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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON NUCLEAR WASTE (ACNW)

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150th MEETING

+ + + + +

WEDNESDAY,

MAY 26, 2004

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ROCKVILLE, MARYLAND

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The Advisory Committee met at the Nuclear
Regulatory Commission, Two White Flint North,
Room T2B3, 11545 Rockville Pike, at 8:30 a.m., B. John
Garrick, Chairman, presiding.

COMMITTEE MEMBERS:

- B. JOHN GARRICK, Chairman
- MICHAEL T. RYAN, Vice Chairman
- ALLEN CROFF, Consultant
- GEORGE M. HORNBERGER, Member
- RUTH F. WEINER, Member

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ACNW STAFF PRESENT:

JOHN T. LARKINS, Executive Director

NEIL M. COLEMAN

HOWARD J. LARSON, Designated Federal Official

MICHAEL LEE

RICHARD K. MAJOR

ALSO PRESENT:

FRED BROWN, NMSS

DANIEL M. GILLEN, NMSS

ROBERT JOHNSON, NMSS

JANET KOTRA, NMSS

THOMAS MATULA, NMSS

TIM McCARTIN, NMSS

NICK ORLANDO, NMSS

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I-N-D-E-X

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

(8:33 a.m.)

CHAIRMAN GARRICK: Good morning. Our meeting will come to order. This is the second day of the 150th meeting of the Advisory Committee on Nuclear Waste.

My name is John Garrick, Chairman of the ACNW. The other members of the committee present are Mike Ryan, Vice Chair; George Hornberger; and Ruth Weiner. Also present with us today is our consultant, Allen Croff.

Today the meeting will consist of, number one, hearing a briefing by the NRC staff on its recent evaluation of DOE technical basis documents supporting the Yucca Mountain license application; two, we'll be briefed by a representative of the NRC staff on the recent changes to the decommissioning program; and, three, we'll discuss proposed topics in preparation for a July 21st meeting with the NRC Commissioners; four, we'll continue preparation of potential ACNW reports.

Howard Larson is the Designated Federal Official for today's initial session.

And, as usual, this committee is being conducted in accordance with the provisions of the

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1 Federal Advisory Committee Act. The committee has not
2 received any comments or requests for time to make
3 oral statements from members of the public regarding
4 today's sessions. Should anyone wish to do so, please
5 contact the committee staff. And when you make your
6 comments, indicate your affiliation, name, etcetera,
7 and do so such that there is a microphone at your
8 disposal.

9 It is requested, as usual, that speakers
10 be -- speak clearly, and I think we will now move into
11 the agenda item.

12 And I'll ask the people to introduce
13 themselves and to introduce the people who are going
14 to participate. Okay? So our first topic is going to
15 be on the review of the technical basis documents.

16 Tom, you'll introduce yourself and your
17 team.

18 MR. MATULA: Yes, sir.

19 CHAIRMAN GARRICK: By the way, my leaving
20 here in about 15 minutes is not because I'm bored with
21 the discussion. In fact, I'm very interested in this
22 discussion. It's just that we have problems in
23 getting people together, and I have to go to a meeting
24 with the Commissioners at about 9:00, but I'll be
25 back. In the meantime, the Vice Chairman will be

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1 conducting the proceedings.

2 MR. MATULA: All right. Well, good
3 morning. My name is Tom Matula. I'm a Senior Quality
4 Assurance Engineer in the High-Level Waste Repository
5 Safety Division. With me here today is Fred Brown.
6 Fred Brown is the Section Chief in one of Bill
7 Reamer's sections. Also, Tim McCartin, who is our --
8 my technical support in this presentation. And Janet
9 Kotra is helping me out with the slides.

10 What I'm going to present to you today is
11 how we -- some information on how we conducted the
12 evaluation, the results, and the staff conclusions.
13 This presentation was given on May 5th to DOE, and
14 also in attendance were members of affected units of
15 government, and also the public was there. We had
16 some press.

17 To begin with, Bill Reamer and Fred Brown
18 had some opening remarks and -- which they basically
19 talked about context, and I then took over and gave
20 pretty much a presentation on the evaluation. For
21 this evaluation, I was the team leader, and we had
22 three teams, three audits, and I'll give you some more
23 information on that as we go through this.

24 So what I'm going to do is give basically
25 the presentation I gave at that meeting with the DOE.

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1 During my talk today, I'll present to you the results
2 of NRC staff's evaluation of DOE, where we audited
3 three analysis model reports, associated control
4 processes, and corrective action.

5 Both Bill Reamer and Fred Brown refer to
6 analysis model reports during their remarks. Please
7 note that I'll be referring to technical reports today
8 rather than analysis model reports, because the teams
9 did look at other documents other than analysis model
10 reports.

11 An additional note is that Bechtel SAIC is
12 DOE's prime contractor for the development of DOE's
13 technical reports and license application. As a
14 result, DOE delegated certain responsibilities and
15 authority to BSC for implementation of certain aspects
16 of DOE's quality assurance program.

17 However, as the potential applicant for
18 the geologic repository, DOE retains full
19 responsibility for implementation and execution of
20 this quality assurance program, the quality of
21 technical reports, and the adequacy of the license
22 application. Therefore, during my presentation today
23 I will refer only to DOE, even though Bechtel may have
24 been directly involved in some of the areas that we
25 looked at.

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1 What you see here is an outline of what I
2 will present to you today. First I will provide some
3 background information, which led to the NRC
4 evaluation of DOE, followed by the purpose of the
5 evaluation, what was included in the evaluation, how
6 the team performed the evaluation, some good practices
7 noted by the team, the concerns identified by the
8 team, and, finally, the NRC staff's conclusions.

