conclude the meeting no later than 11:30. I understand that copies of the slides are available at the entrance to the meeting room. Do any of my fellow Commissioners have any comments they wish to make before we proceed?

[No response.]

1 If not, Mr. Loux, you may proceed. Welcome.

2 MR. LOUX: Thank you, Mr. Chairman, it's a pleasure
3 to see you again. As you have correctly identified, a little
4 over a year ago we talked with the Commission and are pleased
5 to accept your invitation to provide sort of an annual update
6 on Nevada's program as it relates to our evaluation of the
7 Department of Energy's efforts at Yucca Mountain, and that's
8 why we're here today.

9 Before I go any further, let me introduce to you on
10 my left, Carl Johnson, who heads our technical programs; on my
11 immediate right is Harry Swainston who is a Deputy Attorney
12 General with the Attorney General's Office; and on his right is
13 Mal Murphy who is a Special Deputy Attorney General with the
14 Nevada Attorney General's office, and all four of us will be
15 making some brief remarks this morning.

16 I'd like to say at the outset that it's again a
17 pleasure to be here and we certainly appreciate the opportunity
18 to chat with you today and hope that we can do this kind of
19 thing on an ongoing basis as we go down the road.

20 Let me state at the outset that it's not our intent
21 here today to focus on the debate or wisdom of the recent
22 congressional action that you have referred to, but we had
23 hoped to do today is to talk about various issues in the
24 context of the federal and state program and what their impacts
25 are relative to the decision to characterize a single site for

1 repository recommendation.

2 In May of this year, Mr. Ed Kay, former Acting
3 Director of the DOE Office for the Civilian Radioactive Waste
4 Management, presented the Commission with a status report as
5 well. We noted that in his comments he had said that we fully
6 expect that the NRC will be very demanding of the DOE program
7 in order to develop the confidence and reasonable assurance
8 that the public health and safety will be protected.

9 Let me add that the state of Nevada fully concurs
10 with his statement and recognizes that oversight programs of
11 the state and the regulatory review process of the NRC,
12 beginning with the site characterization analysis, form the
13 cornerstones of that oversight, and we believe we all must be
14 vigilant and rigorous on a day-to-day basis to assure that
15 DOE's expectations and hopes are realized and perhaps
16 surpassed.

17 Since the passage of the Nuclear Waste Policy Act,
18 Nevada has and I think in the future will continue to provide
19 and perform a very constructive role in the entire process,
20 interacting both with yourselves and the NRC Staff as well as
21 DOE. Despite our somewhat different legislative roles, I think
22 that the state and the Commission interest in the regulatory
23 arena coincide in a single goal of assuring the protection of
24 the public health and safety.

25 Having said that, let me indicate that today our

1 focus is to look at first of all some issues in the technical
2 arena, principally some comments, an overview of some of our
3 comments on the Draft Site Characterization Plan, some comments
4 about the Conceptual Design Report, quality assurance and some
5 of the other technical issues. Mal Murphy then will talk a
6 little bit more about some of the regulatory issues that are on
7 the table now or that will be shortly. I've asked Harry
8 Swainston to brief you on the status of the existing litigation
9 that the state of Nevada has pending. And then lastly I will
10 conclude with some remarks principally about DOE's Mission Plan
11 and the role of the various parties in the program.

12 Having said that, let me introduce Carl Johnson to
13 you and ask Carl if he will address some of the issues in the
14 technical arena.

15 CHAIRMAN ZECH: Thank you very much, you may proceed.

16 MR. JOHNSON: Thank you, Bob. Again, my name is Carl
17 Johnson, I'm responsible for the technical programs for the
18 Nevada Agency for Nuclear Projects. Technical programs have
19 been a major component of Nevada's activities since the state
20 began participation in the repository program in 1983. The
21 Technical Programs Division of the Nevada Agency for Nuclear
22 Projects has a small technical staff with disciplines in
23 radiation health physics, geology, engineering and
24 environmental scientists.

25 The major component of the technical expertise for

1 the Agency comes from support contractors and consultants. If
2 I could have the first viewgraph.

3 [Slide.]

4 This viewgraph -- I believe the Commissioners have
5 copies of all the viewgraphs attached to the back of our
6 presentation. This first viewgraph lists the current technical
7 contractors which support the state and what their technical
8 disciplines are. This list represents both university and
9 private sector contractors. These contractors are supported by
10 numerous subcontractors from all over the U.S. and Canada who
11 bring specialized expertise to the individual technical
12 programs involved.

13 This list represents approximately 150 research
14 scientists, of which over half of them are Ph.D.'s and some are
15 members of the National Academy of Sciences.

16 The technical programs are fully funded through the
17 provisions of the Nuclear Waste Policy Act and takes its
18 direction from the state participation provisions in the Act
19 which allow the affected state the right to review, evaluate,
20 monitor and test the repository site proposed by the Department
21 of Energy. The state's technical programs and its studies are
22 based on the requirements of 10 CFR Part 60, 40 CFR Part 191,
23 and the individual scientists' understanding of the
24 geohydrologic setting of Yucca Mountain in the Southern Great
25 Basin. These bases have led to the development of a series of

1 technical concerns with the suitability of Yucca Mountain to
2 host a mined geologic repository.

3 [Slide.]

4 This viewgraph lists the technical concerns with the
5 suitability of Yucca Mountain. I don't intend to spend a lot
6 of time today on these particular concerns since this viewgraph
7 will be the major focus of our presentation to the Advisory
8 Committee on Nuclear Waste in January. The only remark I might
9 make today is that these particular technical concerns that
10 we've presented in this viewgraph are not something new; they
11 were originally expressed in 1979 by the National Academy of
12 Sciences in their review of volcanic tuff as a possible
13 repository medium.

14 The state also articulated these concerns to DOE in
15 its comments on the Draft Environmental Assessment for Yucca
16 Mountain and then again a few months ago in our comments on
17 DOE's Consultation Draft Site Characterization Plan. I think
18 these views are not inconsistent with the views of the
19 Commission Staff. However, to date, DOE has failed to
20 adequately address these concerns. These concerns also form
21 the backbone of the state's independent Technical Studies
22 Program, and the results of these independent studies that we
23 have ongoing will assist the state in an independent assessment
24 of the suitability of Yucca Mountain to host a geologic
25 repository.

1 At this time I'd like to focus my remarks on our
2 comments on the Site Characterization Plan. As the Commission
3 is aware, DOE released its Consultation Draft of the Site
4 Characterization Plan in early 1988. DOE conducted public
5 hearings in the state to introduce the Draft Plan. Much like
6 the NRC Staff, the state and its technical contractors
7 conducted a thorough review and critique of the plan. The
8 Agency's comments were published in a 731-page, two-volume
9 document which we issued in September and provided to the
10 Commission Staff.

11 [Slide.]

12 Viewgraph Number 3 lists the state's general comments
13 on the Plan. The Consultation Draft of the Site
14 Characterization Plan in our view is not a complete document.
15 The Plan does not provide a complete picture of all programs
16 and activities which will be conducted during site
17 characterization.

18 Separately, the Act in Section 113(b)(1) requires
19 that a plan contain a general description of the site, a
20 description of the site characterization activities, plans for
21 decommissioning and decontamination of the site, criteria for
22 determining suitability, and a description of the waste form
23 and packaging, and the conceptual repository design. The
24 Consultation Draft does not contain plans for decontamination
25 and decommissioning of the site, and a complete description of

1 the waste form and packaging.

2 The state also believes that it is the intent of the
3 Congress and certainly the NRC that the determination of site
4 suitability should be given high priority and early
5 determination.

6 The SCP also fails to consider a range of alternative
7 conceptual models of Yucca Mountain and its geologic and
8 geohydrologic setting. The NRC Staff also noted this concern
9 in their papers on the Consultation Draft.

10 The state actively participated in a four-day
11 workshop in April of this year on the alternative conceptual
12 models. The state believed in April and still believes that
13 the Site Characterization Plan seeks to defend a single,
14 simplified model of the site that largely ignores the need for
15 thorough investigation of a range of coupled geologic and
16 hydrologic processes and events and their potential
17 significance to waste isolation.

18 The Consultation Draft describes in general terms a
19 large number of activities which will require the use of
20 testing and analytical equipment and methods in order to
21 collect the requisite data; yet there is no substantial review
22 of the availability of state-of-the-art technology to perform
23 the tests in a valid and verifiable manner. DOE's own siting
24 guidelines require the use of reasonably available technology.
25 Surface-based geophysical techniques, borehole logging, pore-

1 rock fluid extraction and unsaturated zone hydrologic modeling
2 are examples of areas where the reasonably available technology
3 standard has not been met.

4 So far, the NRC Staff has really been silent on this
5 reasonably available technology issue.

6 At this point I'd like to focus my remarks on the
7 conceptual design report for the Site Characterization Plan.
8 The state, through its repository engineering contractor, has
9 conducted a review of the conceptual design for the repository
10 at Yucca Mountain as it was presented in the Site
11 Characterization Plan. The state is currently in the process
12 of publishing its comments on that document.

13 The next viewgraph presents a list of the state's
14 general concerns with the conceptual design report.

15 [Slide.]

16 Much of the report is comprised of designs based on
17 large assumptions that lead to inconclusiveness in terms of the
18 technical integrity and reasonableness of the design. As a
19 result, the likely success of the designs proposed within the
20 report is highly questionable from a technical and
21 constructibility standpoint. Deficiencies are found throughout
22 the report ranging from over-simplification of the geologic and
23 geohydrologic setting to an incorrect determination of the
24 repository horizon's host rock strength. All these
25 deficiencies lead directly to the probable outcome of site

1 characterization of Yucca Mountain in the design and
2 construction of the repository.

3 Now I'd like to focus some brief remarks on the
4 exploratory shaft facilities. The state is aware that the
5 staff has briefed the Commission on their concerns with the ESF
6 and the progress made by DOE in resolving these concerns. The
7 state also has concerns in this area.

8 Viewgraph No. 5 lists the state's concerns, and these
9 concerns center in two areas; shaft location and the design
10 control process.

11 [Slide.]

12 The state first expressed these concerns with the
13 exploratory shaft location in our comments on the Draft
14 Environmental Assessment for Yucca Mountain. These concerns
15 focused on a shaft location process that did not consider 10
16 CFR Part 60 requirements, and the potential of flash flooding
17 at the designated shaft location to adversely affect site
18 performance. The NRC Staff has also voiced similar concerns in
19 their comments on the Site Characterization Plan.

20 Nevada recently issued two letter reports to both DOE
21 and the NRC Staff with detailed views on both of these
22 subjects.

23 The DOE has decided that the exploratory shaft will
24 be designed so that they can be utilized as part of the
25 repository during the operational phase. Therefore, the shaft

1 must be designed with the same rigid quality standards as the
2 repository. The state has participated in DOE's 50 percent and
3 100 percent design review process, and as a result has
4 developed a concern that the Title I design for the exploratory
5 shaft -- that's the preliminary design of the shaft -- was not
6 performed using a design control process envisioned by Part 60
7 Subpart G, or by Part 50 Appendix A.

8 Over the last few months, a number of NRC/DOE/state
9 meetings have been held to resolve this concern. Future
10 meetings on this particular subject are planned.

