

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

**Title:** BRIEFING ON NRC POINT PAPERS FOR DOE CONSULTATION  
DRAFT OF SITE CHARACTERIZATION PLAN FOR YUCCA MOUNTAIN

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

**Date:** WEDNESDAY, MAY 4, 1988

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1                   UNITED STATES OF AMERICA  
2                   NUCLEAR REGULATORY COMMISSION

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4                   BRIEFING ON NRC POINT PAPERS FOR DOE CONSULTATION  
5                   DRAFT OF SITE CHARACTERIZATION  
6                   PLAN FOR YUCCA MOUNTAIN

7                   \*\*\*  
8                   PUBLIC MEETING

9                   \*\*\*  
10                  Nuclear Regulatory Commission  
11                  One White Flint North  
12                  Rockville, Maryland

13  
14                  WEDNESDAY, MAY 4, 1988  
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16                  The Commission met in open session, pursuant to  
17                  notice, at 2:00 p.m., the Honorable LANDO W. ZECH, Chairman of  
18                  the Commission, presiding.

19                  COMMISSIONERS PRESENT:

20                  LANDO W. ZECH, Chairman of the Commission  
21                  FREDERICK M. BERNTHAL, Member of the Commission  
22                  KENNETH CARR, Member of the Commission  
23                  KENNETH ROGERS, Member of the Commission

24  
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1       STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

2

3              S. Chilk

4              V. Stello

5              H. Thompson

6              R. Ballard

7              W. Parler

8              B.J. Youngblood

9              B. Browning

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

2                   [ 2:00 p.m.]

3                   CHAIRMAN ZECH: Good afternoon, ladies and gentlemen.

4         This afternoon, the Commission will be briefed by the Office of

5         Nuclear Materials Safety and Safeguards on NRC's review of the

6         Department of Energy's consultation draft site characterization

7         plans for the Yucca Mountain site.

8                   The Nuclear Waste Policy Act, as amended in 1987,

9         requires the Department of Energy to develop a site

10       characterization plan for a high level waste repository.

11                  The consultation draft is a precursor to the

12       statutory plan and is intended for review and comment by NRC

13       and the State of Nevada as a way of addressing site

14       characterization issues early on.

15                  The Department of Energy issued their consultation

16       draft site characterization plan in January 1988, and it is my

17       understanding that the NRC staff has met twice with DOE

18       regarding NRC concerns about the plan.

19                  Today, the staff will outline those items in the plan

20       which they feel DOE should address in the statutory plan. It's

21       my understanding that the staff will formally transmit these

22       point papers to DOE after this meeting.

23                  The Commission would also be interested in a summary

24       of current DOE plans to address the staff concerns. This is an

25       information briefing and no formal Commission action is

1       anticipated.

2                   Commissioner Roberts will not be with us this  
3                   afternoon. Do any of my fellow Commissioners have any opening  
4                   comments to make?

5                   [No response.]

6                   CHAIRMAN ZECH: If not, Mr. Stello, would you  
7                   proceed, please.

8                   MR. STELLO: Thank you, Mr. Chairman. Just a couple  
9                   of quick points that I wanted to make. You have already  
10                  characterized the purpose of the meeting is to brief you on the  
11                  comments.

12                  For those here, the comments are on the consultation  
13                  draft site characterization plan which you can see at the end  
14                  of the table is in excess of a foot of documents, and that's,  
15                  of course, backed up by literally file cabinets of additional  
16                  information.

17                  We had a meeting with the Waste Management  
18                  Subcommittee, the new advisory committee on nuclear waste, to  
19                  acquaint them with the things that we think we're going to need  
20                  some work on, and they agreed to look at the comments.

21                  They have, in fact, looked at them and they were  
22                  generally pleased and found that the staff's review was, in  
23                  fact, comprehensive and thorough, and concurred in the staff's  
24                  comments.

25                  The last point I want to make is one of the key

1 issues we're concerned about is to make sure that we get  
2 resolved the QA program issues before site characterization  
3 starts, because that's very important since it will generate  
4 data and information that will be used in making decisions, at  
5 quite some time distant in the future, so that's pretty  
6 important to get that straightened out.

7 I think we're making progress in that area as well,  
8 but we're not there yet, but we are on our way. As a side  
9 point, we have been having some discussion with the State of  
10 Nevada who is obviously getting very involved in this issue,  
11 and they have approached us in looking at a QA program for the  
12 work that they, too, will do, and I think that's probably very  
13 important since they have a considerable amount of money, and  
14 we'll be talking about that this afternoon.

15 And we'll generate a lot of information which, again,  
16 will be relied on and used in the process. So, I think that,  
17 too, is important.

18 With that, I'll ask Hugh Thompson to introduce the  
19 others at the table and jump right into the briefing.

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

21 MR. THOMPSON: Thank you, Mr. Stello. Mr. Chairman  
22 and Commissioners, as you know, Bob Browning, who is the  
23 Division Director for the high level waste program, is here  
24 today; and, Joe Youngblood, who is the Chief, Branch Chief, of  
25 the projects, who is the individual who is responsible for the

1 coordination of the effort and having the review conducted,  
2 will be doing the briefing for the Commission today.

3 A couple of points that I wanted to highlight, and I  
4 thought were very important in the staff's review, is, first  
5 off, that the review was done within the budget that the  
6 Commission had given us to do the site characterization, draft  
7 site characterization plan review.

8 We've taken about six FTEs. They involved a  
9 multiple-disciplinary team with some contractor support, but it  
10 was a very aggressive on our part to be able to meet in the  
11 timeframe that had been established in getting initial comments  
12 out on the program review, interfacing with the states and with  
13 the DOE and the various workshops, and has been a very, I  
14 think, successful review in my opinion.

15 One of the key areas that we did is that we did a two  
16 week acceptance review to make sure that the document that we  
17 were planning this time and effort on was one that had been  
18 adequately prepared by DOE in order for us to do that.

19 In the review, we did find that there had been  
20 sections and information that was not available for us to do  
21 our review.

22 That if it had been the formal submittal, that we  
23 would have not been able to find it acceptable to start a  
24 review.

25 Just, information was missing, and we pointed this

1 out to DOE and I think they recognized that when they do come  
2 in with the site characterization plan, they intend to have all  
3 the type of information that we need.

4 Secondly, we did our initial review and provided the  
5 comments, staff comments, to DOE about six weeks after we  
6 started the effort.

7 We have found that those comments through the  
8 workshops have not made significant changes. So any interface  
9 that we had with ACRS -- so pending any guidance that we get  
10 from the Commission, I think we will be ready to finalize our  
11 comments to DOE in a couple of weeks.

12 So, with that, Joe, if you could start the detailed  
13 briefing today.

14 MR. YOUNGBLOOD: The first slide is basically the  
15 cover slide introducing the fact that we're briefing on the  
16 point papers today on the consultation draft site  
17 characterization plan for Yucca Mountain on Nye County Nevada.

18 [Slide.]

19 MR. YOUNGBLOOD: I have three or four photographs  
20 that I would like to show before we go on to the main briefing  
21 slides.

22 [Slide.]

23 MR. YOUNGBLOOD: This shows the view from the south.  
24 The site is around approximately 100 miles northwest of Los  
25 Vegas. And this shows the Nevada test site there.

1           This ridge running along there is Yucca Mountain. I  
2       will have a view from the north, looking south, in the next  
3       slide, but that's where the site is located.

4           Here's Crater Flats and some of these are the  
5       volcanic combs in that area that are estimated to be around  
6       20,000 years old. Some of this land over in this area is  
7       controlled by Nellis Air Force Base and the Bureau of Land  
8       Management.

9           And the other area in there covering about this area  
10      is the Nevada test site.

11          [Slide.]

12          MR. YOUNGBLOOD: The next slide which is a view from  
13       the opposite direction. As you see down the middle of the  
14       slide, the ridge there is Yucca Mountain; to the right is  
15       Solitario Canyon; I believe in the far background, it may be  
16       just off the slide there now, but you can see the combs in the  
17       background there.

18          I guess you can see it. Yes, the little comb back  
19       there. To the left of the site, of the ridge, is where the  
20       site actually will be located, and I presume the area is about  
21       on the test site there, it runs in an area along about there, I  
22       believe. Maybe somewhat further north than that.

23          Now, the direction that the arrow is pointing will be  
24       the direction that next picture will be focusing on. You'll be  
25       looking into the ridge from that direction, and this is an

1        artist's conception of the repository.

2                [Slide.]

3                MR. YOUNGBLOOD: In the lower center of the picture,  
4        this is the central storage and handling area that would be  
5        used for handling of waste and processing materials, and so  
6        forth.

7                It shows a ramp that would be used to transport waste  
8        from the handling area into the repository. There's a ramp  
9        that runs in this direction, that hauls all of the tough  
10      material removed from the repository, excavated, and stacked  
11      over in this area.

12              The upper left hand corner here shows actually the  
13      underground repository area. There are four shafts that enter  
14      the area there. I'm not for sure we can see all four of them.

15              There's one, of course, right there. There's a shaft  
16      right at this location which you can't see very well.

17              And then there are two shafts over the far left, even  
18      further than I can -- I guess I could turn the arrow around  
19      here somewhere and point to it from that direction.

20              There are two shafts together right there. The next  
21      slide will show focus right in that area that I'm at right now.

22                [Slide.]