9 DOE is planning to submit a license
10 application in December of 2004 for a geologic
11 repository at Yucca Mountain, Nevada. DOE will use
12 software data and models in developing its license
13 application.

14 In the past, DOE has had some problems
15 assuring that the data obtained from experiments and
16 other sources is acceptable, that the software DOE
17 acquired or developed is qualified, and that the
18 models that DOE is relying upon are verified.

19 During the April 2003 quarterly management
20 meeting, NRC staff expressed its concern about the
21 lack of effective implementation of actions to correct
22 recurring problems. During the same meeting, NRC
23 staff said that recurring problems in the areas of
24 data, models, and software could have an impact on the
25 NRC staff's ability to effectively complete its

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1 evaluation of the license application.

2 NRC staff stated that it intended to
3 evaluate independently DOE's performance in the
4 development of technical reports.

5 The NRC staff's purpose in auditing DOE's
6 technical reports was to evaluate how DOE is
7 presenting technical information, not on whether the
8 NRC staff agree or disagree with the conclusions drawn
9 from the information.

10 If an application for a waste repository
11 is submitted, we will perform a comprehensive review
12 of both the information presented and the conclusions
13 drawn by DOE from the information.

14 Now, the next point is very important. In
15 the license application, first, NRC staff must be able
16 to understand DOE's explanation; and, second, DOE must
17 provide sufficient information to support those
18 explanations. To this end, the purpose of this
19 evaluation was to independently evaluate the clarity
20 of technical reports and the quality of the
21 information that DOE provides.

22 The NRC team independently performed its
23 evaluation in three areas. First, the team audited
24 the technical information in three technical reports
25 to ensure transparency and quality of the information.

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1 Technical information includes field and experimental
2 data, models, analysis, and justification for any
3 assumptions and conclusions presented by DOE.

4 Second, the team also evaluated those
5 processes used in developing, reviewing, and checking
6 technical reports.

7 And, third, the team evaluated the
8 effectiveness of recent corrective actions and
9 eliminating recurring problems in the areas of data,
10 models, and software, as they apply to the technical
11 reports audited.

12 Now, as I mentioned earlier, DOE has
13 committed to submit a high quality license
14 application. NRC staff considers a high quality
15 license application to be one that contains the data
16 and information necessary and sufficient to support
17 the technical positions presented in the license
18 application.

19 Such data and technical information must
20 be traceable, it must be transparent, and it must be
21 technically appropriate for their use in the license
22 application.

23 When we refer to technical information as
24 being traceable, we mean that a qualified reviewer
25 should be able to find the source of the technical

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1 information presented or referenced in the technical
2 report, and be able to determine its level of quality.
3 The reviewer should be able to accomplish this without
4 having to get help from the report author.

5 The NRC staff considers an analysis to be
6 transparent when the reviewer can get a clear picture
7 of what was done in the analysis, what the outcome
8 was, and why. Once again, the reviewer should be able
9 to accomplish this without having to get help or
10 clarification from the report author.

11 Lastly, when we referred to technical
12 information as being appropriate for its use, we mean
13 that the technical information or data should be
14 representative of the conditions being examined in the
15 analysis.

16 The team used the NRC NUREG-1804, which is
17 entitled "Yucca Mountain Review Plan," as a guide for
18 developing an effective evaluation plan and
19 appropriate questions to be asked during the
20 evaluation.

21 The team performed three targeted audits
22 to independently evaluate the transparency and quality
23 of technical information in selected technical
24 reports. The staff used its "Baseline Risk Insights,"
25 which is dated June 5, 2003, to select the technical

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1 reports believed to be of high or medium significance
2 to repository performance.

3 The technical reports audited by the team
4 are listed here. First, in November of 2003, the team
5 audited the "General and Localized Corrosion of Waste
6 Package Outer Barrier." This technical report
7 presents how the waste package is expected to perform
8 in storage in order to contain nuclear waste.

9 Then, in December of 2003, the team
10 audited the "Commercial Spent Nuclear Fuel Waste Form
11 Degradation Model." This technical report presents
12 how the nuclear fuel that will be stored in the waste
13 package is expected to perform.

14 Finally, in January 2004, the team audited
15 the "Drift Degradation Analysis." This technical
16 report presents how the tunnels or drifts contain the
17 waste package, how they are expected to perform.

18 While auditing the technical reports, the
19 team evaluated the effectiveness of procedures that
20 DOE used to develop, review, and check technical
21 reports. The procedures that the team reviewed
22 control various quality-affecting activities. For
23 instance, the team reviewed DOE's procedure regarding
24 the development, use, and control of scientific
25 notebooks.

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1 The scientific notebooks are used by
2 scientists and other technical staff to document
3 scientific studies and experiments and record test
4 data and test results. This procedure helped the team
5 determine data traceability.

6 The team also reviewed DOE's procedures
7 regarding scientific analysis and models. These
8 procedures describe how DOE staff should develop,
9 control, and document the analysis and models used in
10 technical documents. These procedures helped the team
11 determine data transparency and appropriateness.

12 The team also reviewed the implementation
13 of DOE's procedure regarding document review. This
14 procedure provides the process by which DOE staff
15 check completed documents to assure a thorough,
16 complete, and accurate review, and the overall quality
17 of technical information.

18 While auditing the technical reports, the
19 team also evaluated effectiveness of DOE's actions to
20 preclude recurring problems in the areas of data,
21 models, and software, as they apply to technical
22 reports audited.

23 The activities during the evaluation were
24 very diverse. Here's a brief overview. There were
25 six to 12 team members on each of the audit teams.

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1 The teams spent many days -- approximately a week --
2 before the actual conduct of the audit researching the
3 subject matter, preparing for the actual audit, and
4 developing checklist questions.