11 Now lastly let me turn my attention to the subject of
12 quality assurance. The state has been concerned with the
13 quality on this program since 1983 when the state first became
14 involved. The state has actively participated as part of its
15 oversight role in DOE's Quality Assurance Coordinating Group
16 meetings. It participated as an observer in the NRC's mini-
17 audit of the Los Alamos National Laboratory in 1987. More
18 recently, it has participated as an observer in the
19 DOE/Nevada's audit of its project contractors. The Agency has
20 generated audit observer reports for consideration by both the
21 DOE and the NRC Staffs.

22 As a result of these meetings and the observations
23 made, the Agency has developed concerns with the DOE's quality
24 assurance program. This last viewgraph, No. 6, basically
25 concludes that at the present time, the DOE's quality assurance

1 program is an ineffective program. Five years after the
2 passage of the Nuclear Waste Policy Act, the Department still
3 does not have an NRC-qualified quality assurance program
4 project-wide. No technical contractor programs have even been
5 submitted for NRC review.

6 Audits of the contractor's QA programs have revealed
7 a lackadaisical approach to the development and implementation
8 of the required QA programs. Now this may be a symptom of a
9 lack of DOE oversight and direct involvement in their
10 contractor's quality assurance program, and a lack of
11 contractor commitment to quality assurance. This condition is
12 clearly illustrated by the stop-work orders issued on two
13 occasions to the various Yucca Mountain project contractors.
14 When the DOE lifted the stop-work orders little if any review
15 was undertaken to determine whether the contractor's quality
16 assurance programs were sufficiently implemented to assure
17 quality work. In fact, they did not meet the standard at all.

18 The state has concerns that Yucca Mountain was
19 explored without an adequate quality assurance program; DOE's
20 contractors continue to collect monitoring data without a
21 qualified QA program in place; and there may not be a qualified
22 QA program in place prior to the start of characterization
23 activities.

24 The state believes that the Commission must continue
25 to aggressively pursue DOE's providing a fully-qualified and

1 implemented QA program project-wide prior to the start of any
2 characterization work.

3 Separately, as the Commission is aware, the state has
4 developed a quality assurance program for its technical study
5 activities. That program was finalized in June and approved by
6 the Agency director. Program training for all Agency and
7 contractor staff has been completed. Technical procedures for
8 all of the contractors and their activities are under review
9 and nearing the approval stage. In June, the program was
10 formally submitted to the NRC Staff for their review. Verbal
11 feedback we've gotten from the staff so far suggests there are
12 no major concerns and certainly no major concerns that would
13 indicate that the program does not meet the NRC requirements.

14 MR. LOUX: Mr. Chairman, let me introduce again Mr.
15 Mal Murphy on my far right. Mal will be covering some of the
16 selected regulatory issues which were identified in the
17 previous paper.

18 CHAIRMAN ZECH: Thank you very much. You may
19 proceed.

20 MR. MURPHY: Thank you, Bob. Mr. Chairman and
21 members of the Commission, let me just briefly highlight,
22 without going over what was presented to you formally in the
23 written document you have in front of you, what some of our
24 major concerns are in this area that we see coming. And it
25 stems primarily from a feeling we have, and I think it's a

1 feeling that is pretty much shared by all of us involved in
2 this process, that we are already -- we have already begun the
3 licensing process for the high level waste repository. We are
4 involved today in a de facto licensing proceeding. And all we
5 really lack is the formalization required from assigning a
6 docket number to that proceeding and filing a formal license
7 application on the part of the Department of Energy.

8 But many of the efforts we're involved in today and
9 many of the efforts that the Department is working on and many
10 of the things your own staff are working on are formal
11 licensing efforts. We're told, for example, that some of the
12 topical reports that Department of Energy will be producing
13 will become part of the license application in the future.
14 Essentially, chapters of that application, if you will. Many
15 of the generic technical positions that the staff has been
16 producing and continues to work on we think will be
17 incorporated into the license application by the Department of
18 Energy to the extent that they can. So there's a very real
19 concern on our part that we get some sort of formalization into
20 this process before many of the licensing issues get away from
21 us.

22 We really have serious doubts, for example, that many
23 of the critical licensing issues -- the issues that Carl
24 Johnson mentioned; groundwater travel time being the most
25 obvious one -- can be resolved prior to formal licensing, the

1 adjudicatory aspect of licensing, in a rulemaking or some other
2 somewhat informal basis. It seems to us -- and I can't speak
3 with any detail on it, but it seems to us that the prospects
4 for continued fundamental disagreement among the technical
5 community in this area are so great that the kind of consensus
6 necessary to support Commission rulemaking will simply never be
7 present prior to the end of site characterization, prior to the
8 submission of a formal license application and the kind of
9 adversary adjudicatory process that we all anticipate.

10 We know that site characterization can still result
11 in rejection of Yucca Mountain. Many in Nevada, as you are
12 well aware, fervently hope that this will be the case. But
13 those of us here at this table and the result of us involved in
14 the process from Nevada's point of view can't assume that that
15 will happen. We are preparing, as of this day, to be engaged
16 in a highly contested, complex, long, difficult licensing
17 proceeding. And we feel very strongly that all of us have to
18 recognize that that process has begun today; we need some more
19 formalization and we all recognize that in the process so that
20 these critical licensing issues can't be resolved without the
21 input, without the agreement really of all the potential
22 parties to the proceeding, to the ultimate proceeding.

23 We know that we can't identify every intervenor,
24 every public intervenor at the present time, but you know as
25 well as we do that Nevada will be present and participating in

1 the licensing proceeding. So our major concern in this area is
2 that issues don't be checked off, if you will, that issues are
3 not called resolved unless we also say they're resolved. Even
4 if the staff and the Department of Energy come to some
5 agreement on certain technical aspects involved in this
6 program, if the state of Nevada does not agree that that
7 resolution has been reached that has to somehow be noted and
8 our participation has got to take that into account.

9 We, however, fully appreciate the need to bring some
10 sort of sense, more guidance if you will, to some of these
11 regulatory and institutional issues, and we stand ready to
12 fully participate in that process. Certainly there is no
13 question but that the applicant is entitled to perhaps some
14 further definition of areas involving ambiguity in 10 CFR 60,
15 things of that nature. We see no problem with that so long,
16 again, as we are recognized as a full and equal partner in that
17 process. But going beyond that and resolving highly contested
18 technical issues we think is simply inappropriate at this time.
19 And we think the staff also recognizes that.

20 We're heartened to see in the staff's recent SECY 285
21 paper their reaffirmation of the view that their role, NRC's
22 role, is simply to provide guidance and not to delineate
23 specific procedures in this area.

24 So with that, let me simply conclude that we look
25 forward to continuing the very useful interchanges the state

1 has had with the staff in the past in coming up with some
2 mechanism. I don't think it's time to assign a docket number
3 yet but some mechanism which more formally recognizes the
4 state's position in this process and gives us more of a
5 formalized say in the resolution of some of these issues.

6 Licensing support system I want to touch on just very
7 briefly. You all know that we participated actively in the
8 negotiations of the LSS, negotiated rulemaking. We concurred
9 in the rule that will be proposed to you. It's our hope at
10 least that after the comment period expires, which it will I
11 think in just a few days, on the proposed rulemaking that we
12 all, all the members of the negotiating team, will have a
13 chance to gather here again before you some day and go over
14 that proposed rule in some detail and explain our own positions
15 in favor of it.

16 With that, let me touch very briefly on one other
17 subject that we mentioned in our written submittal, and that is
18 the so-called system licensing. I am not sure that any
19 resolution, if you will, and I use that word loosely, of this
20 issue is necessary at the present time. But as I'm sure you're
21 aware, the staff has some of the same major concerns in this
22 area as we do. But I just want to highlight the fact that we
23 do not see this as a power plant licensing process; we see this
24 as licensing a waste disposal system which is going to exist
25 nationwide. And we feel, just as an example, that the

1 Commission in the process of considering suitability of Yucca
2 Mountain as a repository, or any other repository location that
3 might be brought before you, you must consider the entire
4 system as an integrated whole in licensing, to include
5 transportation, for example.

6 With those remarks, that concludes my part of the
7 presentation. Thank you, Mr. Chairman.

8 MR. LOUX: Mr. Chairman, let me also introduce to you
9 Harry Swainston who is our Deputy Attorney General, and I've
10 asked Harry to at least give you a very brief overview of I
11 think the four existing cases that we have pending in the
12 courts, and then I'll conclude and we'll of course be happy to
13 answer any questions you might have.

14 CHAIRMAN ZECH: Thank you very much, you may proceed.

15 MR. SWAINSTON: Chairman Zech and members of the
16 Commission. The state of Nevada has been involved in a number
17 of controversies with the Department of Energy that have
18 resulted in litigation. In 1984 we filed a case involving the
19 state's right to sufficient funds to adequately accomplish the
20 state's oversight responsibility, and as you may know, we
21 prevailed in that action.

22 In 1987 we lost a case in which we contended that the
23 state was also entitled to funds from the Nuclear Waste Fund
24 which would permit us to seek judicial review of Agency action.

25 After the Amendments Act of last year, many of the 35

1 cases that were pending before the Ninth Circuit Court of
2 Appeals had become mooted, and in fact the Department of
3 Justice filed a Motion to Dismiss the bulk of those cases. As
4 it now appears, even though we don't have a decision by the
5 Ninth Circuit Court of Appeals, probably seven of them will
6 emerge from the Motion to Dismiss. Three of those are cases
7 that have been brought by the state of Nevada. Four of them
8 are cases that have been brought by three other states and an
9 environmental group having to do with the national
10 transportation aspects of the DOE siting guidelines.

11 The state also has a case involving the siting
12 guidelines which has been conceded to be a good case. In
13 addition, the Department of Justice has included within their
14 Motion to Dismiss our challenge to the Environmental Assessment
15 of Yucca Mountain. That is likely to emerge from the Motion to
16 Dismiss. Also, the Department of Justice has conceded that our
17 land status case -- and I'll touch on that in more depth -- is
18 also a viable case.

19 So with those, it appears we will be going forward in
20 the Ninth Circuit Court of Appeals as soon as the court rules
21 on the Motion to dismiss.

22 Another case which we brought recently which is
23 directly involved with the program is a case in which we sued
24 the Bureau of Land Management for their accommodation of DOE's
25 request to have access to Yucca Mountain under a hybrid legal

1 instrument which has been characterized as a right-of-way
2 reservation. We contend in the lawsuit that that is not a
3 sufficient instrument.

4 Very early, we had identified the need on the part of
5 the Department of Energy to acquire sufficient jurisdiction and
6 control and access to Yucca Mountain which would permit it to
7 set the basis for the possible eventual siting of a repository
8 and the assurance that the integrity and safety of the site
9 could be maintained through the 10,000-year lifetime of the
10 site. In effect, we alleged that the Department was required
11 to seek a congressional withdrawal, and also contemporaneously,
12 either some kind of a consent from the state of Nevada to the
13 withdrawal or a session of jurisdiction under Article I,
14 Section A, Clause 17 of the Constitution.

15 We advised the Department in our comments to the
16 Environmental Assessment and they went unheeded, so in 1986 we
17 filed what we've termed the land status case in the Ninth
18 Circuit Court of Appeals. That is very similar to the case we
19 brought against the Bureau of Land Management. We felt that it
20 was necessary to the Bureau of Land Management, even though
21 it's a sister agency, because every agency that participates in
22 this particular decision making essentially is somewhat
23 responsible.

24 We were particularly sensitized to this problem by a
25 simple inquiry, and the question arose whether or not,

1 particularly in light of the Amendments Act, 49 other states
2 could gang up on a single state like Nevada and impose the
3 burden of a problem, apparently a purely commercial problem, on
4 that particular state without the state's consent. And we were
5 convinced that they could not do it directly, and they
6 certainly could, therefore, not do it indirectly through some
7 kind of congressional action.