23              MR. YOUNGBLOOD: This is another artist's conception  
24      of a cutaway of the area. That would be exploratory shaft one,  
25      and exploratory shaft two. Exploratory shaft two goes down to

1       the repository area.

2                 Of course, up above are the head-in facilities for  
3       handling the material and equipment and man and so forth that  
4       would be utilized during the exploratory stage of the shafts.

5                 Exploratory shaft one is projected -- was originally  
6       projected to go through this area in here which contains the  
7       Calico Hills unit which is a natural barrier to the saturated  
8       zone below the repository, which is down in this area.

9                 Of course, this is the repository area here up above  
10      in the tuft, which is an unsaturated zone. I do have an  
11      exhibit that shows some rocks that are typical of the tuft  
12      area.

13                 [Slide.]

14                 MR. YOUNGBLOOD: The cylindrical core is the typical  
15       method of obtaining subsurface rock samples. The core is a  
16       segment of the welded tuft which was removed from the site, and  
17       the rock or repository is in the welded tuft area.

18                 Samples such as these core samples are used to  
19       identify the rock composition, porosity, permeability, moisture  
20       content, and faulting at depth.

21                 The rock sample is a piece of welded tuft that is  
22       found frequently around the site area. It shows the typical  
23       secondary deposits in the premises and the cracked areas on the  
24       side there.

25                 Wayne, if you'd turn that up. Yes, see, you can see

1       some of the deposits there that -- mineral deposits from  
2       solutions that flow through these fissures.

3                 Also, I have a small sample here of tuft that I can  
4       pass around the table if people would like to see it.

5                 COMMISSIONER BERNTHAL: Can you pass those two  
6       around?

7                 MR. YOUNGBLOOD: Yes, we can pass those. We can pull  
8       those out and pass them around right now.

9                 MR. BROWNING: I think as Mr. Youngblood gets into  
10      the description of our comments, one of the key things that  
11      useful to keep in mind is the initial exploratory work, namely  
12      sinking two shafts, getting down to depth, and looking at  
13      what's going on down at depth, and looking, as you go down,  
14      will end up being part of the repository.

15                 Therefore, it's extremely important that before it's  
16      done, it be very, very carefully thought out as to how it's  
17      being done, how you can learn from it, so that you don't  
18      inadvertantly louse up the site as part of your characterizing  
19      the site.

20                 And you don't inadvertantly preclude your ability to  
21      get important data because of the way you sunk those shafts and  
22      the way you got down there to start looking.

23                 It's a unique kind of thing. It's not a typical  
24      mining operation. It's beginning -- the actual facility that's  
25      going to have to last for 10,000 years, and which we and DOE

1       will have to make performance predictions over extremely long  
2       periods of time. It's very important to keep that in mind.

3                   COMMISSIONER BERNTHAL: What exactly is the  
4       geological origin of this? I know it's volcanic, but is it  
5       essentially volcanic dust and ash that's been metamorphosed  
6       partially?

7                   MR. YOUNGBLOOD: That is welded tuft there. Yes,  
8       that's the ash that's been welded.

9                   COMMISSIONER BERNTHAL: Welded and then  
10      metamorphosed, right?

11                  MR. BROWNING: Because of heat and pressure.

12                  MR. YOUNGBLOOD: Yes. All of those shafts have, I  
13       believe, a 12 foot diameter opening on them. I don't know if  
14       some of them will be larger than that or not on the ramp, but  
15       generally, it's a 12 foot opening on all of those shafts and  
16       ramps.

17                  [Slide.]

18                  MR. YOUNGBLOOD: The first slide that I have is a  
19       basic outline of the discussion. I plan to give the purpose of  
20       the content of the site characterization plan and a chronology  
21       of our review of the CDSCP, a brief discussion of the point  
22       paper, and the objections that were raised with regard to the  
23       point paper, and then I'll finish up by talking about some of  
24       the near term site characterization activities and the SCP.

25                  [Slide.]

1                   MR. YOUNGBLOOD: The second slice, as I indicated,  
2   discusses the purpose which is basically for DOE to present the  
3   program to evaluate the suitability of a site for a geological  
4   repository and support the license application.

5                   The contents include the plans for site  
6   characterization activities and a description of waste farming  
7   packaging, and the conceptual design of the repository.

8                   The level of detail in the site characterization plan  
9   briefly discusses the investigations plan. Further details  
10   with regard to the investigations are incorporated in separate  
11   documentation in their state plans.

12                  And even more detailed information beyond the study  
13   plans will be incorporated and their test procedures, which are  
14   even provided separately from the study plans.

15                  The CDSCP itself was not required by NEPA -- NWPA,  
16   not NEPA, and 10 CRF 60. It was issued by DOE to get an early  
17   input from NRC and the state of Nevada in order for them to  
18   consider our comments in the development of the statutory SCP.

19                  CHAIRMAN ZECH: What's the level of the state  
20   participation in the review of the site characterization plan  
21   so far?

22                  MR. YOUNGBLOOD: The state attended the first two  
23   workshops that were held. The third workshop, they fairly well  
24   participated in that workshop. Their position has been that  
25   they don't believe that they could do a good review of the site

1 characterization plan without having the study plans, which go  
2 into far greater detail.

3 CHAIRMAN ZECH: But they're being kept informed of --

4 MR. YOUNGBLOOD: They are being kept informed, yes.

5 CHAIRMAN ZECH: -- of all the actions going on.

6 MR. YOUNGBLOOD: Yes.

7 CHAIRMAN ZECH: All right. Thank you.

8 MR. THOMPSON: But I think Joe's comment was in the  
9 last workshop, they did participate at a level of -- in more  
10 detail than they did on the earlier ones, which I think was a  
11 good sign, at least to me.

12 MR. YOUNGBLOOD: They had quite a few people that  
13 were familiar with the alternative models concept that we  
14 discussed.

15 CHAIRMAN ZECH: Very good.

16 MR. YOUNGBLOOD: They did participate in that. The  
17 fact is, that was one of our better technical exchange meetings  
18 that we had with DOE and I understand the state was quite happy  
19 with the technical exchange that was held during that meeting  
20 also.

21 CHAIRMAN ZECH: Good.

22 [Slide.]

23 MR. YOUNGBLOOD: The next slide briefly discusses the  
24 chronology of the staff review. DOE did issue the CDSCP, in  
25 January of '88. We did perform the acceptance review which Mr.

1       Thompson mentioned.

2               There were a couple of items missing from it that the  
3       staff believes they could not produce a site characterization  
4       analysis within a six months timeframe if that information were  
5       missing from the statutory SCP.

6               DOE has provided that information to us in the  
7       meantime.

8               CHAIRMAN ZECH: They provided the information on the  
9       objections and comments you had?

10              MR. YOUNGBLOOD: No, no. They've not done all of  
11       that, yet. The conceptual design review information was not  
12       with the document when we received it, and performance analysis  
13       was not in the document when we received it.

14              CHAIRMAN ZECH: They committed to --

15              MR. YOUNGBLOOD: They've already -- they furnished  
16       them to us now, but --

17              MR. THOMPSON: We did an acceptance review which  
18       says, do you have the information available for us to do our  
19       review. We have gotten that information now, such that we  
20       completed our review.

21              We still have, and we'll talk about, some of our  
22       concerns, objections, and questions, which is a different thing  
23       -- will be addressed in the next slide.

24              CHAIRMAN ZECH: All right.

25              MR. YOUNGBLOOD: As we indicated, there were a series

1       of workshops that were presented. The first workshop was of a  
2       preliminary session.

3                  DOE gave an explanation of the CDSCP to the staff in  
4       the state of Nevada. Of course, after we issued our draft  
5       comments in early March, we had planned another workshop which  
6       was held the week of March the 21st.

7                  This was basically to discuss the overall point  
8       papers and assure ourselves that DOE and NRC had a better  
9       understanding of our concerns.

10                 A workshop was held in April to discuss the  
11       alternative conceptual models. That was held in Las Vegas, of  
12       course.

13                 The state did participate in that. They had quite a  
14       few of their people there that had thoughts about alternative  
15       conceptual models.

16                 Mr. Shemansky presented his conceptual model of the  
17       site one afternoon during this workshop. As a result of these  
18       workshops, there have been a number of technical meetings that  
19       have been proposed to be held over the next several months.

20                 They have not at this time been scheduled. We did  
21       meet with the ACRS Subcommittee, or the ACMW Committee, on the  
22       28th of April.

23                 I believe they concurred in the comments that we  
24       gave. They did request that our cover letter include a  
25       categorization or subcategories of some of the comments since

1       that.

2                 There were about 108 comments, and they weren't  
3       broken out neatly into discrete packages.

4                 CHAIRMAN ZECH: It's my understanding that the ACRS  
5       Subcommittee, or the New Waste Committee, I'm not sure which  
6       one, maybe both, raised some concerns on the plan.

7                 Is that what you're talking about?

8                 MR. YOUNGBLOOD: No, sir. They just suggested --  
9       they had no problem with the concerns and the comments that we  
10      made, but they just recommended that the 108 comments, that we  
11      break those down into categories so that you could determine  
12      which of them involved QA, which of involved lack of  
13      conservatism.