5 The team held an entrance briefing with
6 DOE at the beginning of each of the three audits to
7 present the scope of the evaluation, introduce the
8 team members, and establish points of contact. During
9 each of the three week-long audits, the team members
10 worked independently or in small specialized groups
11 gathering information regarding technical reports,
12 controlling processes, and corrective actions.

13 Each day team members interviewed
14 technical staff at various locations, reviewed
15 technical documents, and researched data on computer
16 databases. In many instances, team members worked on
17 several aspects of the audit at once, because of time
18 restraints, the availability of DOE staff, and
19 availability of pertinent documents.

20 At the end of each day, the team came back
21 together and held a briefing with DOE to describe any
22 concerns identified by the team. At the end of each
23 of the three week-long audits, the team held an out-
24 briefing with DOE to present all of the concerns
25 identified by the team during the week.

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1 It's important to note that during the
2 three audits the team did not discuss the resolution
3 of any concerns with DOE staff.

4 The purpose of this technical exchange,
5 which is what I'm presenting here, was to provide the
6 results of the evaluation and NRC staff's conclusions.

7 The team noted some good practices during
8 its evaluation of DOE technical products. For
9 instance, the team received excellent cooperation and
10 support from all levels of DOE staff and management.
11 The team found that the technical support for the
12 technical reports was greatly improved over what was
13 available for the total system performance assessment
14 for site recommendation.

15 The current technical reports audited were
16 updated, are more comprehensive, and contain more
17 data. DOE's data qualification program was effective
18 in identifying some of the existing data concerns in
19 technical reports.

20 That being said, the team identified some
21 concerns with both the clarity of explanation of some
22 of DOE's technical basis, and also with the
23 presentation of sufficient technical information
24 necessary to support those explanations.

25 Let me explain. In some instances, DOE

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1 did not explain its technical basis in a way that the
2 team could understand how DOE reached its conclusions.
3 Because DOE's explanation of its technical basis was
4 not clear, the team could not determine if the
5 associated technical information was sufficient.

6 In some instances, DOE did provide a clear
7 explanation of its technical basis but did not provide
8 sufficient technical information necessary to support
9 those explanations.

10 The team's determination that technical
11 information was not sufficient was based on the
12 information presented in the technical reports and
13 supporting references. The team did not consider:
14 1) whether the missing information would be available
15 in other DOE documents, if that information was not
16 specifically referenced in the technical documents
17 audited; 2) whether other activities were underway to
18 collect the missing information; or 3) whether
19 alternative information or approaches could be used to
20 support the technical basis.

21 It should be noted that the team found a
22 number of instances where DOE did clearly explain its
23 technical basis and also provided necessary technical
24 information to support the technical basis.

25 The team determined that DOE's procedures,

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1 reviewed by the team, appeared to be adequate to
2 control applicable processes. The team did not
3 identify any specific areas where DOE did not comply
4 with the procedures reviewed during the evaluation.
5 Rather, the degree to which DOE implemented the
6 procedures was a concern.

7 Specifically, the team identified a
8 general concern regarding DOE's document review
9 process. The concerns found by the team during the
10 evaluation could reasonably have been identified by a
11 thorough technical review by DOE.

12 In the recent past, DOE acknowledged that
13 its corrective actions in the areas of data, software,
14 and models had been ineffective. During this
15 evaluation, the team confirmed DOE's findings that
16 they have not been fully successful in carrying out
17 effective actions in eliminating recurring problems in
18 these areas.

19 Recently, DOE determined that human
20 performance issues were the primary contributor to
21 these problems. DOE now plans to implement a formal
22 integrated program to improve human performance.

23 NRC staff's conclusions are as follows.
24 The number and similar patterns of concerns found in
25 all three technical reports audited suggest that other

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1 technical reports may have similar limitations. The
2 team believes that if DOE continues to use their
3 existing policies, procedures, methods, and practices
4 at the same level of implementation and rigor, the
5 license application may not contain information
6 sufficient to support some technical positions in the
7 license application.

8 The team is not saying that DOE's
9 procedures reviewed during this evaluation are not
10 adequate, but the concerns identified by the team
11 indicate that the procedures were not fully
12 implemented. These concerns could result in a large
13 volume of requests for additional information in some
14 areas, which could extend NRC staff's review process.

15 This could prevent NRC from making a
16 decision regarding issuing a construction
17 authorization to DOE within the time required by law.

18 The conclusions of this evaluation are
19 based on a focused review of three technical reports
20 and supporting references. The team notes that
21 additional information may exist in other DOE
22 documents, and alternative approaches could be used to
23 address the identified concerns.

24 However, DOE did not provide or reference
25 this information in the technical reports evaluated by

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1 the team. Therefore, this additional information was
2 not transparent to the team.

3 That concludes my presentation.

4 VICE CHAIRMAN RYAN: Thank you, Thomas.

5 Questions from members? Ruth?

6 MEMBER WEINER: Would it be possible for
7 you to give an example from one of the reports where
8 the technical basis was not explained clearly or the
9 -- it was explained but the technical information was
10 not sufficient?

11 I have a little problem connecting this
12 general "this was wrong, that was wrong, this was
13 okay, that was okay" with something specific. Is
14 there a specific example that you could give?

15 MR. MATULA: Yes. In the report that we
16 issued --

17 MEMBER WEINER: Yes.

18 MR. MATULA: -- that was -- actually, in
19 Section 3.2 of that report, we give the two different
20 kinds of concerns we have -- one, where the technical
21 -- or where the explanation was not adequate, and the
22 second one where it was adequate, but sufficient
23 information was not provided.