8 I don't want to editorialize too much about our legal
9 theories but at the basis of them we have identified the fact
10 that states have an inherent sovereignty, jurisdiction and
11 power, if you will, to protect the economy and the environment
12 of the state, and this doesn't necessarily impinge on this
13 Commission's responsibility and jurisdiction over the
14 radiological health and safety aspects of nuclear materials.
15 But it's this jurisdiction, this obligation and power which has
16 to be accommodated before a repository can be sited. And that
17 process, the institutional process of seeking the state's
18 consent, has not been addressed by the Department of Energy.
19 They appear to feel content to leave it to some later period of
20 time.

21 But if in fact we are right in our contentions, then
22 the whole program is under serious jeopardy because a great
23 deal of money can be expended in site characterization in
24 setting the site, only to find out that the courts will enjoin
25 the program at some point in time until the adequate consent is

1 received from the state of Nevada.

2 With that, I will conclude.

3 CHAIRMAN ZECH: Thank you very much.

4 MR. LOUX: Mr. Chairman, just in closing, let me make
5 a couple observations, if I might.

6 First of all, I would like to at least expand a
7 little bit on the notice that Carl had made, that we will be
8 making a very detailed technical presentation with many of our
9 technical contractors involved, to the ACNW in January, and I
10 know that we have given you somewhat of an abbreviated
11 technical overview, but let me assure you that the issues that
12 we are concerned with, and the issues we have been examining,
13 we will be presenting in a great deal more detail to that body
14 some time early next year, and I am sure that if you had a
15 similar interest, we could make a similar presentation here.

16 Well, let me just conclude by indicating that I think
17 that one of our principal areas of concern has to do with the
18 overall planning and management relative to the entire program.
19 One of the most telling examples of this concern, I think, is
20 reflected in the current draft Mission Plan that was issued by
21 the department recently.

22 What, in our estimation, is really needed in the
23 program is a very realistic sort of planning document, planning
24 approach, that is not guided solely by sort of an optimistic
25 expectations approach that seems to be reflected in the current

1 Mission Plan.

2 The Mission Plan, in our estimation, does not provide
3 the true status of the program as we have seen it and know it.
4 Let me just provide you a couple brief examples and then I will
5 close.

6 The first one has to do with the MRS, and I think
7 today is a pretty graphic example here today that the
8 Commission, MRS Commission is holding their first hearing on
9 the issue of MRS, but in the Mission Plan the Department of
10 Energy has apparently assumed that an MRS will be authorized,
11 that the Commission will reach that determination in advance of
12 them deliberating on the issue, and that it is an integrated
13 part of the system rather than again providing a realistic
14 planning approach to looking at the options.

15 There seems to us at least three paths in this area
16 that require some analysis that the Department has not done:

17 One is the obvious one that is included, the combined
18 MRS repository program or systems integrated approach, as it's
19 called, by the Department.

20 The second is I think there needs to be a very
21 realistic examination of the potential for a repository only,
22 without an MRS, and what does that create in the way of issues
23 that I know you are concerned with, Mr. Chairman, how to build
24 system compatibility -- in some cases, it's called
25 standardization -- and those sorts of issues.

1 And then, of course, I think the issue needs to be
2 looked at as well as option third path MRS only. As you well
3 know, when the original act was developed by Congress and
4 contemplated, the MRS was not contemplated as a part of the
5 waste management system, but as an alternative to a repository.
6 All three of those paths need to be provided in a realistic
7 planning document, and the Mission Plan would be the ideal
8 vehicle to do that, but it does not provide that.

9 A second example, briefly, is the schedule for site
10 characterization, in our estimation, does not contain any
11 possible contingency planning, does not provide for any time
12 for any difficulties that might be encountered at the site, and
13 again continues to provide this air of confidence, optimistic
14 expectations, if you would, rather than a realistic assessment
15 of what kinds of things might be encountered.

16 And, of course, lastly -- and this is DOE's assumed
17 assumption that it will receive some authorization relative to
18 a phased repository construction, that materials can actually
19 be loaded in one end of a repository, while construction is
20 still going on in the other end, and clearly that is not
21 something that we find acceptable. I note that I think the
22 Commission had made some very strong comments about that
23 concept in the very first Mission Plan, and so we think that
24 that's somewhat of a problem, and may be a result of DOE's
25 assumption that the site is suitable, and rather than -- and

1 this goes to the heart of our concerns of the site
2 characterization program itself, rather than going out and
3 taking an early look at some of the potential obvious --
4 obviously potential disqualifying issues, and involving those
5 before moving on to the later phases of characterization.

6 The report in the plan contains the inherent
7 assumption that the site indeed is suitable, and proceeds from
8 there in a very optimistic fashion. And again, the planning
9 aspect of this entire project is one which is really under
10 scrutiny here, and probably needs to be looked at in a much
11 different light. Instead of running in an optimistic fashion,
12 as we have talked about, at every key decision point, every
13 option needs to be clearly laid out for the real decision-
14 makers in this program, the Congress, yourselves, the
15 Department, and other stakeholders, to really take a look at
16 which option best fulfills the ultimate goal that this whole
17 program is aimed at. But the Mission Plan does not do that.
18 It does not lay out options and from that perspective it
19 doesn't really provide a realistic planning approach to the
20 program which, at least in our estimation, is really needed.

21 I guess, given the national concern over the recently
22 discovered large scale environmental contamination at the other
23 DOE facilities, I think it is even more important now than ever
24 that DOE's waste program really be subject to a rigorous
25 oversight and scrutiny, as I think that we have been attempting

1 to fulfill since its inception. It requires that every aspect
2 of their planning approach be really scrutinized and looked at
3 for its individual merit in a credible, comprehensive program
4 and site characterization strategy.

5 We think that the approach of perhaps piecemealing
6 the program and piecemealing the site characterization planning
7 and implementation has a very real possibility of impacting the
8 overall success of the program, both from the technical
9 perspective, but as importantly, in terms of the public's view
10 of it. And if the program is going to be successful, it is
11 going to have to receive the confidence of the public, and that
12 is a large hurdle, as you well know, to overcome at this point
13 in time. It's something right now that is lacking in the
14 program, and needs to be looked at very carefully as we head
15 down this road.

16 But with that, Mr. Chairman, let me conclude and
17 indicate that I or any of the other members of the panel would
18 be happy to answer any questions or concerns that you might
19 have.

20 CHAIRMAN ZECH: Thank you very much. We appreciate
21 your excellent presentation, Mr. Loux, and your colleagues.

22 Questions, my fellow Commissioners?

23 Commissioner Roberts?

24 COMMISSIONER ROBERTS: How often, and in what fora,
25 do you meet with DOE?

1 MR. LOUX: We meet with Department of Energy at least
2 in the Nevada Project very regularly. I would suspect weekly
3 on one occasion or another, depending on the various issues
4 that we are currently concerned with, whether it has to do with
5 budgetary constraints or actually has to do with the activities
6 that are going on in the field.

7 Likewise, we have a similar interaction with the
8 headquarters staff on a very regular basis, some in the context
9 of meetings that your staff has held regarding issues that they
10 and us and the department are concerned with, and on occasion
11 they occur directly with the department over issues that we are
12 concerned with, relative to the overall management and
13 direction of the program. But I think it's fair to
14 characterize that our interaction with the department is very
15 frequent and substantial.

16 CHAIRMAN ZECH: Commissioner Carr?

17 COMMISSIONER CARR: Can I follow up on that a little?
18 How effective would you say it is?

19 MR. LOUX: I suspect that's a slightly different
20 question, but --

21 [Laughter.]

22 MR. LOUX: I think that we have not been ineffective
23 in transmitting our ideas concerned to the department. I think
24 we have been very forthright, and very direct about that
25 transmittal of concerns, whether it be in the technical arena

1 or in the management planning area.

2 What happens at that point, I suspect, is a little
3 different. Some of those issues seem to at least approach some
4 resolution, and others clearly have not, but I think that the
5 interaction in and of itself is really the important vehicle.
6 I don't know that we would all agree necessarily on every
7 aspect of the program, but I think the opportunity to lay out
8 and discuss openly the full body of those concerns and have
9 those aired openly in public meeting forum provides at least
10 the opportunity for the state to have its views known.

11 So from that perspective, I think that we have been
12 effective in presenting them. Some of them have been adopted
13 and some, of course, have not.

14 COMMISSIONER CARR: Okay. It appears to me that DOE
15 is after an acceptable site vice the best site. Is that
16 satisfactory to the state of Nevada, if you find an acceptable
17 site?

18 MR. LOUX: Well, I guess our concern all along -- and
19 I realize that the law that governs the program and the
20 regulations do not require necessarily the best site. Nevada
21 has been concerned for some time about that very concept and
22 believe that an acceptable site may not be the kind of
23 philosophical approach to this issue that's probably required,
24 if in fact public confidence is going to be restored in the
25 ability of this nation to safely manage and isolate its nuclear

1 waste and, indeed, in the ability of industry over time to move
2 forward with new initiatives in the nuclear power arena.

3 It seems to me that the public confidence would be
4 better served by a concept that was more geared towards a best
5 or best-available site, really, in the context rather than an
6 acceptable site. And I think that's where our concern
7 lies.

8 COMMISSIONER CARR: How are you factoring in the
9 views of affected local governments and the tribes?

10 MR. LOUX: I guess this is a record, Mr. Chairman and
11 members, that we are quite proud of. Long before any affected
12 local governmental status, as the new law calls it, was
13 contemplated, we funded and provided opportunities for all of
14 the local governments in Nevada to be involved in the program
15 since its inception.

16 In fact, when the program at the executive level,
17 state level, was just getting formed, it was essentially Carl
18 Johnson and myself, and we made the very first initiation of
19 overtures to the local governments in 1983 for full funding,
20 full grant funding, of which we have provided since 1983, and
21 let me add that I believe that the local governments in Nevada
22 have participated in nearly every major decision that the state
23 has ever made in the program, and I think that we provided
24 affected local governmental status long before the term became
25 popular in the legislation.

1 COMMISSIONER CARR: And the tribes, too?

2 MR. LOUX: And the tribes as well.

3 COMMISSIONER CARR: I've got one for Mr. Johnson, I
4 guess. Have you had any difficulty locating and retaining
5 technical experts in this area?

6 MR. JOHNSON: We -- that's a good question. The
7 competition for technical experts is extremely difficult and a
8 time-consuming process, and everybody is trying to obtain the
9 best available expertise and advice that they can on a whole
10 variety of issues, and a repository covers the full gamut of
11 the physical sciences. And so we are certainly out there in
12 the arena trying to identify and pursue those individuals or
13 companies that could help us.

14 Our major problem currently, and I would say it's
15 been that way in the past, is our funding limitations that are
16 provided by DOE. There's just -- we just have a, just a finite
17 pot of money, not an almost endless pot of money like the
18 department does. So we have to be very judicious in how we use
19 that money to obtain the expertise and in many cases have to
20 limit those areas which we actively pursue.

21 COMMISSIONER CARR: Since there's a limited number of
22 experts out there, how can you be sure that you don't have a
23 conflict of interest, that it's your guy that's working for
24 you, instead of some guy who's working for three sides of the
25 street?