14                 CHAIRMAN ZECH: You're looking at those comments,  
15      though, I presume.

16                 MR. YOUNGBLOOD: Yes.

17                 CHAIRMAN ZECH: You'll be able to address them --

18                 MR. YOUNGBLOOD: We can handle that easily enough in  
19      our cover letter.

20                 CHAIRMAN ZECH: Fine. I think it's important that  
21      you have a close relationship with the ACRS, the New Waste  
22      Committee in particular, and be sure that they're informed on  
23      everything you're doing, and give them an opportunity to  
24      comment.

25                 I think that's pretty important that you do that.

1                   MR. YOUNGBLOOD: I think they've been very helpful to  
2 us.

3                   CHAIRMAN ZECH: Good.

4                   MR. YOUNGBLOOD: We've had a pretty good working  
5 relationship with them.

6                   [Slide.]

7                   MR. YOUNGBLOOD: The next slide is the detail of the  
8 point papers. Actually, our concerns were broken into three  
9 levels, and, as I discuss this, you may understand more where  
10 the ACRS Subcommittee was coming from.

11                  Our concerns are broken into -- I hesitate to call  
12 them three levels, because they're not necessarily levels. The  
13 first group, we called objections.

14                  And the definition of the objection was that the  
15 staff would recommend that DOE not start work prior to  
16 resolution.

17                  If there were any potential adverse effects on the  
18 repository performance, significant and irreversible or  
19 unmitigatable effects on the characterization that would  
20 physically preclude obtaining information necessary for  
21 licensing, or if there were fundamental inadequacies in the  
22 quality assurance program.

23                  The comments were defined to be concerns that would  
24 result in a significant adverse effect on the licensing if not  
25 resolved, which would not cause irreplaceable damage if site

1 characterization started before the resolution.

2                   And, of course, the questions were associated mostly  
3 with missing information, or inconsistencies, or ambiguities in  
4 the information.

5                   Actually, the final point papers as we generally have  
6 all of those completed at this time, we don't have the overall  
7 cover letter completed on it. We don't really have any  
8 significant changes from the draft point papers which we  
9 transmitted on March the 7th.

10                  MR. THOMPSON: I think objections were things that  
11 are near term, things that need to be addressed before they  
12 start the site characterization activities.

13                  Comments, though, they may be just as important in  
14 the long term, don't have the timeliness for resolution, then  
15 we have more time to address those.

16                  And that's the area that ACRS wanted us to make sure  
17 we identified those comments that were significant with respect  
18 to the licensing and regulatory considerations, which would be  
19 just as important in the long term, so that's the issue I think  
20 we're addressing with the ACRS.

21                  CHAIRMAN ZECH: Has DOE expressed a willingness to  
22 respond to your objections, your comments, your concerns?

23                  MR. YOUNGBLOOD: Yes, sir.

24                  MR. THOMPSON: They have felt that the workshops, the  
25 efforts we've done, the interactions we had, have been very

1       useful to them. Certainly my discussions with Ed Kay have led  
2       me to believe that they are prepared to work with them and to  
3       address these concerns.

4                     CHAIRMAN ZECH: In your comments, and perhaps ACRS  
5       made the same comment, I'm not sure, but on prioritization,  
6       have you made an attempt to prioritize your comments?

7                     It sounds like, perhaps, you've got objections that  
8       are in one category, and then your comments, another. Have you  
9       tried to prioritize the comments?

10          MR. THOMPSON: Well, I think, Joe, you might want to  
11       address it. My sense is the objections are the top priority  
12       because they have the timeliness of that.

13          CHAIRMAN ZECH: How about the others? What do you  
14       have, 108 of them, or so?

15          MR. THOMPSON: 108 on the comments are the ones that  
16       we're now categorizing such --

17          CHAIRMAN ZECH: And prioritizing them, too?

18          MR. YOUNGBLOOD: We're rather reluctant to prioritize  
19       them because it depends upon their resolution as to whether  
20       they turn out to be more significant or less significant,  
21       although we will characterize, as the next slide indicates, it  
22       lists the five objections.

23                     [Slide.]

24          MR. YOUNGBLOOD: And the 108 or so comments that we  
25       have, they cut across all of the technical areas. Three of

1       those comments address DOE positions that appear to be  
2       inconsistent with the regulatory requirements.

3           These positions may result in DOE not having the  
4       information needed at the time of the licensing application.

5           CHAIRMAN ZECH: But is that being -- your work in  
6       that, is that being resolved?

7           MR. YOUNGBLOOD: Yes. Those are -- we're working  
8       with them to resolve --

9           CHAIRMAN ZECH: Right.

10          MR. YOUNGBLOOD: But we also highlighted them in our  
11       initial letter. We will continue to highlight them in this  
12       letter.

13          CHAIRMAN ZECH: Okay.

14          MR. YOUNGBLOOD: And we'll break out some other  
15       categories in the letter, too. But those three that fit in  
16       that category were substantially complete containment, lack of  
17       information on the performance confirmation program, and in  
18       situ testing to evaluate seals.

19          COMMISSIONER BERNTHAL: Has DOE ever run a program,  
20       at least in recent years, that requires the kind of careful  
21       attention to quality assurance that this thing is going to  
22       require, both as to documentation and organization, other  
23       aspects.

24          In other words, we have seen TBA stumble badly when  
25       they had a regulation in front of them, and knew very well, or

1       should have know, what was required.

2                  Does DOE have experience in setting up that kind of a  
3                   detailed quality assurance program? That's my question.

4                  I imagine there are certain areas of the defense  
5                   program where there might, but I am not sure how good the  
6                   cross-talk is there.

7                  MR. THOMPSON: Well, I don't know if we've got any  
8                   familiarity with the DOE programs. Certainly in our  
9                   interaction, DOE has made lots of commitments to set up a  
10                  program. They did set up a small part of the testing for the  
11                  iodine up at the Hanford site that I think we had reviewed and  
12                  felt was acceptable, but something on the magnitude of this  
13                  whole program I don't believe they have that type of  
14                  experience, and that's why we have a fairly strong commitment  
15                  that they need to address the QA program.

16                  DOE recently reorganized, and maybe when Ed Kay comes  
17                  to speak to the Commission later on, I think this month, that  
18                  may be something you would like to explore with him, because  
19                  have recognized their needs to focus on the QA program both at  
20                  headquarters, at the field and at their contractors. They have  
21                  a number of contractors in various areas that we are looking at  
22                  and they recognize that there is a lot of work to be done in  
23                  that area. So it is one that we are participating in the  
24                  audits programs, so that we can provide them as much of our  
25                  learning from the reactor side as we can, but it is going to be

1       a challenge I think for DOE to do this, and we keep emphasizing  
2       that.

3           I know Mr. Stello, when he went out and met with  
4       officials out there, emphasized it. I have emphasized it when  
5       we've been out there and we are doing everything we can because  
6       of that issue, but it's not that easy to do and this is a new  
7       area for us.

8           MR. STELLO: I think the big problem is it's new.  
9       It's not the usual way for constructing a building and device.  
10      All the theologies of how do you construct and make sure you  
11      are collecting, going about getting the data -- but I think  
12      everyone understands how important it is. I think it will take  
13      some time but it will come.

14           CHAIRMAN ZECH: Let's proceed, please.

15           [Slide.]

16           MR. YOUNGBLOOD: Slide No. 6 indicates that the first  
17      objection is associated with the performance allocation process  
18      and CDSCP does not directly address the investigations that  
19      would be needed to characterize the site with respect to the  
20      full range of alternative conceptual models and the associated  
21      boundary conditions that are consistent with the existing data.

22           An important consequence is that without identifying  
23      all of the potentially significant investigations, it cannot be  
24      determined whether conducting an investigation would interfere  
25      with -- possibly to the point of precluding the conducting of

1 another investigation needed to obtain the information for  
2 licensing.

3 In addition, the program may favor providing data  
4 that confirmed a preferred model and the boundary conditions,  
5 rather than the data needed to determine what the preferred  
6 model and boundary conditions should be.

7 As I indicated, we did have a good exchange at the  
8 workshop in April and a discussion of the alternative  
9 conceptual models, and the staff recommended that DOE include a  
10 series of tables within the SCP that is integrated across the  
11 various disciplines that focus on the performance objectives of  
12 10 CFR 60. This discipline approach would give added  
13 confidence that the appropriate investigations were being made  
14 and considered appropriately and prioritized.

15 [Slide.]

16 The next objection is associated basically with the  
17 quality assurance program. The CDSCP references a number of QA  
18 plans and procedures for DOE and its prime contractors, many of  
19 which are undergoing potentially significant revisions or which  
20 have outstanding staff or review comments or which have not  
21 undergone staff review.

22 Based on the staff reviews to date, they do not fully  
23 comply with the NRC's QA criteria. Obviously, the data  
24 collected by such procedures might be suspect and difficult to  
25 use in the licensing process. DOE plans to meet with us later

1       on this month to discuss their plans for submitting their QA  
2       programs to us. We only have had one of their programs  
3       submitted to us formally. We will need a program by two of the  
4       offices -- DOE offices -- plus programs for each of their prime  
5       contractors. There are about six or seven of the prime  
6       contractors that we will need programs from.

7               As I indicated, they plan to meet with us some time  
8       during this month to discuss their schedule for submitting  
9       those plans to us and to discuss the staff's outstanding  
10      comments.

11              In order to complete the acceptance of the QA  
12       program, DOE will have to perform quite a number of audits of  
13       their own, as well as the staff will have to perform some  
14       audits to have confidence that the program is being  
15       appropriately implemented.