24 And within both of those, we give three
25 examples of those. Do you want to go through those in

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1 detail or --

2 MEMBER WEINER: We can get it. I just --
3 thanks for the reference. That's --

4 MR. MATULA: Yes, it's right here. It
5 gives examples of those.

6 MEMBER WEINER: Okay. Thanks.

7 VICE CHAIRMAN RYAN: George?

8 MEMBER HORNBERGER: Well, perhaps just to
9 go a little farther with Ruth's question. If we
10 picked just one of the things that is in the -- your
11 report, say microbially-induced corrosion, I know --
12 I've read through the material. But, still, perhaps
13 you could give us a flavor of exactly what it is you
14 would envision that DOE needed to do to satisfy -- to
15 make this a satisfactory report.

16 That is, is it your conclusion that they
17 don't have the technical information that's the basis
18 or that they simply haven't reported it?

19 MR. MATULA: Well, I'm not sure which
20 category that fell into, whether they did not provide
21 sufficient information, or whether they did not
22 provide the explanation.

23 What we're saying here is that if they --
24 if the technical -- if the explanation was sufficient
25 for the team to be able to understand their basis and

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1 their conclusions, the next step was to look at the
2 data supporting that.

3 So in the first instance, if the
4 explanation was not clear where the team was able to
5 understand what they were saying, or how they came up
6 with these -- this basis or the conclusion, we never
7 got to the data, because we couldn't tell if it was
8 supporting -- sufficient or not.

9 In the other instance where the team did
10 understand the explanation and the basis, then they
11 went to the data to see if it fully supported it, if
12 it was sufficient. All right?

13 Now, at this particular case, Tim McCartin
14 probably could address that a little bit more clearly
15 for you, if you want to talk specifically about
16 microbially-induced corrosion.

17 Did that answer your question, or do you
18 want to --

19 MEMBER HORNBERGER: Yes. No, I think I do
20 understand. I guess in looking through -- I
21 understand, also, what you were doing. You were doing
22 this audit that basically gives some feedback on QA,
23 whether the information was going to be there.

24 On the other hand, here we are, it's
25 nearly June, and the target date for submitting an LA

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1 is six months or seven months away. And I read
2 through this and it says, well, you know, it looks
3 like you'd really need to do a lot more work,
4 including field experiments on colloid transport.

5 I don't -- what I can't tell is whether
6 the bottom line of these analyses set requirements
7 that may be impossible for DOE to meet. For example,
8 DOE getting 140 experts together is not going --
9 they're not going to produce data on colloid
10 transport. That's not going to happen.

11 They're going to maybe review the
12 technical basis that DOE has used. Do you see what I
13 mean?

14 MR. MATULA: Yes, I understand. First of
15 all, this endeavor here does not set any requirements.

16 MEMBER HORNBERGER: I know.

17 MR. MATULA: They already know the
18 requirements. What we did was go out there to check
19 the quality of the information that was available at
20 that time.

21 These technical documents went through
22 DOE's technical review process. It went all the way
23 through that. And they were identified by DOE as
24 being complete and ready to go. So we selected those
25 to take a look at those that were of significance to

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1 repository performance.

2 Going and looking at that, we checked the
3 quality to see what it would look like if it was used
4 in support of a license application. So we just
5 looked at the quality of that information. We did not
6 make any determinations or attempt to make any
7 determination as to the adequacy of the technical
8 information. Whether we agreed with it or not, it
9 just focused on the quality. All right?

10 Pretty much all of these things that we
11 identified here are focused on traceability and
12 transparency, so that when we get the license
13 application, if we can understand what they're saying
14 and be able to go into the databases, or whether the
15 data is, and follow it to its source and do whatever
16 we need to do, we can do our evaluation.

17 Short of that, we're going to have
18 questions. How did you come up with this conclusion?
19 What is it based on? Or where is the data for
20 supporting it -- you having to ask those questions?

21 Now, I also mentioned in my presentation,
22 too, that there were instances identified by technical
23 staff after our interviews, that there was additional
24 information available. It wasn't referenced. The
25 transparency was not there.

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1 And, furthermore, they have other tests
2 that are ongoing right now that they are performing.
3 They also had another category where they said, "We
4 intend to perform those," and they showed us some
5 objective evidence where they have plans to do that in
6 the near term. But there was also that third category
7 where they did not have plans to do that testing, but
8 they would consider doing it. All right? So it's all
9 over the board.

10 Now, a lot of this depends on the
11 significance also. If -- you know, we would expect
12 that in our license -- our application review is that
13 areas that are highly significant, of high
14 significance, we would expect more explanation, more
15 data supporting it, as opposed to those that are
16 medium or low significance. So we have to temper it
17 with that, and we did do that to a certain degree
18 during this evaluation.

19 Now, DOE recognizes that their primary
20 effort right now with this regulatory integration
21 team, this 140 or 150 people, technical people that
22 are going through all of their documents right now on
23 a 100 percent basis, is focused on traceability and
24 transparency. They are not, from my understanding,
25 getting very deep into appropriateness or technical

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1 adequacy of the data. I don't think they have time to
2 do that between now and December of '04.

3 So that's their focus right now is
4 traceability and transparency -- much what we did
5 during our evaluation -- the quality of the data.

6 MEMBER WEINER: Could I ask another
7 question?

8 VICE CHAIRMAN RYAN: Sure.

9 MEMBER WEINER: NRC and DOE have been
10 having technical exchanges since 1990, as far as I
11 know. And isn't this kind of an eleventh hour
12 finding? I mean, I'm just surprised that this kind of
13 thing would come up this late in the game, after
14 you've had -- it isn't that you all haven't been
15 talking to each other. Hasn't this ever come up in
16 technical exchanges before?

17 MR. MATULA: Great question. Well, the
18 answer to that is that during the technical
19 discussions those were more focused on what is
20 necessary or what is -- what should be brought out in
21 these technical documents.