1 MR. JOHNSON: That also is a situation which we
2 actively have to pursue on an individual basis, is what
3 conflicts that individual has. And in many cases, through our
4 competitive procurement process, we have had to put
5 restrictions in there, that the selected individual or party
6 has not worked for Department of Energy or the Nuclear
7 Regulatory Commission on this activity in the past, just to try
8 and preserve the independence of the individual.

9 COMMISSIONER CARR: Okay. Mr. Murphy, do you not
10 believe that the negotiated rulemaking process will work?

11 MR. MURPHY: Oh, it depends on the issue. It
12 certainly worked from our point of view in the licensing
13 support system, and I hesitate to get into in too much detail,
14 because the comment period hasn't yet closed. But we felt
15 quite comfortable with the way the process worked in that area.

16 I have serious reservations about whether or not that
17 same system can work, or at least work as well, if you're
18 trying to negotiate a highly contested technical issue in which
19 there is fundamental disagreement among the technical
20 community --

21 COMMISSIONER CARR: That's what it was designed for,
22 I thought.

23 MR. MURPHY: Well, it's designed for, as far as from
24 my perspective, at least, it's designed to arrive at a
25 consensus, and in areas where you can do so through

1 negotiation. But until -- and, you know, I don't feel real
2 comfortable talking about the technical disagreements with
3 which -- you know, I'm not an isotope geochemist, but --

4 COMMISSIONER CARR: Neither am I.

5 [Laughter.]

6 MR. MURPHY: But it just seems to me that some of
7 these areas, at least at the present time, and probably until
8 -- at a minimum until characterization is complete, there is
9 going to be such fundamental disagreement in the technical
10 community with respect to some of these parameters involved,
11 and what is or is not required, or what constitutes an
12 acceptable alternative conceptual model, for example, that it
13 would be very difficult to arrive at broad ranging rulemaking
14 in those areas.

15 Some of that stuff is simply, I think, going to have
16 to be sorted out through the adjudicatory process in -- once
17 the license application is filed. Now certainly some other
18 things -- there are a whole handful, I suppose, of areas which
19 would lend themselves to negotiated rulemaking. Some of the
20 areas where the Staff has suggested, for example, like clearing
21 up some regulatory and institutional concerns. I don't see any
22 problem in that.

23 COMMISSIONER CARR: I guess I was a little concerned
24 that it sounded like it was prejudged, without giving it a
25 chance to work.

1 MR. MURPHY: No, I think there are certainly many
2 issues which would lend themselves ideally to negotiated
3 rulemaking. I think there are others -- and I don't want to
4 prejudge which technical issues can and can't, I want to leave
5 that to our technical experts, but it seems to us that there
6 are some technical areas where you are just not going to be
7 able to negotiate them. Somebody is going to have to present
8 one side, their side, and somebody is going to have to present
9 the other side to an ASLB, and somebody is going to have to
10 make a decision. And I don't think we are going to be able to
11 negotiate some of these things.

12 COMMISSIONER CARR: Well, you can always find some
13 technical experts to disagree.

14 MR. MURPHY: Well, that's true, but --

15 COMMISSIONER CARR: All right. I've got one other
16 question for Mr. Swainston. I didn't understand your
17 discussion about the land very well, but how did DOE come by
18 the test site plan, for their weapons test site?

19 MR. SWAINSTON: That was an example where -- I don't
20 think it was the -- obviously it was not the DOE at that point
21 in time, but the particular federal agency did seek the consent
22 of the Nevada state legislature, and acquired that consent.
23 This has been the rule rather than the exception for -- well,
24 up until 1940, at which time a Supreme Court case suggested
25 that in all cases the government didn't necessarily need

1 exclusive legislative authority or exclusive jurisdiction over
2 a federal site. In cases of federal forest reserves and a
3 number of other things, the jurisdiction of the state was, for
4 the most part, left intact as to those. But this is the
5 singular example which sets it apart. It's a case where, on
6 one hand, it is very likely that you are dealing with a hostile
7 state, and on the other, you need to establish the requisite
8 jurisdiction and control for the 10,000 year period.

9 Now without that consent of the state, the federal
10 government is there like an ordinary proprietor, and the
11 question is, is whether or not even in the licensing of a
12 reactor site, whether you could license a reactor site without
13 getting the appropriate licenses and the involvement of the
14 state in which that reactor was to be located. And the answer,
15 I think, is clear, is no.

16 COMMISSIONER CARR: Well, if I accept your premise, I
17 doubt that I'll find a friendly state, so you're really telling
18 me they are all going to be hostile, and we won't find a place.

19 MR. SWAINSTON: Well, that's why the institutional
20 process has been flawed from the beginning. If the federal
21 government and Congress were to approach this properly, they
22 would have gone out and sought to acquire a site in the
23 beginning through negotiation, and then entered into the
24 program for siting.

25 MR. LOUX: I wonder if I could add to that just a

1 little bit. If in fact the site was on privately-held land,
2 the opportunities for the department to either purchase that
3 property or to condemn it would be there. I think DOE long ago
4 recognized the environmental assessments perhaps of the nine
5 sites that were out there, the site in Nevada and the one in
6 Utah also being on public BLM land, would be the most difficult
7 to gain control of the actual physical property.

8 So there are other paths that are available to pursue
9 in order to acquire jurisdiction and control of some piece of
10 property. The problem here happens to be that this is
11 currently held in custodianship by the Bureau of Land
12 Management as multiple-use land currently, because our papers
13 indicated there are, for example, over some 140 mining claims
14 currently established on Yucca Mountain itself, 10 which happen
15 to go right on the top ridge. But it is currently multiple-use
16 public land, and when that transfer would occur between that
17 agency, BLM, to the Department of Energy and a formal
18 withdrawal approved, as was done in the case of the Nevada test
19 site, as you recognized, the applicant, then the AEC, came to
20 the state of Nevada and asked for the consent of the Nevada
21 legislature, which was given in that particular instance.

22 So there are alternatives. They just happen to have
23 picked onto the -- at least a geographic location which they
24 long ago recognized as very difficult to gain jurisdiction and
25 control over.

1 CHAIRMAN ZECH: Commissioner Rogers?

2 COMMISSIONER ROGERS: Just in your five points in the
3 conclusion of your report, of areas that you were concerned
4 about, item 3 was a statement that DOE's approach to equal
5 distribution in the repository underestimates the underground
6 space requirements by a minimum factor of about one-third.

7 Does DOE agree with you on that? And what is the
8 basis for the difference in the calculation?

9 MR. JOHNSON: We made that calculation back in 1985,
10 I believe, and it was provided to the department as part of our
11 environmental assessment comments, and what we did was that DOE
12 provided in their environmental assessment a number for the
13 per-canister heat load, and when you made a conservative
14 assumption as to the spacing between the canisters and
15 calculated it out, you came out with a number approximately a
16 third larger in areawise that DOE would need for the repository
17 than what they had in the document.

18 DOE has never acknowledged or even commented upon
19 those calculations that we made.

20 COMMISSIONER ROGERS: How serious would the
21 implications of that be, for the site itself?

22 MR. JOHNSON: The seriousness of that lies in the
23 geology and hydrology of the site itself. The site is one that
24 is very limited, limited by fault systems, and the like.
25 Therefore, the total amount of acreage that the department has

1 to consider for a repository site here is somewhat limited, and
2 limited by the geology in the geologic structure.

3 Therefore, there is an inherent limitation based on a
4 heat load of just how much material can be put into this
5 particular site.

6 COMMISSIONER ROGERS: Well, it is a question of how
7 much flexibility in terms of the geography there is, and
8 whether this factor of a third on the volume is a significant
9 matter or not.

10 MR. JOHNSON: The other thing that enters into this
11 is that the department has not gotten underground, did not
12 produce an exploratory shaft or any drifts, and that sort of
13 thing. There's certainly a distinct possibility that once they
14 do get underground, additional fault zones and areas of poor
15 rock quality will be identified. Areas that cannot be used as
16 a repository storage. This may further constrict the
17 repository site.

18 So in our view you're getting to the point there
19 isn't a whole lot of flexibility in the size of this
20 repository.

21 COMMISSIONER ROGERS: Just along a technical area,
22 are there any areas of major technical disagreement between
23 your staff and the NRC technical staff that have come about?

24 MR. JOHNSON: In responding to that, I don't think
25 there is any areas of major disagreement. I think there is

1 areas where we put more weight and more emphasis, more
2 priority, than the NRC does. The NRC has some of the areas, I
3 believe they probably put a little bit more weight priority on
4 than we do. But I don't see that there is major areas of
5 difference between the two staffs.

6 COMMISSIONER ROGERS: There was a comment about the
7 QA program, the DOE QA program. The contractors' response to
8 that. And I think some suggestion that your own contractors
9 seemed to be receptive to a QA program, whereas the DOE
10 contractors apparently are not so comfortable with it. Is that
11 a fair characterization? And if so, why are you more
12 successful with imposing QA on the kinds of contractors which
13 apparently haven't been very comfortable with this approach in
14 the past, as distinct from the contractors that DOE has?

15 MR. LOUX: Well, let me take an initial shot at that,
16 and I will let Carl follow up on it.

17 I'm not sure that any of the contractors are
18 particularly enamored with the processes that are involved,
19 processes to involve the quality assurance program.

20 However, we have taken, I think, a real strong
21 management approach from the top down throughout the entire
22 organization, as well as through our contractors, and directly
23 we have some direct day-to-day contact with the contractors
24 from a management perspective that I think helps them
25 understand very clearly the importance of QA in our entire

1 program, and the value of it relative to this whole proceeding
2 that we are involved in.

3 Part of the problem, I guess, however, or part of the
4 solution in a more practical way is that in the instance that
5 they are not following a QA program, we have terminated
6 funding, we have terminated their project activities very
7 quickly, and made it very clear the seriousness of the QA
8 program and the seriousness of the issue.

9 The department, on the other hand, at least in my
10 estimation, does not have the commitment from the management
11 down through the organization and directly out to the
12 contractors from the management at the top about the
13 importance.

14 For example, contractors under the Department of
15 Energy, when they are found deficient and issued stop-work
16 orders, continue to receive their full contract payment, even
17 though they are not conducting the actual work that they were
18 contracted to engage in. So there's not a heck of a lot of
19 incentive to in fact straighten the program out, at least in my
20 estimation, and to get back on the track, because the money
21 still comes in one way or another. And I think that the very
22 serious and rigorous management approach to QA from the top
23 through the organization, with the possible penalties being
24 imposed, if that's violated, is the key, at least in our
25 estimation, to what makes our program work.

1 MR. JOHNSON: I would just add one thing, and I think
2 Bob has clearly articulated the situation here, but I didn't
3 want to present a rosy picture that everything was wonderful
4 about instituting our quality assurance program.

5 We had some tough discussions and arguments, even to
6 the point of issuing stop-work orders and stopping -- putting
7 stops on contracts, until they complied with what our quality
8 assurance program was all about.

9 There is something that I know the staff is aware of
10 about our quality assurance program that makes it unique from
11 Department of Energy's, in that because of administrative
12 problems within the university systems in which we have many of
13 our contracts, our QA program is a top-down type program, in
14 that the overall QA program is housed within our office, and by
15 contract we require that all of our contractors adhere to our
16 quality assurance program. So it puts all the quality
17 assurance management onto our backs, and takes it off the backs
18 of the contractors.

19 So we are required to more rigorously oversee and
20 inspect the quality assurance aspects of the programs done by
21 our contractors than would be done by a normal type program.

22 COMMISSIONER ROGERS: Okay, thank you. There's just
23 one other question I have, and it relates to this question of
24 system licensing, and the importance of transportation in
25 there.