16              [Slide.]

17              The next three objections -- I will start with  
18       Objection 3. All three of these are associated with the  
19       exploratory shaft. The first one is associated with the depth  
20       of the exploratory shaft No. 1, which has been proposed to be  
21       approximately 400 feet below the proposed repository horizon  
22       into the Zeolitic zone of the Calico Hills unit, and DOE hasn't  
23       established the basis or the need for these tests that would  
24       require drifting after it pierces through the Calico Hills  
25       barrier.

1                   COMMISSIONER BERNTHAL: Would require what, did you  
2 say?

3                   MR. YOUNGBLOOD: Piercing through the Calico --  
4 drifting? Horizontal tunneling. After they go below the  
5 Calico Hills barrier, then if they go in a horizontal  
6 direction, that is drifting.

7                   MR. THOMPSON: Just a mining term. Nothing special.

8                   [Laughter.]

9                   MR. YOUNGBLOOD: DOE notified us I believe yesterday  
10 informally that at this point in time they had performed a  
11 review of penetrating the Calico Hills barrier and their  
12 position at this point in time is that they will not penetrate  
13 that barrier. They are going to look at alternative methods,  
14 exploring that area with bore holes and various other  
15 techniques.

16                  COMMISSIONER BERNTHAL: Why is it such a source of  
17 concern if you punch a hole? I don't even know what diameter  
18 particularly --

19                  MR. BROWNING: Twenty feet in diameter. This  
20 particular one would be 12 feet.

21                  COMMISSIONER BERNTHAL: But you can't do what you  
22 need to do with bore holes much smaller than that?

23                  MR. YOUNGBLOOD: This is why they are reconsidering  
24 it and saying that their presently proposed position is that  
25 they will not go through that barrier.

1                   COMMISSIONER BERNTHAL: But even if they punch a hole  
2 in the barrier, 20 feet I've got to admit becomes a bigger  
3 engineering problem, but suppose they punch a hole in the  
4 barrier three feet in diameter. I guess it would give me some  
5 concern to think that the integrity of the entire project might  
6 rest on your having or not having such a hole and apparently on  
7 your ability to seal or not seal it adequately if you did punch  
8 a hole like that. Now why is that such an engineering problem?

9                   MR. BROWNING: It may not be. We just asked the  
10 question why are they doing it. It wasn't clearly explained in  
11 the draft SCP as to what the purpose of sinking such a large  
12 diameter hole through what at this stage is perceived to be a  
13 very important barrier to radionuclide migration. I mean on  
14 the one hand they are making the case that the groundwater, if  
15 groundwater does get into the repository and does leach  
16 radionuclides out, then you would be counting on this Calico  
17 Hills tough layer to retard the radionuclides before they get  
18 to the groundwater. Once it gets to groundwater, it moves very  
19 rapidly.

20                  COMMISSIONER CARR: Relatively.

21                  MR. BROWNING: Relatively, but well within 1000  
22 years, okay? We have a requirement that the pre-emplacement  
23 groundwater travel time be less than a thousand years -- or  
24 greater than 1000 years, rather, and the present conceptual  
25 understanding of the site says that that groundwater moves

1      rather rapidly. I also saw a picture, and the present  
2      conceptual idea is that the groundwater moves towards that  
3      desert area, so you have to take the whole thing in the total  
4      perspective.

5                    COMMISSIONER BERNTHAL: But as a matter of principle,  
6      I understand what you're saying, but why is it such a delicate  
7      process? That is what troubles me a little bit. Is it such a  
8      delicate process? Supposedly you can't punch a three foot or  
9      six foot or perhaps, even a 12 foot diameter shaft and rely on  
10     standard engineering techniques to close it up after you have  
11     done that, if you find that you need to do it. Otherwise you  
12     are in a bit of a Catch-22. You can't poke a hole to  
13     characterize it or you can't learn what you need to without  
14     doing that, and if you do it somehow you have compromised the  
15     project.

16                  MR. BROWNING: But if there is a way to understand it  
17     without punching a large diameter hole, at least at this stage  
18     of the understanding of the site it would be prudent to think  
19     very carefully about that before you go do it. That's all I  
20     was saying.

21

22                  They may very well conclude and we may agree that you  
23     have to do that. That is part of the resolution process. The  
24     resolution process is now underway. It doesn't necessarily  
25     mean that they will or they won't. All we've got is tentative

1 word. They have looked at that one and it looks now they are  
2 questioning themselves whether they really want to do that or  
3 not.

4 COMMISSIONER CARR: They have got a lot more  
5 experience in drilling holes in this area than we have. Where  
6 do we get our expertise to attend a design review meeting and  
7 make proper comments.

8 MR. BROWNING: We do have in-house experts in this  
9 area.

10 COMMISSIONER CARR: That have gone out there and  
11 drilled tunnels in Yucca Flats?

12 MR. BROWNING: Not at Yucca Flats but at the WHPPS  
13 site, for example. We have both in-house expertise and could  
14 contract out for some technical support.

15 COMMISSIONER CARR: The mining guys say it is a piece  
16 of cake, there's no problem with drilling these holes.

17 MR. BROWNING: That is because they are thinking in  
18 terms of normal mining and drilling. They do not stop to think  
19 about what is going to happen over the next 10,000 years. That  
20 is out of their frame of reference and it may or may not be  
21 important.

22 COMMISSIONER CARR: How many experts have you got  
23 that will do the design review? It says we are going to  
24 participate in the design review. Are we going to contract  
25 that or are we going to do it in-house?

1                   MR. BROWNING: No, we'll have at least one in-house  
2 expert, if not two go plus some outside contractual support.

3                   MR. YOUNGBLOOD: When they have their design review  
4 meetings, we are ordinarily observers at the design review  
5 meeting. In this case, we wanted to tell the designers what  
6 our concerns were just so that they would be aware of them and  
7 take them into consideration.

8                   COMMISSIONER CARR: Well, I'm a little bit concerned  
9 that we are going to be participants in this, so automatically  
10 we are going to bless it. I mean, we are participants in the  
11 review of the design, so when it gets here --

12                  MR. YOUNGBLOOD: Actually, we will not concur --

13                  COMMISSIONER CARR: Not license something we  
14 participated in the design of, I guess, is what I am worried  
15 about.

16                  MR. YOUNGBLOOD: We want to make some comments and  
17 ask them to justify their position. We haven't told them not  
18 to go through Calico Hills. We've asked them to please justify  
19 to us what their position is with regard to going through  
20 Calico Hills.

21                  MR. STELLO: Let me see if I can help straighten it  
22 out. There is no question that the people know how to dig a  
23 hole in the ground. That is not a problem. It is, do you  
24 really need to dig that hole that big, and if you do, are you  
25 sure that's the right way to go about it? And second, if you

1 are going to do it, are really confident that you know how to  
2 seal that back up and that that seal will in fact last for  
3 10,000 years?

4 COMMISSIONER BERNTHAL: That is the question I asked.

5 MR. STELLO: That is the real heart of the matter.

6 COMMISSIONER CARR: What I worry about is their  
7 expertise in recognizing whether their answer is accurate or  
8 not.

9 MR. STELLO: I think that is an issue for them and  
10 for us, their experts as well as ours. That is getting close  
11 to, almost on this side of imponderable, a very, very difficult  
12 judgment call when you are asking -- if you did, in fact, sink  
13 that shaft, can you, in fact, devise a seal that will last for  
14 10,000 years. We need to answer that question. They do. We  
15 do -- but them first.

16 CHAIRMAN ZECH: Let's proceed.

17 [Slide.]

18 MR. YOUNGBLOOD: Objection No. 4 is also associated  
19 with the shaft. The CDSCP does not include adequate and  
20 consistent conceptual design information on the proposed  
21 exploratory shaft facility.

22 This does not allow the evaluation of the potential  
23 interference of proposed investigations with each other, and  
24 with the interference of construction operations in the two  
25 shafts and long drifts with these investigations.

1               As indicated, the staff will be attending their  
2 design review meeting and will be making a short presentation  
3 at that design review meeting just to explain what our concerns  
4 are so that they can respond to our concerns and justify  
5 whatever positions they want to take.

6               There will also be a meeting in June to talk about  
7 all of the over-all exploratory shaft details with regard to  
8 all of our comments associated with those.

9               [Slide.]

10              The last objection that we have listed is the  
11 location of the exploratory shafts 1 and 2. The CDSCP does not  
12 adequately consider the potential adverse impacts resulting  
13 from the proposed location of these two shafts, as well as  
14 other shafts from ramp portals which are in the area, that may  
15 be susceptible to surface water infiltration.

16              I have a photograph which, hopefully, we can tell  
17 more or less what we're talking about with regard to the  
18 location of the exploratory shafts.

19              [Slide.]

20              This is Coyote Wash, looking northwest toward Yucca  
21 Mountain. The wash runs right up this roadway, the low point  
22 of the wash. Exploratory shafts 1 and 2 are located right in  
23 this area, right at the neck of the wash, at the bottom of the  
24 wash, which certainly is in the worst possible position with  
25 regard to flooding and the inundation of the shaft.

1           This was discussed with DOE, and in April of 1987 DOE  
2   says: Well, yeah, we can move that shaft around. It'll be up  
3   to about the same depth along about here, if we move it around  
4   the edge of the ridge there.