22 This is the first opportunity we had to
23 look at "completed" documents. Everything prior to
24 this is in draft, in development, and they often said,
25 "Yes, we know that. We're working on it, and we will

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1 provide all of this information and data in the
2 license application." It was all a promise.

3 Now they're at the point where they are
4 completing some of these documents. So it's our first
5 opportunity to see a completed technical document to
6 check the quality.

7 Now, this has come up in the past before
8 in DOE's audits of itself. They perform audits on a
9 regular basis over the years, and they have identified
10 similar problems in their models. In fact, they
11 issued a super CAR a couple of years ago, which is
12 still open by the way, which identified a lot of these
13 types of issues.

14 Now, through their corrective action
15 program, which they admit they have been ineffective
16 in implementing corrective action to correct these
17 problems, through their efforts they are correcting
18 these kinds of issues. But the CAR is still open,
19 they're still working on it, and yet they've got this
20 regulatory integration team working to accomplish
21 these things. They are expecting quality in rather
22 than building it in at this point, because it is late
23 in the process.

24 So to answer your question, yes, this has
25 come up in the past. It is late identification

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1 because we -- this is our first opportunity to do
2 that.

3 Does that answer your question for you?

4 MEMBER WEINER: That does answer it, yes.

5 MR. MATULA: Okay.

6 VICE CHAIRMAN RYAN: I guess your last
7 conclusion is the one that caught my eye, that this
8 would extend NRC's safety review and could prevent NRC
9 from making a decision within the time required by
10 law. That's a big statement.

11 Do you have any -- and maybe this isn't a
12 fair question. But from the snapshot that you did
13 take, do you have any assessment of how likely that
14 is, or what that means in terms of time, or --

15 MR. MATULA: Well, DOE recognizes these
16 issues that we identified. They accepted everything
17 that was identified without question. They see that
18 they have these traceability and transparency
19 problems, and they recognize the magnitude or the
20 potential magnitude of these, and that's why they
21 brought in 150 people.

22 VICE CHAIRMAN RYAN: So they got the
23 message from you.

24 MR. MATULA: Yes, sir.

25 VICE CHAIRMAN RYAN: Okay.

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1 MR. MATULA: So --

2 VICE CHAIRMAN RYAN: That's good.

3 MR. MATULA: -- one benefit of this
4 evaluation was the results. And they're taking
5 action.

6 VICE CHAIRMAN RYAN: Good.

7 MR. MATULA: During the evaluation, we
8 made it very clear to DOE and to BSC on a daily basis
9 every concern that we identified. By the time we got
10 to the end of the week where we had the -- our exit
11 briefing with them, we just basically ran through what
12 we identified. There was never any questions, because
13 during the week day by day we made it very clear what
14 it was, and they agreed as we went along.

15 And it's my understanding that even prior
16 to us -- way before we issued the report, in fact,
17 just a very short time after we completed our third
18 audit, they went in and reverified what we did, and
19 they already started putting together this regulatory
20 integration team. They recognize that they needed to
21 do this.

22 So I can't tell you how big it -- if they
23 didn't do anything what it would be. We would have a
24 whole lot more questions. What's a whole lot? I
25 can't answer that. We have to wait until we get the

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1 application to be able to see --

2 VICE CHAIRMAN RYAN: And I appreciate
3 that. That's why I said it. It might not be a fair
4 question, but it seems to me that, you know, from our
5 perspective of advising the Commission, when we see,
6 well, you know, we're not going to make a statutory
7 requirement, that's something that needs some
8 additional attention or thinking or scoping or
9 something to try and assess that. That, to me, was a
10 very powerful conclusion on your part.

11 MR. MATULA: It is, and it's a stretch to
12 a certain degree. We looked at three analysis
13 model --

14 VICE CHAIRMAN RYAN: Again, I appreciate
15 the caveats.

16 MR. MATULA: Yes.

17 VICE CHAIRMAN RYAN: You looked at one
18 little snapshot, and, you know, you're without an
19 application, and so forth. So it's hard to be exact
20 and quantitative, but --

21 MR. MATULA: But the real message that we
22 need to focus on is not whether we're going to get a
23 high quality license application. The message is is
24 that DOE recognizes that they have some limitations,
25 and they are addressing those.

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1 VICE CHAIRMAN RYAN: They're addressing
2 those.

3 MR. MATULA: And that they will -- they
4 have committed to provide us with a high-quality
5 license application. And now they're taking steps to
6 assure that that happens.

7 VICE CHAIRMAN RYAN: Well, and, of course,
8 as Dr. Hornberger pointed out, that's -- they've got
9 a fairly narrow window to --

10 MR. MATULA: Yes. Tim McCartin might have
11 something to add to that.

12 MR. McCARTIN: Yes. Could I just -- maybe
13 along the lines of giving an example of where we're
14 coming from for some of the things that we're doing.
15 We get a license application, and say for one
16 particular area -- for rockfall and rock properties.
17 The data spans a range of -- and I will just make up
18 a number, but let's say 100 to 10,000 units of X,
19 whatever.

20 They're going to use 150 to 250 from that
21 range. Period. No explanation of why. Well, tell me
22 why. That's one of the examples they had. They did
23 not explain -- here's the full range of data. We're
24 going to use this portion of it.

25 Okay. Now, we would expect -- and I think

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1 a lot of this isn't necessarily saying there's more
2 information to be had. That's -- DOE has to answer
3 that. But what they're seeing is the level of review
4 that NRC would scrutinize.

5 I've got to ask you now: why did you pick
6 this particular range from the entire range? Okay.
7 That's a question. Until you get back to me, my
8 review is sort of in standstill if you will.

9 Another example -- microbial-induced
10 corrosion. Microbial-induced localized corrosion
11 doesn't occur at 25 degrees C. The test for
12 microbial-induced corrosion -- we're done at
13 25 degrees C. So seeing how this would affect
14 corrosion you have now tested it in an area where the
15 corrosion doesn't occur.