1 What are the principal transportation issues that you
2 see in system licensing, with respect to the site itself, that
3 perhaps haven't either come to light or received the kind of
4 attention that a fundamental problem would dictate?

5 MR. LOUX: Well, I guess there's maybe two aspects to
6 that, and certainly one is from a systems perspective, as long
7 as the department is viewing -- and I think it's perhaps
8 somewhat correct that this is an entire waste management system
9 reactor to repository, or even reactor to MRS to repository,
10 requires that at least that entire system be looked at in a
11 licensing approach. I think that is consistent even with some
12 of the comments that I have at least heard recently from some
13 of your other staff and members here relative to compatibility
14 standardization, making sure that there are at least some
15 things that are compatible, or most things are compatible
16 through the system.

17 More importantly than that is, I think, from our
18 perspective, it's the lack of attention that's really been paid
19 to the issues of transportation as they affect the site itself.
20 As you may know, or probably are aware at this point, for
21 example, there is no existing rail access to the site
22 whatsoever, and it may be unlikely that -- or may be likely
23 that there will not be found any existing rail or any rail
24 being capable of being entered into the site itself.

25 But what that, I guess, does is begins to focus

1 attention on the need to look at the transportation routes and
2 modes themselves very early on, to make some determinations
3 about the other ways that transportation can impact a system,
4 for example, without rail, does an MRS still make sense. Those
5 sorts of issues have not been addressed, and especially I think
6 it is critical in the context of the necessary lead times that
7 are going to be required to get any of those elements of the
8 system in place.

9 For example, in the current plan of the Department of
10 Energy, no less than 110 miles of new rail line, assuming that
11 they could find lands that aren't encumbered by other
12 activities -- defense, Indian tribe, environmental concerns and
13 the like -- would need to be constructed.

14 The lead times in some of those areas are 15 to 20
15 years, for permitting, for construction and the like. We will
16 see the progress in that, but what I think -- that's the
17 practical side of that. But more importantly, how that enters
18 into the system is that as these options are examined and some
19 of them discarded, that process itself, I think, impacts the
20 entire system itself, whether we look at various modes or
21 routes, as the case may be.

22 COMMISSIONER ROGERS: Thank you.

23 CHAIRMAN ZECH: Commissioner Curtiss?

24 COMMISSIONER CURTISS: Let me pick up on that point,
25 because I think as I understood your point, the Department of

1 Energy and this agency as a regulatory agency are clearly
2 looking at the system as a whole, beginning with the reactor
3 and on-site storage, and spent fuel burn-up rates and
4 everything that might affect the repository. I guess I was a
5 little bit unclear what the connection is between the agency's
6 licensing responsibility and specifically to determine that the
7 repository application and repository itself meets our
8 statutory standard, and the transportation of nuclear waste to
9 the repository. Because you take the position that
10 transportation ought to be an issue covered in our proceeding,
11 and I'm unclear what the connection is between that and the
12 repository operation itself.

13 MR. MURPHY: Let me just give you one example,
14 Commissioner Curtiss. The size and design of the waste-
15 handling facilities on the surface, the surface facilities,
16 will to a certain extent drive the transportation system, and
17 vice versa, and those things have to, it seems to us, be
18 considered in the context of the overall repository licensing.
19 You can't just design the underground -- license the
20 underground facilities, license the surface facilities with
21 respect to the safe shutdown earthquake and those kinds of
22 things, without worrying about how the transportation system is
23 going to impact the ability and the rate of receipt of waste at
24 that facility, and vice versa, how that facility will impact
25 the transportation system all the way back to the reactor.

1 COMMISSIONER CURTISS: You don't envision litigating
2 transportation routes in this proceeding?

3 MR. MURPHY: Not to the extent of litigating whether
4 or not it should go over, you know, SR 20 or IX through Kansas,
5 no. But -- not necessarily, but an overall national
6 transportation system, the routing aspect of that, rail versus
7 truck and those kinds of things, litigating may not be the
8 correct word, but it certainly has to be considered, from our
9 point of view, it has to be a factor taken into consideration
10 in licensing.

11 COMMISSIONER CURTISS: One other quick question.
12 Focusing on the concern that you have expressed about the
13 relationship of our Staff and the extensive interaction that
14 they have with DOE today in an informal process, discussing the
15 technical issues that have arisen, and your proposal that that
16 prelicensing process ought to be formalized in some way, I
17 gather the gist of your concern, Mal, as you have expressed it,
18 is that the process that's underway today is resulting in the
19 resolution of issues that ought to be preserved for some
20 subsequent discussion where the state either is involved in the
21 resolution or can adjudicate those issues.

22 I guess I have two questions:

23 One, isn't it ultimately up to the licensing board of
24 this agency to resolve the issues, and regardless of what our
25 Staff does today in informal interaction with DOE, don't they

1 ultimately have to make -- they, DOE, and the Staff as a party,
2 ultimately have to make the case to the licensing board for the
3 final resolution; and two, what is it that you have in mind in
4 terms of formalizing the process that we are in today that
5 would address that concern?

6 MR. MURPHY: Well, let me take the first concern
7 first. That is certainly true, that the licensing board is
8 going to have to make findings on these issues, but I certainly
9 do look forward with great anticipation to having to litigate a
10 licensing case in which the NRC Staff agrees with the
11 Applicant. I don't -- you know, the state would be in a very
12 untenuous position if prior to licensing the major issues had
13 been resolved in the sense that the Staff and the department
14 agree with -- on certain positions.

15 So what we are saying is -- and I don't think any of
16 those issues have to this date been resolved -- correct me if
17 I'm wrong, Carl, but I don't think this interaction has to date
18 led to the resolution of any of these issues. I think what we
19 are talking about is our movements pointing toward the ultimate
20 resolution of these issues. I don't think anything has already
21 left the bar.

22 So those are the things that concern us. We think we
23 have some legitimate and serious scientific input to make into
24 this process, and we want to make sure that input is made and,
25 to the extent that there is any disagreement between our

1 technical people and DOE and the NRC Staff ultimately, that
2 those issues are left to resolution by the licensing board.

3 COMMISSIONER CURTISS: You are not saying that the
4 parties, prior to the board proceeding, can't reach agreement
5 on issues?

6 MR. MURPHY: No.

7 COMMISSIONER CURTISS: You-all can reach agreement
8 with DOE on issues?

9 MR. MURPHY: No, no. Certainly.

10 COMMISSIONER CARR: In fact, if they didn't, it would
11 probably never get to the board in the first place.

12 MR. MURPHY: Right. Right. Certainly. Ultimately
13 what we are saying is that we need to find some way to bring
14 more formality to the process, so that issues aren't resolved
15 without us, without our agreeing that they are resolved,
16 essentially.

17 I'm sure there are -- don't ask me what they are, I'm
18 not a technical person, but I'm sure there are some issues on
19 which the parties will ultimately be able to agree prior to
20 licensing. I don't know what they will be, but I can't imagine
21 that --

22 COMMISSIONER CARR: That hasn't happened yet, to your
23 knowledge?

24 MR. MURPHY: Not to my knowledge, not on any
25 significant aspects. The mechanism -- we don't have a specific

1 mechanism to suggest today. We want to bring it to -- we
2 brought it to the table so that all of us could start thinking
3 about it. The one thing I think we do agree with is that the
4 so-called Morgan Davis agreement is not enough in which the
5 state is mentioned as being involved in the process as an
6 observer, and the state will be invited to the various meetings
7 in a capacity as an observer, and that is, to my knowledge,
8 pretty generally has been the case.

9 I don't think the state has been left out of the
10 decision, but we need to be more than an observer from now on.
11 I think we need to be a participant, a real partner in this
12 process.

13 MR. LOUX: Let me expand just a little bit on that.
14 I think it has to do also somewhat with our concern about the
15 ability of other parties to really be involved in what's going
16 on in this process.

17 As you know, we represent the state of Nevada and its
18 citizens. There's also groups of other parties who have an
19 ongoing interest in what's going on here, some of which you may
20 be cognizant of, some of which you may even not in the terms of
21 formal recognized body, the local governments being a classic
22 example where those of us who are in a very -- in the informal
23 conversational telephone sort of loop are generally cognizant
24 of the issues that are out there, and what meetings are going
25 to be taking place to at least lay out those issues and talk

1 about them. But the general public, in essence, is not. Many
2 of the other parties, some of the tribes, some of the local
3 governments which may not be formally affected, but certainly
4 are affected, may likely also have a desire to have input into
5 this process and have an ability to really understand the
6 issues that are on the table, and how they may get resolved.

7 So I think it serves our purpose in being
8 representatives of the public to see this entire process, at
9 least -- and would suggest that formalization as a means to
10 ensuring that all of those parties have notice, have ample
11 opportunity to make technical and other sorts of input into the
12 deliberations when these discussions between the staffs go on,
13 and I think there may be other ways to ensure that that takes
14 place. But at least formalization of the process is one way,
15 it seems to us, that all of the other parties who are truly
16 affected, have an ongoing interest, would have the opportunity
17 to participate. And since I think that we represent the public
18 of Nevada, I think that we are advocating some of this on their
19 behalf.

20 COMMISSIONER CURTISS: I guess I'd encourage, as you
21 take a look at that, the concern I have is that as you back up
22 the formal adjudicatory constraints that attach when the
23 application is submitted into the prelicensing stage. The
24 consequence of that for this agency is that since the
25 Commission will make the final decision, it constrains the

1 Commission's ability to communicate with its Staff on technical
2 issues. But once that formal process attaches, this body as a
3 tribunal to decide the issue ultimately for the agency has some
4 constraints in what it can communicate --

5 MR. MURPHY: That's why I think I said, at least I
6 intended to say, that we don't think it's yet time to assign a
7 docket number to the case. You are constrained in talking to
8 us as well as talking to the Staff, and we are aware of that as
9 well.

10 MR. LOUX: We certainly would be pleased to sit and
11 talk about the ways in which maybe some of the areas that we
12 are concerned about could be dealt with, perhaps in some other
13 fashion, assuming that there are some possibilities.

14 CHAIRMAN ZECH: Thank you very much.

15 General Counsel, I might ask you to comment, please.

16 MR. PARLER: Mr. Chairman, in the context of
17 discussion that has just taken place, I should point out, at
18 least as background information, that the Commission in its
19 regulations in Part 60 did, at least to some extent, to a
20 significant extent, in my judgment, anticipate the problem.
21 That is the relationship between the informal site
22 characterization analysis process and the discussion of
23 information and at least agreement at that stage with what
24 would happen later on in the formal process, and the
25 regulations specifically say that though earlier analysis, et

1 cetera, does constitute a commitment of any kind to issue an
2 authorization or a license.

3 Now having said that, I think it is also clear,
4 however, that it is important during the earlier stages of the
5 process, such as the site characterization process, to identify
6 as many issues as possible, and if possible, to come up with
7 criteria or standards. But the ultimate decision in this case,
8 unless the law is changed, will have to be made on the basis of
9 a formal record. The contemplation of our regulations and
10 under the Nuclear Waste Policy Act for early involvement and
11 early discussions, our regulations clearly say that that's
12 without prejudice to the formal subsequent resolution of those
13 issues in a formal proceeding.

14 CHAIRMAN ZECH: All right. Thank you very much.

15 Just one question for you, and I think you have
16 answered it, but let me just make sure:

17 It is my understanding that the NRC Staff has been
18 actively interfacing with the Nevada Team regarding these
19 oversight issues. Do you consider that this interface with our
20 Staff and with your officials is progressing satisfactorily?