5           And we said: That's perfectly okay with us. Please  
6   give us how you justify that with probable maximum flood, and  
7   is there apt to be any inundation during site exploration.  
8   Obviously, in 10,000 years this area may change somewhat.

9           They have not completed that analysis at this point  
10   in time. We are still talking with them about it, and DOE is  
11   contemplating: Well, the drainage divide is over in this area.  
12   If there's no real difficulty with it, we'll talk with our  
13   mining engineers and see if, hey, we can move the shafts around  
14   there. Then there's no problem with margin of error with  
15   regard to calculations of probable maximum floods and whether  
16   it might inundate the shafts.

17           COMMISSIONER CARR: How much water are you worried  
18   about getting into the shaft? This is going to be a fluid  
19   drilling, I assume.

20           MR. YOUNGBLOOD: No, sir.

21           COMMISSIONER CARR: Dry all the time?

22           MR. YOUNGBLOOD: There will be some liquid in there,  
23   but it's going to be drill and blast, basically, to keep the  
24   liquid down, because this is going through an unsaturated zone.  
25   And if you put large amounts of water in it you won't be able

1 to test the materials that need to be done.

2 MR. BROWNING: This is another example. It's not  
3 just sinking a shaft to get down there. It's sinking a shaft  
4 that you've got to study the geography and the layers as you go  
5 down.

6 MR. YOUNGBLOOD: It's mapped as they go down.

7 MR. BROWNING: They have selected a technique which  
8 doesn't -- I mean, it does have water.

9 COMMISSIONER CARR: It's bound to.

10 MR. BROWNING: They use water to keep the dust down,  
11 and that kind of thing. It's not like, for example, the  
12 approach they were going to use at the Hanford site. It's  
13 different from that.

14 COMMISSIONER CARR: But it's going to use some water.

15 MR. BROWNING: Yes. And my impression is that this  
16 is the kind of example where, yes, you take somebody who knows  
17 how to sink shafts from mining operations. They normally would  
18 put it in a wash. It's easier to get to.

19 But it doesn't take into account the long-term  
20 concern. You can engineer around to make sure water doesn't  
21 get in while you're operating the mine. But the question is  
22 what happens over this 10,000 year timeframe, where the  
23 engineering things disintegrate, and over a long period of time  
24 you would just as soon have it located, I think, in such a way  
25 where you minimize that potential.

1                   On the other hand, they may do analyses which show  
2 it's all right.

3                   COMMISSIONER CARR: I worry about 10,000 years. That  
4 wash may well shift on you.

5                   MR. BROWNING: That's true, also. And erosion is one  
6 of the considerations that you have to take into account, and  
7 you have to deal with it.

8                   MR. YOUNGBLOOD: They projected it could be up to 10  
9 meters of the road.

10                  MR. BROWNING: It's something that's never been done  
11 before, so you can't just go use conventional mining approaches  
12 without having carefully thought about what the implications  
13 are for the licensing hearing that's going to be related to do  
14 we know how to predict how this thing is going to last for  
15 10,000 years. You've got to start thinking about that now.

16                  COMMISSIONER CARR: That's why I'm worried.

17                  MR. BROWNING: That's why we're worrying about it  
18 now.

19                  [Slide.]

20                  MR. YOUNGBLOOD: Slide 11 is a brief summary of the  
21 SCP and near-term site characterization milestone. DOE plans  
22 to submit the statutory SCP in January 1989. After that has  
23 been issued, they will receive public comments and hold  
24 hearings on the SCP.

25                  We are committed to give our comments on the shaft

1       within 90 days of the issuance of the SCP, which would be  
2       approximately April of 1989. DOE would start the shaft after  
3       considering the NRC comments, and this would be approximately  
4       about 6 months later, as they are scheduling it at this point  
5       in time.

6                 Also, the issuance of our site characterization  
7       analysis would be due at that same time in July of 1989.

8                 COMMISSIONER CARR: Do you see any problems in  
9       meeting those 90 days and 6 months dates?

10                MR. YOUNGBLOOD: It depends upon the completeness of  
11       what is presented to us. If they respond thoroughly to our  
12       comments and adequately, that will make a difference.  
13       Certainly, it's pushing the staff.

14                MR. THOMPSON: I guess I would say the QA program is  
15       the real key in being able to meet these dates, because DOE  
16       wants to start some of the site characterization, the head  
17       works, you know, for the exploratory shaft in, I believe, in a  
18       January timeframe.

19                So, they're going to need to submit the QA program,  
20       at least as it relates to those aspects, very soon in order to  
21       provide enough time to interact and interchange --

22                MR. YOUNGBLOOD: I guess the head end facilities  
23       probably wouldn't involve much QA, but the sinking of the  
24       shafts themselves would.

25                COMMISSIONER CARR: I guess what I'm really asking,

1       is this complete enough that you can have most of this work  
2       done by January '89? Or, are you going to start when you see  
3       the final SCP?

4                    MR. BROWNING: The resolution of the comments we've  
5       raised can go on in parallel with this, and has to in order to  
6       make sure these dates can be met.

7                    COMMISSIONER CARR: So you don't expect the SCP in  
8       January '89 to be a surprise, then.

9                    MR. BROWNING: We certainly hope not. If it is,  
10      there's a problem.

11                  MR. THOMPSON: But that's the purpose of the  
12      workshops that we've been having ongoing and to maintain a  
13      dialogue with them, is to have a plan to address these so that  
14      we don't have surprises. That's the intent that we have over  
15      the next 6 months or so, to certainly make sure they understand  
16      the comments in sufficient detail and have resolution of those  
17      and understand what our concerns are. So that, when January  
18      '89 comes, then there's a high probability that we'll be able  
19      to do our review in the timeframe that's needed.

20                  COMMISSIONER CARR: My understanding was that it took  
21      us how long to review the draft?

22                  MR. THOMPSON: Six weeks.

23                  COMMISSIONER CARR: And you didn't review the whole  
24      set of books probably.

25                  MR. BROWNING: Well, not in the same degree of

1 detail. But by picking and choosing what we thought was  
2 important, we were able to do a comprehensive coverage of this.

3 COMMISSIONER CARR: Okay. Let the record show --

4 MR. BROWNING: I think it's fair to say that in the  
5 pre-licensing process we've had underway, as we've been  
6 reporting to you on a quarterly basis, the whole approach is to  
7 raise issues early and try to make sure they're getting  
8 resolved. My perception is that we've been a lot better  
9 collectively at raising issues than we've been at getting them  
10 resolved.

11 And this is now a real test period to see whether  
12 collectively -- DOE's got to do a major part of that. We can  
13 only raise the issue. We can't resolve it. But we can work  
14 cooperatively and try to make sure they are getting resolved on  
15 a tight timeframe.

16 I think that the major uncertainty is, are they going  
17 to be able to do the things they've got to do to meet the dates  
18 that they've set for themselves to start this effort. To date,  
19 our review time has not been limiting to them.

20 MR. THOMPSON: The alternative conceptual models  
21 might be as big a challenge for DOE as any of the other  
22 comments with respect to getting that in place by January of  
23 '89. I think that's the approach they've had before. They  
24 knew they had to have a QA program. They knew they had to  
25 address some of the shaft issues.

1           This conceptual models, they probably haven't been  
2 focused on that issue, although I think we have clearly  
3 indicated in earlier comments that they were taking a very  
4 nonconservative approach, or a very optimistic interpretation  
5 of the data, when other interpretations may be just as valid.  
6 And so, I think that may be, if anything, as difficult.

7           MR. YOUNGBLOOD: I believe in the environmental  
8 assessment that was issued two years ago or a year and a half  
9 ago, we broached this subject with them at that time also.

10          MR. THOMPSON: Well, are there any issues that you  
11 think are going to be very difficult to meet the January  
12 timeframe?

13          MR. BALLARD: I am Ron Ballard. And the only primary  
14 issue I see that we have to resolve is the exploratory shaft  
15 location right away, because they want to start that so soon.

16          But, other than that and the objections which we've  
17 already identified, which they are apparently working on, I  
18 don't see any major problems. The shaft is the big one right  
19 now.

20          MR. BROWNING: I think we're hoping that the  
21 narrowing down from 3 sites in parallel to 1 site will allow  
22 both DOE and us to focus our efforts to try to get this thing  
23 resolved. It certainly is going to help. It is not going to  
24 hurt, what Congress did in narrowing it down to 1 site.

25          CHAIRMAN ZECH: All right. Let's proceed.

1 [Slide.]

2 MR. YOUNGBLOOD: In summary, the staff issued the  
3 draft point papers. We've held workshops with DOE. They have  
4 indicated that they understand our concerns, and they plan to  
5 respond to them. And we plan to issue the point paper as soon  
6 as possible, and start working with DOE to resolve these  
7 concerns.

8 They do plan a meeting with us in July to express to  
9 us how they plan to respond to our concerns. That's basically  
10 my presentation.

11 CHAIRMAN ZECH: Any questions from my fellow  
12 Commissioners? Commissioner Bernthal?

13 COMMISSIONER BERNTHAL: This is a sort of an  
14 irrelevance, but as a matter of curiosity, what's happening  
15 with our -- how did the letters go, FFRDC, or something like?  
16 I trust you know what I'm talking about?