16 And so, well, exactly how does this test
17 tell me about microbial-induced corrosion, possibly at
18 a higher temperature where it's more likely? And so
19 you can -- what they got were a series of questions.
20 Well, we don't see how this relates.

21 It may translate to, oh, gee, we need to
22 collect more information. They may have it. More
23 importantly, as Tom indicated, oh, gee, we see this.
24 We'll make a different assumption. We can't support
25 that one; we'll make a different assumption. I don't

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1 have to collect more information, but my assumption
2 has changed.

3 So there's a variety of ways to deal with
4 it, but you can see what -- I mean, the bottom line
5 here isn't necessarily there's a lot more work --
6 experimental work to be done. There is more work in
7 explaining what your basis is.

8 And if we have to ask just some of these
9 fundamental questions, it delays our review to getting
10 at, okay, do we really believe it supports it? And
11 that's -- I don't know if that helps, but that's kind
12 of the -- we don't connect the dots for the Department
13 of Energy. They need to connect the dots and clearly
14 show it, and that's the transparency and traceability.

15 VICE CHAIRMAN RYAN: Well, Tim, I think
16 you've helped, because there really to me is a great
17 big difference between transparency and traceability
18 versus appropriateness for use or adequacy of
19 information. So that -- you know, and I think you've
20 done a nice job of -- traceability and transparency
21 are kind of -- and I don't mean to trivialize this --
22 sort of a quality assurance function of: do all the
23 pieces string together?

24 And that takes time -- to get that
25 documented. And if you find defects in that process,

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1 then you're going to be tracing a lot more than you
2 would otherwise if you have high confidence it is all
3 traceable or it's clear and transparent.

4 And then there's the second part of the
5 license review, which is adequacy for use or
6 appropriateness for use, and those kinds of things.
7 So --

8 MR. McCARTIN: Absolutely. And you need
9 that transparency and traceability to get to the
10 adequacy. I mean, I want to see all of these --

11 VICE CHAIRMAN RYAN: And, again, I come
12 back to your last conclusion that -- and, again, I
13 don't discount any of the uncertainty. But to
14 translate that into a recommendation that you might
15 not make the required time by law, I just wonder, is
16 there something we should comment on in that regard?
17 I mean, is that something we should highlight to the
18 Commission?

19 I know Dr. Garrick would ask that
20 question, because that's a pretty forceful conclusion.

21 MR. MATULA: Yes, I don't believe that's
22 something that you need to comment on. It is -- of
23 course, anything is possible. But, again, I'll
24 reemphasize -- the focus really is on DOE's
25 recognition that they have these --

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1 VICE CHAIRMAN RYAN: And that's a positive
2 with regard to that statement.

3 MR. MATULA: And they have committed to
4 resolve this -- these issues and provide NRC staff
5 what we need, so that we can do our safety review.

6 VICE CHAIRMAN RYAN: Let me ask you follow
7 up. This may not be a fair question to either you or
8 DOE, but is there any planned activity to sort of
9 repeat this transparency and review before the LA?

10 MR. MATULA: DOE's Office of Quality
11 Assurance is an integral part of this regulatory
12 integration team. They are following the whole
13 process, and they will be doing surveillances and
14 audits of the complete -- then completed products to
15 assure --

16 VICE CHAIRMAN RYAN: And you guys have
17 access to participation in that or --

18 MR. MATULA: We have access, yes.

19 VICE CHAIRMAN RYAN: Okay.

20 MR. MATULA: And our onsite
21 representatives are monitoring that, but it's early in
22 the game. It's a -- from what I understand, it's a
23 three-month program. They're about a month and a half
24 into it, so they're just now gathering all of this
25 information together. And the results will be coming

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1 out soon, I'm sure.

2 VICE CHAIRMAN RYAN: Okay. Thank you.

3 Any other questions from members or staff?

4 Mike? I'm sorry?

5 MR. BROWN: This is Fred Brown. I was
6 just going to comment in specific answer to your
7 question. No, we don't plan any additional technical
8 evaluations. And as Tom said, we'll follow what they
9 do through their audits.

10 But going back to why we did this, we were
11 concerned by the indications from their audits of
12 problems with software models and --

13 MR. MATULA: Oh, absolutely. I mean, it's
14 the right thing to do. No question.

15 MR. BROWN: And now we got this
16 independent data point, and we had to ask ourselves:
17 what does it mean, given what we saw in these three
18 AMRs? And we extended that out to the extreme, which
19 was it could impact our ability to perform the reviews
20 in the time required by law, conceptually. We didn't
21 say that it would. We said it could.

22 And the big key, as Tim said, is what
23 information does DOE already have that they could fill
24 in the blanks in this process to answer the kind of
25 questions we had. So that's the critical thing that

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1 affects the quality of the application going forward.

2 But we -- you know, we're not in a
3 position to directly influence the application. We
4 don't want to be there and can't be there.

5 VICE CHAIRMAN RYAN: No, I understand that
6 separation. I guess Howard has just pointed out, too,
7 we're going to hear from DOE next month on their
8 reaction responses and activities in that regard.

9 MR. MATULA: And DOE will provide a
10 response to our report --

11 VICE CHAIRMAN RYAN: Right.

12 MR. MATULA: -- by June 4th. That's 30
13 days from when we had this meeting.

14 VICE CHAIRMAN RYAN: Right.

15 Okay. Mike Lee?

16 MR. LEE: Yes. Tom, as Dr. Weiner pointed
17 out before, NRC has been doing independent QA
18 evaluations of DOE's programs since the late '80s or
19 early '90s. So what was different about this
20 particular evaluation? Or was it just, as you said
21 earlier, that they had some results that you could
22 actually audit?