21 MR. LOUX: I believe so, Mr. Chairman. I think that
22 my staff, in reporting to me about the interactions, have
23 described them as being very fruitful and very productive in
24 terms of having the opportunity to interact and talk about some
25 of the issues we are concerned with. So I think in general

1 that is accurate, Mr. Chairman.

2 CHAIRMAN ZECH: Thank you very much.

3 Well, on behalf of the Commission, I'd like to thank
4 you, Mr. Loux, and all of your colleagues for being with us
5 today. You have given us a very informative and very timely
6 briefing. The high level waste program is, of course, of great
7 national significance and interest to all of us. I would
8 encourage you to continue your ongoing technical interaction
9 with not only the NRC Staff, but with DOE and all those others
10 involved in it.

11 I would certainly encourage you to take your concerns
12 to the Department of Energy, which I'm sure you have, but
13 continue to do that, because they are, of course, responsible
14 for solving and resolving as many issues as they can with you.

15 I think that it is important that the state of
16 Nevada, your local folks as well as the Indian tribes, continue
17 to remain informed and involved in the whole process, and in
18 all aspects of the high level waste program as it affects
19 Nevada.

20 Lastly, I would again say we deeply appreciate your
21 briefing the Commission. We hope you will keep us informed
22 through the Staff of the progress that you see, or the lack of
23 progress that you see, the problems you see at Nevada, so that
24 we can be informed. We will certainly plan to have another
25 such meeting some time in the future at an appropriate time to

1 allow you to address the Commission directly on this important
2 national issue.

3 Thank you very much for -- yes, the General Counsel
4 has another comment.

5 MR. PARLER: Excuse me for interrupting you.
6 Yesterday there was delivered to me a five-page statement of
7 the nine-county board of commissioners to the Nuclear
8 Regulatory Commission, December the 1st, 1988, with a note on
9 it that this be considered as a part of the record for this
10 briefing. I just wanted to call that to the attention of the
11 Commission. I have read it and it would seem to me that it
12 would be appropriate for it to be considered a part of this
13 proceeding.

14 CHAIRMAN ZECH: Well, I don't see any problem, unless
15 my fellow Commissioners do. Let's consider it part of the
16 meeting as requested.

17 Again, let me then thank you, gentlemen, for being
18 with us today, and we appreciate very much your briefing.

19 Thank you. We stand adjourned.

20 [Whereupon, at 11:25 a.m., the proceeding was
21 adjourned.]

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CERTIFICATE OF TRANSCRIBER

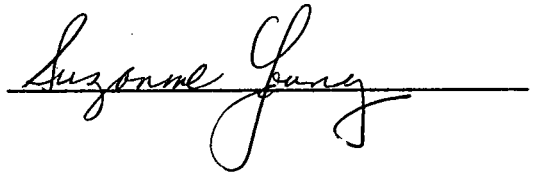
This is to certify that the attached events
of a meeting of the U.S. Nuclear Regulatory Commission
entitled:

TITLE OF MEETING: COMMISSION MEETING WITH STATE OF NEVADA ON
HIGH-LEVEL WASTE PROGRAM

PLACE OF MEETING: Washington, D.C.

DATE OF MEETING: THURSDAY, DECEMBER 1, 1988

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

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

Ann Riley & Associates, Ltd.

SCHEDULING NOTES

TITLE: MEETING WITH STATE OF NEVADA ON HIGH LEVEL WASTE PROGRAM

SCHEDULED: 10:00 A.M., THURSDAY, DECEMBER 1, 1988 (OPEN)

DURATION: APPROX 1-1/2 HRS

PARTICIPANTS: NUCLEAR WASTE PROJECT OFFICE 45 MINS
AGENCY FOR NUCLEAR PROJECTS

- ROBERT R. LOUX, EXECUTIVE DIRECTOR
- CARL JOHNSON, TECHNICAL PROGRAM ADMINISTRATOR
- HARRY SWAINSTON, DEPUTY ATTORNEY GENERAL
- MAL MURPHY, SPECIAL DEPUTY ATTORNEY GENERAL

SPEAKING

- UPDATE ON STATE'S PROGRAM TO REVIEW DOE CHARACTERIZATION OF YUCCA MOUNTAIN
- OVERVIEW OF STATE'S TECHNICAL AND QA PROGRAMS
- SELECTED REGULATORY ISSUES

STATEMENT TO THE U.S. NUCLEAR REGULATORY COMMISSION

Robert R. Loux, Executive Director,
Nevada Agency for Nuclear Projects
December 1, 1988

INTRODUCTION

Since the State of Nevada last met with members of the Nuclear Regulatory Commission, about a year and a half ago, to discuss our views on the progress of the high-level nuclear waste repository program, there has been a major legislative restructuring of the Department of Energy program. Perhaps of greatest significance to both the Commission and Nevada is the action taken in the Nuclear Waste Policy Amendments Act of 1987 to set aside the earlier screening process for repository sites and focus solely on the Yucca Mountain, Nevada, candidate site. It is not our purpose today to debate the wisdom of that Congressional action, but rather to discuss various elements of the Federal and State programs in the context of their having been impacted by the decision to characterize a single site for a repository recommendation.

In May of this year, Mr. Ed Kay, the former Acting Director of the DOE Office of Civilian Radioactive Waste Management, presented the Commission with a program status report. In his concluding comments, he said, "We fully expect that the NRC will be very demanding of the DOE program in order to develop the confidence and reasonable assurance that the public health and safety will be protected." The State of Nevada, fully concurs with that statement, and recognizes that the oversight programs of the State, and the regulatory review process of the NRC, beginning with the Site Characterization Analysis of DOE's statutory Site Characterization Plan, must be vigilant and rigorous, on a day-to-day basis, to assure the DOE's and the nation's expectations are met, and hopefully surpassed.

As has been the practice since passage of the 1982 Nuclear Waste Policy Act, Nevada will continue to constructively interact with the Commission and NRC staff on all appropriate aspects of the national nuclear waste program. Despite the differing nature of our legislated roles, the Commission's and the State's interests in the regulatory arena coincide in the single goal of assuring the protection of the public health and safety.

Nevada's presentation, today, will touch on a broad range of topics of mutual interest. In addition to this meeting, the State is scheduled, in January, to present an in-depth discussion of the technical issues associated with the Yucca Mountain candidate site and its characterization to the NRC's Advisory Committee on Nuclear Waste. We welcome both today's meeting with the

Commission and the upcoming meeting with the ACNW as being particularly timely relative to DOE's planned near-future issuance of its statutory Site Characterization Plan, and the initiation of the NRC's regulatory role in review of the DOE's plans and activities leading to a site suitability determination.

Before moving onto discussing some broader matters of programmatic interest, it will be useful to describe Nevada's technical oversight program, including a brief overview of our reviews of DOE's site characterization planning efforts, and our observations and activities as they relate to the application of quality assurance to the repository program and its review and oversight.

NEVADA'S TECHNICAL OVERSIGHT PROGRAM

Technical programs have been a major component of Nevada's activities since the State began participation in the repository program.. The Technical Programs Division of the Nevada Agency for Nuclear Projects has a small technical staff with disciplines in radiation health physics, geology, engineering, and environmental sciences. The major component of the technical expertise for the Agency comes from support contractors and consultants.

(Viewgraph 1) This viewgraph lists the current technical contractors supporting the State and their technical disciplines. This list represents both university and private sector contractors. These major contractors are supported by numerous subcontractors from all over the U.S. and Canada who bring specialized expertise to the various technical programs. This list represents approximately 150 research scientists, of which over half are PhD's, and several are members of the National Academy of Science.

The technical programs are fully funded through the provisions in the Nuclear Waste Policy Act and takes its direction from the State participation provisions in the Act which allow the affected State the right to review, evaluate, monitor, and test the repository site proposed by the Department of Energy. The State's Technical Program and its studies are based upon the requirements of 10 CFR Part 60, 40 CFR Part 191, and the individual scientist's understanding of the geohydrologic setting of Yucca Mountain in the Southern Great Basin. These bases have lead to the development of a series of technical concerns with the suitability of Yucca Mountain to host a mined-geologic repository.

(Viewgraph 2) This viewgraph lists the State's concerns with the suitability of Yucca Mountain.

Since this site is proposed to be an unsaturated zone repository site, understanding the movement of water through the unsaturated zone is key to determining whether the site will meet the performance requirements of 10 CFR Part 60 and 40 CFR Part 191. Studying and modeling the unsaturated zone has its roots in the agricultural community where there was a need to understand movement of water through soil. At Yucca Mountain, science beyond current technology will be required to model water movement through low permeability, fractured volcanic rocks of varying porosity and saturation. Current hydrologic models do not serve the scientific community well with regard to these site conditions. Scientists throughout the world are currently addressing the problem, but adequate resolution suitable for near term licensing of this facility does not appear to be forthcoming. The State does not believe the unsaturated zone at this site can be adequately characterized using available technology nor can it be modeled with reasonable certainty and still meet DOE's characterization schedule.

A clean water supply is the life blood of future growth in Southern Nevada. The State is concerned about the potential for future contamination of the regional aquifer system from a loss of repository integrity or a miscalculation of repository performance.

Future climatic conditions will play a key role in changes to the hydrologic regime, potentially resulting in adverse impacts on site performance. It is vital that future climate variations be predicted with reasonable assurance.

The Great Basin is an active area geologically. Active tectonism in the form of earthquakes and fault movement is prevalent. DOE has already identified 32 faults in the site area, some of which must be considered active. The State has concerns about what adverse affects such tectonism might have on altering site conditions and thus affecting site performance. There is also concern about what adverse affects future nearby nuclear testing might have on repository performance.

Volcanic activity could play a dynamic role in the future integrity of the repository. Volcanos are located within 10 miles of the site, at least one of which may have erupted most recently about 5,000 years ago.

Mineral resource exploration is resurging in Nevada. Two new gold strikes have been made within 40 miles of Yucca Mountain in the past year. One active gold and silver mine is already located within 10 miles of the site. Currently mineral explorationists view volcanic calderas, such as those which produced the volcanic tuffs at Yucca Mountain, as prime exploration targets. The volcanic tuffs may make Yucca Mountain a future exploration target. Numerous active mining claims

already dot the Yucca Mountain ground surface, 10 of which lie on the crest of the mountain itself.

The technical concerns just discussed form the backbone of the State's independent technical studies program. Results from ongoing studies will assist the State in its independent assessment of the suitability of Yucca Mountain to host a geologic repository.

These technical concerns are not new. They were first articulated to DOE in the State's comments on the Draft Environmental Assessment for Yucca Mountain and again a few months ago in the State's comments on DOE's Consultation Draft-Site Characterization Plan. To date, the DOE has failed to adequately address these technical concerns.

Site Characterization Plan:

As the Commission is aware the DOE released its Consultation Draft of the Site Characterization Plan (CD/SCP) early in 1988. DOE conducted public meetings in the State to introduce the draft plan. Much like the NRC staff, the State and its technical contractors conducted a thorough review and critique of the plan. The Agency's comments were published in a 731 page, two-volume document issued in September, and provided to the Commission staff.

(Viewgraph 3) This viewgraph lists the State's general comments on the plan. The consultation draft-site characterization plan is not a complete document. The plan does not provide a complete picture of all programs and activities which will be conducted during site characterization. The plan does not describe the environmental programs which 1) must precede some technical field studies; 2) are definitely linked from a regulatory standpoint to technical field activities; and 3) have an impact on the characterization schedule.