17 MR. THOMPSON: We're moving along quite well, in  
18 fact. I believe Commissioner Rogers and I will be down later  
19 this month. We'll brief the Commission on the status of the  
20 center.

21 It's up, it's running. As far as I know, you were  
22 just down recently. Maybe I'll let Bob respond to the  
23 specifics on it, but I think it's working well so far.

24 MR. BROWNING: You may or may not have seen it, but  
25 we did send out a summary report as to what the status of the

1 center was, I think, a month or so ago.

2                    Basically, they're on track, consistent with the  
3 contractual requirements we have placed with them. What we're  
4 trying to do now is to further accelerate the rate at which we  
5 picked up the center and free ourselves of some of the other  
6 technical assistance support we've had in other areas.

7                    The dilemma is to be able to respond to these tight  
8 turn around times for DOE's site characterization reports.  
9 While they're getting up to speed, dictates hanging on to some  
10 of our existing technical assistance support in parallel.

11                  But we're in the process right now of reviewing  
12 reports from the various project managers for the individual  
13 pieces of work the center is doing for us now, in order to  
14 arrive at a fee determination.

15                  So, I hesitate to tell you exactly what their grade  
16 is, because we're still in the process of giving them a grade.  
17 But they are on track with regard to contractual requirements  
18 basically.

19                  COMMISSIONER BERNTHAL: I don't know where I came up  
20 with those letters. They obviously bear no resemblance --

21                  COMMISSIONER CARR: That's right. It's a federally  
22 funded research and development center.

23                  COMMISSIONER BERNTHAL: I couldn't remember the first  
24 two.

25                  MR. BROWNING: We refer to it as the Center for

1       Nuclear Waste Analysis.

2                   COMMISSIONER BERNTHAL: Okay. I also understand that  
3       you are looking at the work that the State of Nevada is doing  
4       independently, and are working with them, and apparently, we  
5       are going to tap into the waste fund to support our review of  
6       Nevada's programs.

7                   Could you elaborate a little bit on what we're doing  
8       there?

9                   MR. BROWNING: Well, we haven't actually done  
10      anything yet. The State of Nevada has approached us with a  
11      desire to have us look at the quality assurance program that  
12      they're putting place for their technical review of DOE's  
13      program.

14                  And we're currently thinking that to the extent we  
15      can, that might be a useful thing to do. And, clearly, our  
16      interpretation is we would be able to fund that out of the --  
17      well, first of all we've got to get our budget approved, and  
18      then the bookkeeping between the Treasury Department and the  
19      DOE fund is a completely separate matter.

20                  But with regard to their technical program, we  
21      haven't exactly -- sorted out exactly how we're going to do  
22      that yet, and we probably will end up presenting some  
23      information in that regard in the paper to you when we've  
24      thought it out.

25                  MR. STELLO: I think it's fairly clear, they're going

1 to develop data. We have to be as confident in the data they  
2 develop as DOE is because that's all going to be used weighing  
3 finally a decision to go forward.

4 So, since they are going to develop, and they've been  
5 funded independently to develop data, I think there's little  
6 question we're going to have to evaluate it.

7 And I think you have to start right at the beginning  
8 just as we are with DOE to have a carefully implemented QA  
9 program, so we're not questioning whether the data itself is  
10 valid because it was somehow --

11 COMMISSIONER BERNTHAL: Are they going to have  
12 sufficient funding? I don't know where they're getting their  
13 funding.

14 MR. STELLO: It's a lot money. We're talking --  
15 what's the funding going to get up to about?

16 MR. BROWNING: I think they're going to request like  
17 \$23 million.

18 COMMISSIONER BERNTHAL: I see. I didn't realize that  
19 issue had been resolved to that degree of funding.

20 MR. BROWNING: 6.6 this year, I think, is their  
21 request for a half year.

22 MR. THOMPSON: There is a request in for that  
23 funding.

24 COMMISSIONER BERNTHAL: So, obviously, then, your  
25 judgment is they'll be able to bring on board some fairly

1 capable talent.

2 MR. BROWNING: They have been bringing on board some  
3 fairly capable --

4 MR. STELLO: They have been collecting and generating  
5 data from the site themselves, independent data.

6 COMMISSIONER BERNTHAL: I trust that this does not  
7 involve physical activities at the site?

8 MR. STELLO: Yes.

9 COMMISSIONER BERNTHAL: It does? Who is overseeing  
10 that?

11 MR. STELLO: It's a DOE site. They're going to have  
12 to be responsible that anything that goes on there is okay with  
13 them.

14 MR. PARLER: Mr. Browning, as I understood his  
15 remarks earlier, was very concerned that the things that we  
16 would be looking at, that DOE planned to do, would not, in my  
17 own words, not his which were much more professional and  
18 technical, would not mess up the site.

19 So, it doesn't matter how the site is messed up. It  
20 would seem to me that we would have a concern about it.

21 COMMISSIONER BERNTHAL: You've got it. That's the  
22 question.

23 MR. BROWNING: DOE has the first order of concern. I  
24 mean, they've got to make sure the tests fit in their thing.  
25 So, I think the thinking is, first of all, DOE has got to prove

1 what they're doing, approve access to the site, so there are  
2 certain controls DOE has to exercise.

3 But once DOE is satisfied, we do have to take a look  
4 at it all. So particularly if it involves punching holes in  
5 the site.

6 Non-destructive testing would not be the same order  
7 of concern as drilling the holes.

8 COMMISSIONER CARR: Along that same line, let me ask  
9 a question there. Are we going to do independent testing to  
10 confirm DOE's testing, or are we going to have an on-site  
11 inspector like we do at other construction sites to watch them?

12 MR. THOMPSON: We will definitely have on-site  
13 representatives during the key phase -- well, we'll have an on-  
14 site rep at all times, permanent, out there.

15 We would also have special individuals who will audit  
16 the programs at key periods during the activities out there to  
17 ensure that we --

18 COMMISSIONER CARR: Somebody like an instruction  
19 resident.

20 MR. THOMPSON: That's correct. And we will be likely  
21 looking at our needs to have full coverage out there during the  
22 site activities.

23 MR. BROWNING: But we do not plan to do individual  
24 drilling of holes, et cetera. We'll look at their program  
25 enough to have confidence we're getting good results.

1                   MR. STELLO: We don't intend to be a third source of  
2 independent data.

3                   CHAIRMAN ZECH: All right. Commissioner Bernthal,  
4 anything else?

5                   COMMISSIONER BERNTHAL: Well, let me get back for one  
6 instance to the FFRDC. We did have a budget problem. Do we  
7 still have a budget problem, continuing budget problem?

8                   And, at one point, I understood that that center was  
9 going to be impacted significantly. I take it that that has  
10 not materialized and that, in fact, we've met our commitments  
11 and the contractual obligation that we undertook there.

12                  MR. THOMPSON: The potential impact dealt with some  
13 of the research funding activities and Mr. Beckjord and I met  
14 to look at those, that support activity, and the budget  
15 process, the funding for the center was restored.

16                  We were not able to accelerate it, which we attempted  
17 to do at one time, so that there was no acceleration of funding  
18 to the center.

19                  But it was fully funded for the level the Commission  
20 had committed to.

21                  CHAIRMAN ZECH: Mr. Carr?

22                  COMMISSIONER CARR: I have some questions. If this  
23 is all they had given us, if the draft were their final, how  
24 near finished would they be?

25                  I mean, how far would we be from approving it? Are

1       they 80 percent through with their work with the draft, or are  
2       they 50 percent through?

3                    MR. YOUNGBLOOD: I would guess maybe -- we don't know  
4       how much information they have that they didn't put in the  
5       report. They may be more than 80 or 90 percent through if they  
6       have a lot of information that they haven't shown us in the  
7       past, and I think they do.

8                    COMMISSIONER CARR: So, you're going to have to  
9       review more feet of documents then --

10                  MR. YOUNGBLOOD: Well, they do have to respond to the  
11       160 or so items that we have. I'm sure they don't fully  
12       embrace every one of those 100 percent.

13                  But we generally have an understanding of and some of  
14       it may be just a formality and the discipline of going through  
15       and addressing the issues.

16                  They may have most all of the information in-house at  
17       this present time, sir, but it's real difficult. I think they  
18       can make it within the timeframe that they are talking about,  
19       unless they have to go to press within the next 60 days to  
20       issue it in January.

21                  Then that would pinch them a little bit to make a  
22       schedule.

23                  MR. BROWNING: I think the objection about the  
24       alternative conceptual models is so all persuasive throughout  
25       this whole document.

1           That one comment probably has the highest level of  
2       impact on --

3           COMMISSIONER CARR: More than the quality assurance  
4       problem?

5           MR. BROWNING: The quality assurance is not so much  
6       changing the document, per se, as to making sure that the plans  
7       and procedures they have to implement this document are in  
8       place.

9           COMMISSIONER CARR: But I would assume that quality  
10      assurance is part of the plan, then?

11          MR. BROWNING: Yes.

12          MR. THOMPSON: I think it's one part of the plan. I  
13      mean, there are various data throughout the various sections  
14      that may be impacted by alternative conceptual models.

15          MR. YOUNGBLOOD: It's possible that they won't have  
16      to add many more investigations that they already have once  
17      they go through the review. They may well have most all of the  
18      investigations they need.

19          It's just that we can't detect that from our review  
20      of the SCP, and they really can't explain it to us either  
21      without a disciplined review across each of the elegies that  
22      they're working on.