23 MR. MATULA: We have not been performing
24 independent evaluations.

25 MR. LEE: Okay.

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1 MR. MATULA: What we were doing over the
2 couple decades is observing --

3 MR. LEE: Okay.

4 MR. MATULA: -- their program, their
5 audits. When they have an audit, we send observers to
6 certain ones that are significant, and we observe the
7 conduct of those audits to see -- to assure that they
8 are being performed adequately.

9 MR. LEE: Okay. Thank you.

10 MR. MATULA: In addition to that, of
11 course, we have access to all of the information from
12 all of the audits that they perform. And we have
13 quarterly quality assurance meetings, where they
14 provide summaries of all of these things. So they've
15 been self-identifying and reporting this information
16 to NRC staff. All right?

17 We've been using that information as an
18 indicator as to the health of their quality insurance
19 program implementation. But this is the first time we
20 went out and did an independent evaluation with NRC
21 staff. And we did this because we had the opportunity
22 then to probe deeper into certain areas where we felt
23 it was important, rather than observing what they were
24 doing, we couldn't really direct it, so we just had to
25 observe what they were doing.

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1 MR. LEE: Now, has DOE developed a
2 correction action -- or corrective action -- whatever
3 the right terminology is -- a corrective action report
4 based on your review or --

5 MR. MATULA: Yes.

6 MR. LEE: Okay.

7 MR. MATULA: Most of the issues that we
8 identified, they documented in condition reports,
9 which is put into their corrective action program.

10 MR. LEE: Okay.

11 MR. MATULA: And also, as a part of this
12 regulatory integration team, what comes out of that
13 will end up in the corrective action program also.

14 MR. LEE: Okay. Does the staff have any
15 -- are there any other outstanding QA concerns that
16 the NRC has right now, with the exception of this one,
17 or --

18 MR. MATULA: Well --

19 MR. LEE: -- that may have --

20 MR. MATULA: -- until we get the license
21 application, we will be concerned, because of the
22 history --

23 MR. LEE: Okay.

24 MR. MATULA: -- in data, software, and
25 models. Those are the three big ones, and DOE is

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1 committed to provide high quality information in all
2 of those areas supporting the license application.
3 So --

4 MR. LEE: And I just had one other
5 question. The committee, when it was in Las Vegas
6 last year, heard about this activity. And it was
7 brought -- it was noted by members of the public that
8 this activity was closed to the public. Can you
9 explain why -- what benefit there was to the NRC in
10 closing this to the public as opposed to other
11 observations you may have done which are public
12 observations?

13 MR. MATULA: The observations that we were
14 involved in were actually audits or surveillances
15 performed or conducted by Department of Energy.

16 MR. LEE: Okay.

17 MR. MATULA: And so it was their choice
18 whether they would open it up or not. And we have --
19 we have this agreement between NRC and DOE that they
20 -- those types of things would be open to the public.
21 In this particular instance, from a team leader's
22 perspective, it was -- as I mentioned in one of my
23 slides, it was a very complicated evaluation, very
24 diverse.

25 We had, you know, 10 to 12 people on some

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1 of these, and they were off in all directions --
2 performing interviews and reviewing documents and
3 looking at computer screens and gathering information.
4 And the interviews were very technical, and it was
5 felt, again, from my perspective that to have public
6 observation involved in that, based on our timeframe
7 of trying to get this accomplished in one week for
8 each of these AMRs, would have been extremely
9 difficult to be able to accomplish and reach our
10 goals.

11 MR. LEE: Okay. So there's a genuine
12 practical consideration in the ability to provide --
13 to conduct this review in a timely manner effectively.

14 MR. MATULA: From my perspective, the team
15 leader's perspective, yes.

16 MR. LEE: Okay.

17 VICE CHAIRMAN RYAN: Thanks.

18 Any other questions? Comments?

19 MR. MATULA: You know, one last point, and
20 I think it's important to end on this, because we
21 ended on it also -- is that after I gave my
22 presentation Fred got up and the last words was -- he
23 said, "The ball is in DOE's court," and it is because
24 they're moving out on this regulatory integration team
25 effort. They're committed to provide high quality

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1 application, and they're headed in that direction. So
2 it's up to them now. It's in their court.

3 VICE CHAIRMAN RYAN: Thanks, Thomas. We
4 appreciate your presentation. Thanks very much for
5 coming.

6 Okay. Next on our agenda is the
7 decommissioning program changes. Dan Gillen is going
8 to talk about recent updates and changes to the
9 decommissioning program.

10 We'll take a short break and see if we can
11 get him here. Please come back promptly at 9:40.

12 (Whereupon, the proceedings in the
13 foregoing matter went off the record at
14 9:23 a.m. and went back on the record at
15 9:39 a.m.)

16 VICE CHAIRMAN RYAN: All right. We'll
17 come to order, please.

18 As I mentioned earlier, our presentation
19 will be changes to the NRC's decommissioning program.
20 And Deputy Director Dan Gillen is with us today.

21 Dan, welcome.

22 MR. GILLEN: Thank you very much. Is this
23 okay?

24 VICE CHAIRMAN RYAN: Just fine.

25 MR. GILLEN: Okay. Can I have someone

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1 monitoring the slides for me, if I ask you -- okay,
2 thanks very much.

3 Well, good morning. Again, I'm Dan
4 Gillen, and I am the Deputy Director of the
5 Decommissioning Directorate in NRC's Division of Waste
6 Management and Environmental Protection.

7 The NRC decommissioning program is a
8 growing one and has evolved substantially over the
9 past decade. A couple weeks ago we hosted a
10 decommissioning counterparts meeting with Regions I,
11 III, and IV in attendance. And ACNW was represented
12 by Howard Larson, and he had firsthand observation of
13 the many ongoing decommissioning activities that we're
14 involved with. And I think he has provided you some
15 information from that meeting.