Separately the Act in Section 113(b)(1) requires the plan to contain a general description of the site, a description of site characterization activities, plans for decontamination and decommissioning of the site, criteria to determine suitability, a description of the waste form and packaging, and a conceptual repository design. The CD/SCP does not contain plans for decontamination and decommissioning of the site and a complete description of the waste form and packaging. The State's concerns with the repository conceptual design will be discussed later in this presentation. The State also believes that it was the intent of Congress and certainly the NRC that the determination of site suitability be given high priority and early determination.

The CD/SCP fails to consider a range of alternative conceptual models of the Yucca Mountain geology and geohydrologic setting. The NRC staff also noted this concern in their point papers on the CD/SCP. The State actively participated in a four-day workshop on alternative conceptual models in April. The State believed in April, and still believes, that the SCP seeks to defend a single, simplified model of the site that largely ignores the need for thorough investigation of a range of coupled geologic and hydrologic processes and events and their potential significance to waste isolation.

The CD/SCP describes in general terms a large number of activities which will require the use of testing and analytical equipment and methods in order to collect the requisite data, yet there is no substantive review of the availability of state-of-the-art technology to perform the tests in a valid and verifiable manner. DOE's own siting guidelines require the use of "reasonably available technology." Surface-based geophysical techniques, borehole logging, pore-rock fluid extraction, and unsaturated zone hydrologic modeling are some examples of areas where the reasonably available technology standard is not met.

According to NRC Regulatory Guide 4.17, a Site Characterization Plan should provide a mechanism to delimit specific issues and identify plans for resolving those issues at an early time in order to avoid delays in the process. The CD/SCP meets neither of these requirements. The CD-SCP represents a generic and generalized approach that does not recognize a full range of issues specific to the Yucca Mountain site that must be resolved.

SCP Conceptual Design Report:

The State, through its Repository Engineering Contractor has conducted a review of the conceptual design for a repository at Yucca Mountain as presented in the SCP. The State is currently publishing its comments on the document.

(Viewgraph 4) Viewgraph 4 presents a list of the State's general concerns with the conceptual design report. Much of the report is comprised of designs based on large assumptions that lead to inconclusiveness in terms of technical integrity and reasonableness. As a result, the likely success of the designs proposed within the report is highly questionable from a technical and constructibility standpoint. Deficiencies are found throughout the report ranging from the over-simplification of the geologic and geohydrologic setting to an incorrect determination of the repository horizon's host rock strength. All these deficiencies impact directly to the probable outcome of the site characterization of Yucca Mountain and the design and construction of the repository. It does not appear that a

concerted effort has been put forth in this report to develop the repository concepts to a reasonable level of engineering and scientific integrity.

Exploratory Shaft Facilities:

The State is aware that the staff has briefed the Commission on their concerns with the ESF and the progress made by DOE in resolving those concerns. The State also has concerns in this area.

(Viewgraph 5) The State's concerns center in two areas: shaft location and the design control process. The State first expressed these concerns with the exploratory shaft location in our comments on the Draft Environment Assessment for Yucca Mountain. These concerns focused on (1) a shaft location process which did not consider 10 CFR Part 60 requirements, and (2) the potential of flash flooding at the designated shaft location to adversely affect site performance. The Staff also voiced similar concerns in their comments on the SCP. As a result of these comments DOE moved the shaft location from an alluvial wash to bedrock. This movement has not totally resolved the State's concerns. The shaft location has not been reanalyzed considering Part 60 requirements and a site-specific probable maximum flood analysis has not been performed to determine whether the exploratory shaft where located can meet performance requirements. Nevada has issued letter reports to both DOE and the NRC staff with detailed views on these two subjects.

The DOE has decided the exploratory shaft will be designed so that it can be utilized as part of the repository during the operational phase, therefore the shaft must be designed with the same rigid quality standards as the repository. The State has participated in DOE's 50% and 100% design review process, and as a result, has developed a concern that the Title I design for the exploratory shaft (the preliminary design) was not performed using a design control process envisioned by Part 60, Subpart G or Part 50, Appendix A. Over the last few months, a number of NRC/DOE/State meetings have been held to resolve this concern. The State would hope that the DOE can and will demonstrate that the control process in place for Title I design is acceptable and accomplish this demonstration prior to initiating Title II detailed design.

Quality Assurance:

The State has been concerned with quality on this program since 1983 when the State first became involved. The State has actively participated, as part of its oversight role, in DOE's quality assurance coordinating group meetings. It participated

as an observer in NRC's mini-audit of Los Alamos National Laboratory in 1987. More recently it has participated as an observer in DOE/Nevada's audits of their project contractors. The Agency has generated audit observer reports for consideration by the DOE and NRC staff. As a result of these meetings and observations the Agency has developed concerns with the DOE's Quality Assurance Program.

(Viewgraph 6) Overall, the State concludes that at the present time the DOE Quality Assurance Program is an ineffective program. Five years after the passage of the Nuclear Waste Policy Act, the Department still does not have an "NRC-qualified" quality assurance program project-wide. No technical contractor's QA programs have even been submitted for NRC review. An NRC/DOE schedule for submission of contractor's programs, agreed to in June, is now hopelessly behind schedule.

Audits of contractor's QA programs have revealed a lackadaisical approach to the development and implementation of required QA programs. This may be a symptom of a lack of DOE oversight and direct involvement in their contractors' quality assurance programs and a lack of contractor commitment to quality assurance. This condition is clearly illustrated by the stop-work orders issued on two occasions to various Yucca Mountain project contractors. When the DOE lifted the stop-work orders little, if any, review was undertaken to determine whether the contractors' QA programs were sufficiently implemented to ensure quality work. In fact, they did not meet this standard.

The State has grave concerns that: 1) Yucca Mountain was explored without a qualified QA program; 2) DOE's contractors continue to collect monitoring data without a qualified QA program; 3) and there may not be a qualified QA program in place prior to start of characterization activities. The State believes the Commission must continue to aggressively pursue DOE's providing a fully qualified and implemented QA program, project-wide, prior to any site characterization work.

As the Commission is aware the State has developed a quality assurance program for its technical study activities. That program was finalized and approved by the Agency Director in June. Program training for all agency and contractor staff has been completed. Technical procedures for all contractors are under review and nearing approval. In June the program was submitted to the NRC staff for their review. Verbal feedback from the staff suggests no major concerns which would indicate the Program does not meet NRC requirements.

SELECTED REGULATORY ISSUES

With the DOE's site characterization program about to formally enter the regulatory review procedure of the NRC, it is appropriate to begin consideration of some specific topics as they relate to the NRC's regulatory process. In the 1987 meeting between the Commission and the then affected States and Indian tribes, a few matters, such as the criteria for NRC's adopting DOE's Environmental Impact Statement for a repository site recommendation, and the meaning, both substantive and procedural, of "early resolution of issues" were raised. Since that time, both the NRC staff and other interested parties have begun to pursue some of the outstanding issues associated with the licensing procedure. The following discussion, will present the status of the State's views on some of these matters.

Formalization of the Pre-Licensing Process:

The State of Nevada believes that there is a need to bring some greater degree of formalization to the pre-licensing process. This is not a new concern. It is one which we have been discussing with your staff for some time. It stems from the fact that the interactions between DOE and the Commission staff have for a long time gone far beyond what we think is contemplated by the statement in 10 C.F.R. 2.101 that "[a] prospective applicant may confer informally with the staff prior to the filing of an application."

Nevada recognizes the reality that the applicant here is a department of the United States government, and that the Commission and its staff must carry out certain functions under the NWPA. We also acknowledge the desirability of reducing, where appropriate, regulatory and institutional uncertainties of the type identified in SECY 88-285. It is relieving to see, in that paper, the staff reaffirm its view that resolving technical uncertainties is DOE's responsibility, and that the NRC, as a regulatory agency should, at most, develop general criteria, rather than prescribe specific acceptable methods for resolving such uncertainties. But, it is important that all parties proceed with extreme caution in this regard, lest essential issues surrounding site suitability be disposed of in a far too informal manner, without the benefit of full state, tribal and public input, and outside the licensing process envisioned by the Atomic Energy Act and the NWPA.

The State has serious doubts, for example, whether many core issues can or should be addressed and "resolved" by rulemaking or other similar non-adversarial processes. While it is certainly true that a major benefit of rulemaking is the subsequent inability to challenge the rule, that can also become a major detriment if, for example, after characterization it is determined that the rule did not provide sufficient guidance

regarding information necessary to demonstrate compliance with a requirement.

All parties should recognize that in reality we are already involved in the licensing process. All that is lacking is an actual license application, and docket number. While characterization may still result in a determination by DOE that the site is unsuitable, and that no license application should be filed, all parties currently must assume that this process will ultimately culminate in the filing of an application and the commencement of formal licensing procedures. Therefore, this ongoing process must be formalized so that we all participate as full parties. Ultimately what is sought is some mechanism which will preclude specific resolution of any critical licensing issues without the concurrence of all potential parties to an ultimate application.

In any case, given the situation of a de facto licensing proceeding, some mechanism to further formalize this process must be established. And, that mechanism must assure that specific licensing issues are not considered resolved before the more comprehensive process of site characterization is complete. To do otherwise creates, at least, the appearance of Commission assistance to DOE in the drafting of its license application prior to the Commission's processing of that same application.

Licensing Support System:

As you know, the State participated in negotiating, and concurred in the LSS rule which is currently pending before the Commission. We look forward to the opportunity to appear before the Commission again, after the comment period is closed, to explain our position on that proposed rule, and the benefits which we believe can be derived from its early implementation.

Waste Confidence:

The Nuclear Waste Policy Act was passed with the hope that the federal system for nuclear waste disposal which it created would be in place in order to satisfy the Commission's expression of confidence that the high-level waste "problem" would be "solved" in time to remove spent fuel from reactor sites when they were decommissioned. But the process of identifying, characterizing, licensing, and developing a high-level nuclear waste repository is behind schedule. In view of the 1987 amendment of the Nuclear Waste Policy Act waste management and disposal site decision process, and the resultant schedule extensions, we would encourage that the Commission continue developing licensing strategies for decommissioning which could accommodate the interim storage of spent fuel at reactor sites after operation is completed. In developing such strategies, consideration should be given to the institutional and economic

capability of applicants proposing decommissioning to care for and monitor spent fuel on site, perhaps in dry casks, until a disposal, or adequate centralized waste management facility becomes available. Such a licensing strategy would, of course, also permit the Commission to exercise its complete judgment without pressure, in licensing, regarding the technical adequacy of any proposed repository site.

Repository Licensing:

The Commission's authority to license a high-level nuclear waste repository arises from the "nuclear materials" provision of the Atomic Energy Act of 1954. That authority has been construed as requirements for a "construction authorization" and a "license to receive and possess source, special nuclear, or by-product material". The NWPA refers only to a "construction authorization", but Commission rules, with which Nevada agrees, require both. DOE's 1988 Draft Mission Plan Amendment declared that DOE would seek a license to receive and possess radioactive waste at the site as soon as construction is complete on any portion of the repository. This approach, according to DOE, would "allow underground development and waste emplacement operations to proceed essentially in parallel", thus permitting the development of the underground repository to continue for many years.