23          COMMISSIONER CARR: A long time ago, when this first  
24      came up, I remember we talked about whether we were going to  
25      take professionals and train them in QA or we were going to

1 take QA's and train them in digging holes.

2                   Which did we decide to do for our quality checks?

3                   MR. BROWNING: What we're doing now is sending two.

4 One a technical expert, and one a QA expert.

5                   MR. THOMPSON: But I think we are trying to make sure  
6 that we have the technical people who understand the QA, go  
7 with the QA folks.

8                   MR. BROWNING: So, there is some cross pollination  
9 and we are training our technical people to be on the lookout  
10 for quality assurance kinds of concerns.

11                  COMMISSIONER CARR: Okay. And what part is EPA going  
12 to play in this with their final high level waste -- are they  
13 going to be holding everybody up, or are they going to meet  
14 their deadlines and -- do we have a feel for that?

15                  MR. BROWNING: My impression is that the site  
16 characterization effort need not be held up because of the EPA  
17 final standard situation.

18                  However, it's my understanding the state of Nevada is  
19 going to use that as a legal action if they haven't already.  
20 And I just don't know the current status of that.

21                  MR. THOMPSON: I guess we kind of look at it as data  
22 is data. The site is going to be the site whether the EPA, you  
23 know, modifies the standard or reverifies its current standard.

24                  What may impact is the acceptability, but for  
25 purposes of the site characterization activities, I think that

1 can go forward now because we want to just make sure the data  
2 and information is properly obtained.

3 And then its evaluation and the significance of that  
4 data would maybe somewhat impact it by any change in the EPA  
5 regulations.

6 MR. STELLO: I had asked that same question, and they  
7 said they were fairly comfortable that all their reasonable  
8 expectations that might come out of that, it was not going to  
9 create a big problem for them. You notice I use the word  
10 "reasonable." That means if something extreme comes out --

11 COMMISSIONER CARR: It's reasonable in the eyes of  
12 the beholder, right?

13 MR. STELLO: I think they had more in mind a  
14 reasonable band of what the standard might look like.

15 COMMISSIONER CARR: Okay. I have only one more  
16 question. How much research do we have to support our own work  
17 in this? Have we got a research program that is ongoing, other  
18 than what they are doing at the FFRDC? Have we got an in-house  
19 research problem?

20 MR. THOMPSON: We have identified our research needs  
21 primarily with respect to some of the methodologies that we  
22 would want to use to independently check the sites and from our  
23 licensing viewpoint. I think some of those things are longer  
24 term, and we entered into an agreement with Australia on the  
25 Alligator River Project with the international aspect with

1 modelling activities of groundwater flow and site. So we have  
2 a number of activities that our research office is pursuing.  
3 We are trying to integrate those to the extent we can.

4 COMMISSIONER CARR: I just want to make sure that  
5 they are going to meet the timeframe, I guess, is what I am  
6 asking. Is the finish date on the research going to support  
7 what we are trying to get done?

8 MR. BROWNING: So far it looks like it will, yes.

9 MR. STELLO: But again, that is a very important  
10 question and a very significant issue, because some of that  
11 information is the kind of information that you'd like to have  
12 finished so you can get the methodology developed and have a  
13 rulemaking and have that issue resolved through a rulemaking  
14 process. The rulemaking process takes time, so if you start  
15 trying to do a lot of that by rulemaking, you are really  
16 pushing real hard getting the methodology out and resolved and  
17 to devise a rule to describe an acceptable way to characterize  
18 that kind of stuff.

19 There are problems in that area. I don't want to  
20 minimize them. It will be difficult.

21 COMMISSIONER CARR: I guess my main worry is I don't  
22 want this thing finished out there and sitting on us waiting to  
23 license it. You know, you make this big hole in the ground and  
24 nobody can use it.

25 MR. STELLO: Well, I don't know that that's the

1 problem. It is that the licensing process is difficult by  
2 itself. You can't get some of these issues where you can get,  
3 you know -- how do you do this calculation broken out and get a  
4 methodology developed and go to rulemaking and get it resolved  
5 so you don't have to have all of those contests in the hearing  
6 room itself. If you do, you know, it could just go on for an  
7 awfully long time.

8 CHAIRMAN ZECH: I think the question to is --

9 COMMISSIONER CARR: Do we know why we have got to get  
10 our arms around it in order to be able to license it? That is  
11 the question.

12 CHAIRMAN ZECH: Right and the research that can  
13 support that. First of all, we have got to know what we've got  
14 to get our arms around, but second of all, we have got to have  
15 the confidence technically, scientifically, with all the  
16 engineering expertise to go with it and all the research that  
17 goes with it, do we have the confidence that we are making the  
18 right decision? So I think that is what Commissioner Carr is  
19 asking. Are we doing -- are you satisfied that we are doing  
20 enough research to back up the decisions that it looks like are  
21 in front of us.

22 MR. STELLO: Yes. Now will that be done in the time  
23 frame --

24 CHAIRMAN ZECH: We know we are asking you a tough  
25 question because we are in a difficult new field, a new, unique

1       experience, but the point is we should do as much as we can in  
2       my judgment to foresee the research we need, and if we don't  
3       foresee it, we don't foresee it. But we should try to foresee  
4       all that we can so that we are doing the research now that we  
5       know will be necessary to allow us to make confident decisions.

6                    MR. STELLO: And that is what we are trying to do.

7                    CHAIRMAN ZECH: And the FFRDC is one thing and I  
8       think the question really is -- and you pointed out that the  
9       Australian research program, but are there other research  
10      programs going on that will complement FFRDC and the other  
11      things you have, and the answer is yes. All right? Thank you.  
12      Commissioner Carr, anything else? Commissioner Rogers?

13                  COMMISSIONER ROGERS: Where does DOE stand on  
14      finalizing its managing assignments for OCRWM? How many people  
15      are acting and how many people are really firmly in place, so  
16      that it is possible to resolve questions with somebody that's  
17      in authority over there.

18                  MR. THOMPSON: Ben Rusche's replacement obviously is  
19      in an acting position and as far as I know, DOE anticipates  
20      that probably will remain in an acting position, at least until  
21      the next Administration. Likewise, they have had difficulty in  
22      recruiting and filling the new QA office position here at  
23      headquarters. That position is newly established. They went  
24      through a reorganization, I guess it was effective about a  
25      month ago and I think that's another key position that is

1 difficult for them to fill. It is a key one in order to  
2 address one of our major objections, and those are the two that  
3 I am aware of.

4 Bob, do you know of any others? I think the site  
5 folks are pretty well identified. The licensing --

6 COMMISSIONER ROGERS: Well, the org chart that they  
7 sent dated April '88 had everybody acting -- another one of the  
8 key sections underneath the Director, and yet I got a letter  
9 as I am sure the rest of the Commissioners did from DOE  
10 designating who those people -- what the responsibility of  
11 those people is and not describing them as acting, but  
12 describing some others as acting.

13 I was not clear on whether the acting has been  
14 removed from that second tier completely and all those people  
15 are now in place or not, because of this question if  
16 everybody's acting, is the situation somewhat fluid and no one  
17 is really ready to make a tough decision if there is a  
18 significant disagreement between DOE and NRC on some of these  
19 matters.

20 MR. THOMPSON: Ed Kay is prepared to make the  
21 decisions. At least on our discussions with him, he is  
22 assuming that responsibility although he is in an acting  
23 position. I guess I would recommend the Commission take this  
24 up a bit with DOE, certainly. In their discussions with us,  
25 the key individual, who happens to be in an acting position,

1       not filled, is the quality assurance man, and that is where I  
2       think they have their biggest difficulty right now, in having  
3       someone in the position of responsibility able to address in an  
4       effective way concerns that we have with that knowledge about  
5       the programmatic implications of those commitments.

6                   COMMISSIONER ROGERS: Well, that person is acting.

7                   MR. THOMPSON: That person is acting and I think he  
8       is probably acting on a part-time basis.

9                   COMMISSIONER ROGERS: There is a key slot that is  
10      really not pinned down. What about the Office of Facilities,  
11      Siting and Development, Mr. Cale? Is he firmly in place now?

12                  MR. THOMPSON: As far as I know, he is. I haven't  
13      had this specific discussion with Commissioner Kay, but I am  
14      not aware of any problem with his making commitments for the  
15      DOE program.

16                  COMMISSIONER ROGERS: It's just that with some of the  
17      significant areas of possible contention between NRC and DOE, I  
18      am a little concerned that if everybody is acting, nobody is  
19      ready to really sit down and thrash things out, that it is  
20      going to be somebody else's responsibility.

21                  MR. BROWNING: We haven't noticed any reluctance on  
22      their part to address the issues. We haven't really noticed a  
23      problem in that regard.

24                  COMMISSIONER ROGERS: Fine.

25                  MR. THOMPSON: Again, I would say the QA is the key

1 individual and the key position that I am concerned about.

2 MR. BROWNING: I wonder if before we could adjourn I  
3 could ask the person in the control room to put up the picture  
4 of the Nevada team so I could address directly Commissioner  
5 Carr's question.

6 That is the FTE that we had working on this and now  
7 that we are all in the same building, I'll encourage you, if  
8 you are down on my floor I would like you to come around and  
9 meet some of the experts.