DOE's approach, which we would hope this Commission would disallow, could result in the development of conditions adverse to repository performance, such as the creation of preferential pathways for radionuclide migration through continued repository construction excavation occurring after initial emplacement of waste. The Commission must reserve its judgment as to whether the entire excavated site will be capable of isolating high-level radioactive waste in accordance with EPA's environmental standards. DOE's demonstration of that performance must take the actual ground water or radionuclide migration factor, reduced by post-closure seals, into account. This can only be done from an as-built perspective. This approach would be consistent with the Commission's current practice regarding nuclear generating facilities which must be totally constructed and tested before receiving a license to commence commercial operation.

System Licensing:

The Commission's jurisdiction to issue a construction authorization or a nuclear materials license has, in the past, been construed conservatively, and jurisdiction over nuclear materials transportation or interfacility integration has been declined. In a proceeding to authorize the construction and operation of a high-level nuclear waste repository, the Commission's jurisdiction should be broader, taking into account the transportation of nuclear materials to the repository and

the overall waste management system operated by the Department of Energy. From the system perspective, it is relevant to inquire about the rate of receipt of spent fuel volumes at the repository, transportation modes and systems, and packaging and handling facilities. The alternative to the Commission is to consider these respective pieces of the waste management system independently, with the consequent difficulty in achieving real design compatibility, in an integrated, unitary system.

The Commission has already expressed its interest in this system perspective in the area of compatibility between methods used in on-site spent fuel storage at reactor sites and DOE's transportation and disposal systems. And though Nevada supports the Commission initiating this system perspective, we encourage the Commission to implement this perspective in a unified system licensing process, rather than the rulemaking which the staff is now recommending.

NRC Implementation of NEPA:

The NWPA permits the Commission to adopt the environmental impact statement published by the Department of Energy regarding its proposed repository site "to the extent practicable". In 1985 Nevada proposed a rule, PRM 60-2A, by which the Commission could determine whether it was practicable to adopt DOE's EIS. On May 5, 1988, the Commission published its proposed "NEPA Review Procedures For Geologic Repositories For High-Level Waste". The proposal, in our opinion, compromises the Commission's independent responsibilities under NEPA. In addition the procedures proposed would frustrate the Commission's ability to carry out its statutory duties under the Atomic Energy Act.

On August 1, 1988, Nevada submitted comments on the Commission's proposed rule and suggested an alternative rule which would retain the Commission's discretion and establish a process which could be utilized in any DOE or negotiator proposed action, avoids the likelihood that litigation against NRC for failure to comply with NEPA would delay the licensing proceeding, and takes into account the changes anticipated to 10 C.F.R. 2 proposed by the negotiated rulemaking on a licensing support system. Were the Commission to adopt the rule proposed by Nevada, rather than the one published by the Commission in May 1988, the Commission would preserve for itself more freedom and objectivity with which to consider, and if necessary reject, DOE's repository application.

Funding For Commission Activities:

As a license application for a repository in Nevada becomes more probable, we are concerned that the funding for NRC's review of DOE's application be free from the control of DOE.

Consequently, we support any initiative on the part of the Commission to obtain from Congress an independent appropriation for its activities required by the Nuclear Waste Policy Act.

Site Jurisdiction and Control:

A problem of particular concern to the State of Nevada involves the Commission's requirement in 10 C.F.R. 60.121 which provides:

The geologic repository operations area shall be located in or on lands that are either acquired lands under the jurisdiction and control of DOE or lands permanently withdrawn and reserved for its use.

The State has taken the position in two lawsuits, State of Nevada, et al. v. John Herrington, Secretary of Energy, Case No. 86-7308, Ninth Circuit of Court of Appeals and State of Nevada v. Robert Burford, et al., Case No. CV-S-88-203 PMP (RJJ.), United States District Court for the District of Nevada, that the nature of the repository program and the need to provide for the integrity of the site and the safety of the stored nuclear materials, necessarily requires a withdrawal and reservation of the public lands embraced by the site in advance of site characterization. We contend that a Congressional reservation with an attending cession by the State of Nevada's Legislature of an appropriate measure of jurisdiction is necessary to ensure the integrity and security of the site for the 10,000 year lifetime of the repository. The Department of Energy has opted for a hybrid land access instrument characterized as a "right-of-way reservation" as authority for its site characterization activities. The Bureau of Land Management has accommodated the DOE's request. While the lawfulness of the scheme is a matter for review by the federal courts, the NRC's jurisdiction is not impaired.

Nevada believes it is necessary that this issue be squarely addressed in advance of site characterization. To defer this matter until the time when DOE applies to the Commission for a construction authorization license, assuming the courts have not acted in the interim, invites irreversible damage to both the program and the public's confidence in the nation's ability to deal properly with the high-level nuclear waste problem.

CONCLUSION

Nevada's review of the DOE's 1988 Draft Mission Plan Amendment resulted in a major conclusion that is relevant to the continuing responsibilities of both Nevada and the NRC. That conclusion, simply put, is that the DOE has failed to represent the true status of the high-level radioactive waste and spent

fuel management and disposal program. Of particular importance in this conclusion are the following elements:

1. The DOE unjustifiably assumes, as its reference case for the waste management system, that an integrated Monitored Retrievable Storage facility will be available, serving both a spent fuel packaging and storage function.

2. DOE reports, not discussed in the Draft Mission Plan Amendment, suggest large quantities of miscellaneous wastes including transuranic and greater than Class C wastes, will likely be destined for deep geologic disposal. So far, DOE's plans for repository investigations and performance analysis do not take these wastes into account.

3. The DOE's approach to heat load distribution in a repository underestimates the underground space requirements of a 70,000 metric ton repository by a minimum factor of about one-third, and assumes, contrary to most expectations, that the repository host block is homogeneous in its suitability for waste emplacement.

4. The schedule for site characterization activities continues to be compressed to the point that it allows for no contingencies, and appears to provide insufficient time for the development of a confident understanding of the critical hydrologic attributes of the site.

5. The DOE has assumed that its phased repository construction and waste disposal approach is acceptable, and that it will be granted a license to receive and possess waste prior to full construction and evaluation of the geologic repository in its license application. This is an apparent result of DOE's continuing assumption that the Yucca Mountain site is suitable for repository development, and that receipt of a repository license from the NRC is merely a formality in the repository development process.

Given the national concern over the recently discovered large-scale environmental contamination by federal nuclear facilities, it is more important than ever that the DOE's waste management and disposal program be subject to rigorous oversight and scrutiny. This requires, now, that every plan and activity be analyzed for its individual merit in a credible comprehensive program and site characterization strategy, and that no important issues be either deferred from current planning or considered resolved on the basis of retrospective information or conclusions. It is the duty of both the Commission and Nevada, in exercising our respective oversight roles, to assure against the very real possibility that quality, safety and scientific credibility will be compromised through piecemeal program and site characterization planning and implementation. If the

nation's nuclear waste program is to achieve the confidence of the public, there must be clear evidence of continued vigorous and effective oversight - the critical element so obviously missing from federal nuclear programs to date.

TECHNICAL CONTRACTORS
TO
AGENCY FOR NUCLEAR PROJECTS

DESERT RESEARCH INSTITUTE	-	HYDROLOGY
CENTER FOR NEOTECTONIC STUDIES UNIVERSITY OF NEVADA-RENO	-	GEOLOGY, SEISMOLOGY
DEPARTMENT OF GEOSCIENCE UNIVERSITY OF NEVADA-LAS VEGAS	-	VOLCANISM
MIFFLIN & ASSOCIATES	-	GEOCHEMISTRY, PALEOCLIMATE
ENVIRONMENTAL RESEARCH CENTER UNIVERSITY OF NEVADA-LAS VEGAS	-	GEOTHERMAL RESOURCES
H. PLATT THOMPSON ENGINEERS	-	REPOSITORY ENGINEERING
L. LEHMAN & ASSOCIATES	-	HYDROLOGY MODELING
THOMAS DEVINE UNIVERSITY OF CALIFORNIA	-	MATERIAL SCIENCE
DAVID TILLSON	-	LICENSING

ISSUES CRITICAL TO
HEALTH, SAFETY AND THE ENVIRONMENT

SITE SUITABILITY ISSUES

- 1) CHARACTERISTICS OF MOISTURE MOVEMENT THROUGH THE UNSATURATED ZONE.
- 2) RELATIONSHIP OF YUCCA MOUNTAIN GROUNDWATER REGIME TO THE REGIONAL AQUIFER SYSTEM.
- 3) EFFECT OF FUTURE CLIMATIC VARIATIONS AND RESULTING CHANGES IN THE HYDROGEOLOGIC REGIME ON THE INTEGRITY OF THE SITE.
- 4) EFFECTS OF FUTURE FAULTING OR OTHER TECTONIC EVENTS ON THE INTEGRITY OF THE SITE.
- 5) EFFECTS OF FUTURE VOLCANISM ON THE INTEGRITY OF THE SITE.
- 6) HUMAN INTERFERENCE OF SITE DUE TO PERCEIVED PRESENCE OF EXTRACTABLE NATURAL RESOURCES.

GENERAL CONCERNS
WITH
CONSULTATION DRAFT-SITE CHARACTERIZATION PLAN

- * CD-SCP IS NOT A COMPLETE PLANNING DOCUMENT.
- * BASIC APPROACH OF CD-SCP DOES NOT COMPLY WITH NWPA DIRECTIVE AND INTENT.
- * LACK OF ALTERNATIVE CONCEPTUAL MODELS CONSIDERATION INVALIDATES THE CD-SCP.
- * DOE'S "REASONABLY AVAILABLE TECHNOLOGY" CONSTRAINTS HAVE NOT BEEN MET.
- * SITE-SPECIFIC ISSUES AND THEIR RELATIVE IMPORTANCE TO WASTE ISOLATION ARE NOT CLEARLY ADDRESSED.

GENERAL CONCERNS
WITH
SITE CHARACTERIZATION PLAN
CONCEPTUAL DESIGN REPORT

- * DESIGN IS BASED ON MISAPPLIED CONCEPTS SUBSTANTIATED BY LARGE ASSUMPTIONS AND IRRELEVANT DATA.
- * COUPLED EVENTS AND PROCESSES ARE NOT CONSIDERED IN SYSTEMS ANALYSIS OF REPOSITORY PERFORMANCE.
- * SUCCESS OF DESIGNS PROPOSED IS QUESTIONABLE FROM TECHNICAL AND CONSTRUCTIBILITY STANDPOINT.

GENERAL CONCERNS
WITH
EXPLORATORY SHAFT

- * 10 CFR PART 60 REQUIREMENTS NOT CONSIDERED IN SELECTING EXPLORATORY SHAFT LOCATION.
- * 10 CFR PART 50 APPENDIX B DESIGN CONTROL PROCESS NOT IN PLACE FOR TITLE I DESIGN.
- * SHAFT LOCATION AND DESIGN COULD HAVE ADVERSE IMPACT ON SITE PERFORMANCE.
- * SHAFT LOCATION DOES NOT PROVIDE REASONABLE ASSURANCE THAT THE FULL RANGE OF SITE CONDITIONS WILL BE CHARACTERIZED.

GENERAL CONCERNS
WITH
DOE QUALITY ASSURANCE PROGRAM

- * OVERALL PROGRAM INEFFECTIVE.
- * PROGRAM NOT IMPLEMENTING RECOMMENDATIONS FROM FORD AMENDMENT STUDY.
- * LACK OF DIRECT, EFFECTIVE DOE OVERSIGHT OF CONTRACTORS' QA PROGRAMS.
- * CONTRACTORS NOT COMMITTED TO QUALITY ASSURANCE
- * STOP-WORK ORDERS ARE INEFFECTIVE LEVERAGE MECHANISM.