10 COMMISSIONER CARR: I'll look forward to it.

11 MR. BROWNING: There's a real FTE.

12 COMMISSIONER BERNTHAL: They all look like people to  
13 me.

14 CHAIRMAN ZECH: Okay, fine. Any other questions from  
15 my fellow Commissioners?

16 COMMISSIONER CARR: You mean working on those eight  
17 volumes?

18 MR. BROWNING: Right. On the follow-up of the issues  
19 that we have now raised.

20 CHAIRMAN ZECH: Well, let me on behalf of the  
21 Commission, thank you for the fine briefing this afternoon. I  
22 would like to know too that those people you put up there, Bob,  
23 as well as others I'm sure are part of the High Level Waste  
24 Division and those who are helping did an excellent job in  
25 reviewing the consultation draft site characterization plan

1 from DOE and also in preparing the point papers.

2 I would encourage the staff to continue the technical  
3 exchanges with DOE and continue to look at those five key  
4 objectives that you've discussed with us here today, as well as  
5 look at the comments and to see if perhaps you can't prioritize  
6 those. I think that might be of assistance to DOE, at least  
7 you should be working together with them on that, it seems to  
8 me and that might give us some area of priority as we look at  
9 those number of comments you have.

10 It might help if you get new comments as you continue  
11 the review program and you might find out in the prioritizing  
12 project that there is two or three others that you want to lift  
13 up a little higher than you have. All I am saying is I think  
14 priority is important to look at -- I know they are all  
15 important, don't get me wrong, but you may find in that package  
16 of 108, I believe it is, you may find several that should be  
17 elevated in importance.

18 Lastly, I'd like to say that I think it is important  
19 that the staff continue to work with the state of Nevada that  
20 you indicated that you have been working with them here, and  
21 keeping them informed as we go along. Of course, I think it is  
22 important that you continue to keep the Commission informed as  
23 we get into this extremely important new field really, for us,  
24 a new field that is so important to the whole nuclear industry.  
25 So we will need briefings in the future from time to time on

1       this and I hope you will arrange for that and not wait for us  
2       to call a briefing if you think there is something coming up  
3       that is of great importance, because we want it to be brought  
4       to our attention right away if, in your judgment, it should be.

5                  Are there any other questions from my fellow  
6       Commissioners? Mr. Rogers?

7                  COMMISSIONER ROGERS: Well, I am just a little  
8       concerned that we are aware of any sticky issues that aren't  
9       getting resolved on any of these matters, particularly well  
10      before the June hearing that is going to be held by Senator  
11      Breaux and those people on the status of this. I think we  
12      ought to know where things stand well before that so that  
13      anything that might get resolved through the efforts of the  
14      Commission or Commissioners could be brought to bear on any  
15      sticky issues.

16                 CHAIRMAN ZECH: I support that fully and I presume  
17      you'll do that, but June is like tomorrow, really, and so I  
18      would just suggest that you be alert to anything that might  
19      come up in the next few weeks that should be brought to the  
20      Commission and bring it to us, and I think that's what  
21      Commissioner Rogers is saying, and I support that fully.

22                 Are there any other comments from my fellow  
23       Commissioners?

24                 [No response.]

25                 CHAIRMAN ZECH: Thank you very much for an excellent

1 briefing. We stand adjourned.

2 [Whereupon, at 3:25 p.m., the meeting was adjourned.]

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2                   REPORTER'S CERTIFICATE  
3

4                   This is to certify that the attached events of a  
5 meeting of the U.S. Nuclear Regulatory Commission entitled:  
6

7                   TITLE OF MEETING:       NRC Point Papers

8                   PLACE OF MEETING:      Washington, D.C.

9                   DATE OF MEETING:      May 4, 1988

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11                  were held as herein appears, and that this is the original  
12 transcript thereof for the file of the Commission taken  
13 stenographically by me, thereafter reduced to typewriting by  
14 me or under the direction of the court reporting company, and  
15 that the transcript is a true and accurate record of the  
16 foregoing events.

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18                  Suzanne B. Young  
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22                  Ann Riley & Associates, Ltd.

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COMMISSION BRIEFING  
ON THE  
NRC POINT PAPERS  
FOR THE DOE  
CONSULTATION DRAFT  
SITE CHARACTERIZATION PLAN  
FOR YUCCA MOUNTAIN  
NYE COUNTY, NEVADA  
MAY 4, 1988

CONTACT:  
B. J. Youngblood  
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PRESENTATION OUTLINE

- SITE CHARACTERIZATION PLAN (SCP)
- CONSULTATION DRAFT SITE CHARACTERIZATION  
PLAN (CDSCP) REVIEW CHRONOLOGY
- NRC POINT PAPERS
- OBJECTIONS
- SCP AND NEAR-TERM SITE  
CHARACTERIZATION MILESTONES

### SITE CHARACTERIZATION PLAN

- PURPOSE
- CONTENTS
  - PLAN FOR ACTIVITIES
  - DESCRIPTION OF WASTE FORM & PACKAGE
  - CONCEPTUAL DESIGN OF REPOSITORY
- CDSVP
  - NOT REQUIRED BY NWPA OR 10 CFR 60
  - EARLY INPUT BY NRC AND STATE

CDSCP REVIEW CHRONOLOGY

- NRC'S REVIEW PLAN - 12/21/87
- DOE ISSUED CDSCP - 01/08/88
- NRC'S ACCEPTANCE REVIEW ISSUED -  
    01/26/88
- NRC'S DRAFT POINT PAPERS ISSUED -  
    03/07/88
- NRC'S DRAFT TO COMMISSION - 03/17/88
- COMMISSIONER ASSISTANTS BRIEFED -  
    03/28/88
- SERIES OF WORKSHOPS ON POINT PAPERS
- ACRS SUBCOMMITTEE - 04/28/88
- BRIEFING OF COMMISSION - 05/04/88
- FINAL CONCERNs ISSUED - MAY 1988

NRC POINT PAPERS

- NRC'S DRAFT POINT PAPERS
  - OBJECTIONS (5)
  - COMMENTS (108)
  - QUESTIONS (48)
- NRC'S FINAL POINT PAPERS
  - NO SIGNIFICANT CHANGES

OBJECTIONS

1. ALTERNATIVE CONCEPTUAL MODELS
2. QUALIFICATION OF QA PROGRAMS
3. DEPTH OF FIRST SHAFT
4. SHAFT CONCEPTUAL DESIGN INFORMATION
5. LOCATION OF SHAFTS

OBJECTION 1: NEED TO CONSIDER ALTERNATIVE  
CONCEPTUAL MODELS

SIGNIFICANCE: INVESTIGATIONS FOCUSED ON  
PREFERRED MODEL MAY BE INSUFFICIENT

ACTION: WORKSHOP IN NEVADA (APRIL 11).  
DOE NEEDS TO CONSIDER ALTERNATIVE MODELS  
IN DEVELOPMENT OF SCP

OBJECTION 2: NEED QUALIFIED QA PROGRAM

SIGNIFICANCE: DATA COLLECTED MAY NOT BE  
USABLE IN LICENSING

ACTION: DOE SUBMIT QA PLANS TO NRC FOR  
APPROVAL. DOE AND NRC AUDITS.

OBJECTION 3: DEPTH OF FIRST SHAFT

SIGNIFICANCE: SHAFT PENETRATES IMPORTANT BARRIER BETWEEN REPOSITORY AND WATER TABLE. PENETRATION MAY COMPROMISE WASTE ISOLATION CAPABILITY.

ACTION: NRC TO PARTICIPATE IN DESIGN REVIEW MEETING. DEMONSTRATE THAT SUCH PENETRATION DOES NOT COMPROMISE THE WASTE ISOLATION CAPABILITY.

OBJECTION 4: INSUFFICIENT SHAFT CONCEPTUAL DESIGN INFORMATION

SIGNIFICANCE: DOES NOT ALLOW EVALUATION OF INTERFERENCE OF CONSTRUCTION ON TESTING

ACTION: NRC TO PARTICIPATE IN DESIGN REVIEW MEETING. DOE TO PROVIDE ADDITIONAL DESIGN INFORMATION

OBJECTION 5: LOCATION OF SHAFTS

SIGNIFICANCE: LOCATION MAY NOT SUFFICIENTLY MINIMIZE SURFACE WATER INFILTRATION INTO THE SHAFT

ACTION: NRC TO PARTICIPATE IN DESIGN REVIEW MEETING. DOE TO PROVIDE EVALUATION

SCP AND NEAR-TERM SITE  
CHARACTERIZATION MILESTONES

- SCP - JANUARY 1989
- PUBLIC COMMENTS AND DOE HEARINGS ON SCP
- SHAFT COMMENTS WITHIN 90 DAYS OF SCP - APRIL 1989
- START SHAFT AFTER CONSIDERING NRC COMMENTS - JUNE 1989
- SITE CHARACTERIZATION ANALYSIS (SCA) WITHIN SIX MONTHS OF SCP - JULY 1989

SUMMARY

- °NRC ISSUED DRAFT POINT PAPERS
- °NRC AND DOE HAVE HELD WORKSHOPS
- °DOE INDICATES THEY UNDERSTAND OUR CONCERNS AND PLAN TO RESPOND TO THEM IN THE SCP
- °PLAN TO SEND THE FINAL POINT PAPERS AS SOON AS POSSIBLE AND WORK WITH DOE TO RESOLVE CONCERNs