16 The NRC terminates approximately 300
17 materials licenses each year. Most of those licenses
18 are routine, and the sites require little, if any,
19 remediation to meet NRC's unrestricted release
20 criteria. Others present complex technical and policy
21 challenges which will require greater expenditures of
22 staff resources. Some of these are expected to
23 request license termination under the restricted use
24 provisions of 10 CFR Part 20.

25 It is regulating the decommissioning of

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1 the complex materials sites and reactors that is the
2 primary focus of the NMSS Decommissioning Directorate.

3 Next slide.

4 My presentation today will begin with a
5 couple of slides providing an overview of the
6 decommissioning program. However, the focus will be
7 on how the program has changed in its scope, in its
8 regulatory framework of regulations and guidance, and
9 in the actual process used to complete decommissioning
10 and termination.

11 I will close with a summary of some of the
12 decommissioning program activities in the near future.

13 Next slide.

14 This slide generally details the
15 regulatory history of the decommissioning program up
16 to and including the license termination rule in 1997.
17 And I will really just focus on three key rulemakings
18 of this slide.

19 In 1994, the timeliness rule established
20 requirements for licensees to inform NRC within 60
21 days of permanent cessation of operations. It also
22 required informing NRC if separate buildings or
23 outside areas are not used for two years. And,
24 furthermore, it required submission of a
25 decommissioning plan within one year or otherwise

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1 obtain NRC approval of an alternate schedule.

2 In 1996, the NRC promulgated power reactor
3 decommissioning regulations in 10 CFR Part 50.82.
4 These regulations recognize that power reactors could
5 decommission under a somewhat different approach than
6 materials sites due to staff expertise and existing
7 regulations.

8 And it requires that the license -- power
9 reactor licensees notify within 30 days of their
10 intent -- you know, after their intent to
11 decommission, and that they submit a PSDAR -- a Post-
12 Shutdown Decommissioning Activities Report -- within
13 two years of notification. And then, that they
14 further submit a license termination plan when they
15 are within two years of terminating that license.

16 In 1997, we issued the license termination
17 rule at 10 CFR Part 20, Subpart E, which establishes
18 the 25 millirem per year dose-based criterion. I will
19 discuss this rule in more detail in a following slide.

20 Next slide.

21 The decommissioning program includes a
22 variety of activities that establish the framework and
23 take sites through the process from a decision to
24 decommission to license termination.

25 And these include developing regulations

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1 and guidance, conducting research related to
2 decommissioning, reviewing and approving
3 decommissioning plans and license termination plans,
4 and license amendment requests and final status survey
5 reports, performing NEPA written analyses associated
6 with these reviews, inspecting the sites, conducting
7 confirmatory surveys, and then, finally, terminating
8 the licenses.

9 By looking at those activities, one can
10 see that Research, NRR, other NMSS divisions, the
11 regions, OGC, and Office of State and Tribal Programs
12 all contribute to the decommissioning program.

13 Next slide, please.

14 There have been many catalysts for change
15 in the decommissioning program over the past decade.
16 Fiscal constraints and concerns over the time taken to
17 work through the decommissioning process have led to
18 actions to improve the program and use resources
19 efficiently.

20 In addition, self-assessments, including
21 the recent decommissioning program evaluation last
22 year, have identified lessons learned in other process
23 improvement areas.

24 Under the Government Performance Results
25 Act of 1993, federal agencies are required to

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1 schedule, conduct, and report on program evaluations
2 in specific areas. We completed the FY03
3 decommissioning program evaluation as addressed in the
4 NRC strategic plan, and we'll be doing a formal OMB
5 performance assessment rating tool evaluation in FY06,
6 which is one of several part evaluations being done by
7 NMSS.

8 The LTR itself -- the license termination
9 rule -- and, more recently, the analysis of several
10 issues associated with implementing the LTR, have been
11 significant catalysts for evolution of
12 decommissioning.

13 Next slide, please.

14 The scope of the decommissioning program
15 has changed significantly. In the '90s, NMSS
16 primarily managed complex materials sites, just with
17 a focus on the site decommissioning management plan --
18 SDMP -- list of sites.

19 Now the NMSS manages complex sites under
20 a comprehensive decommissioning program that includes
21 45 changes almost daily, so somewhere around 45 to 50
22 complex materials sites and 15 power reactors.

23 The 45 complex materials sites are a
24 consolidation of the old SDMP listing of sites, some
25 formerly licensed sites, where a separate list -- and

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1 then we've been -- recently been identifying new sites
2 as they come in and require decommissioning plans to
3 add to the list, so a list of newly-identified sites.

4 And then we also get sites turned over to
5 us periodically from Fuel Cycle as they go into full
6 decommissioning. So all of those sites contribute to
7 this now -- our comprehensive decommissioning program
8 list.

9 VICE CHAIRMAN RYAN: Excuse me, Dan. Just
10 a quick question while we're on this topic. Where do
11 research and test reactors fit in?

12 MR. GILLEN: Coming up on the next slide.

13 VICE CHAIRMAN RYAN: Well, there you go.

14 (Laughter.)

15 MR. GILLEN: Okay. In the '90s, we only
16 provided technical support to reactor and fuel cycle
17 decommissioning. But now, in addition to managing the
18 15 power reactors that we are project managers for, we
19 monitor and support decommissioning of all of the
20 research and test reactors. NRR still has the project
21 management of those sites --

22 VICE CHAIRMAN RYAN: Okay.

23 MR. GILLEN: -- some 15 to 17. Maybe 17.

24 VICE CHAIRMAN RYAN: There's a bunch on
25 the way at the moment, I think, right?

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1 MR. GILLEN: Yes. We also monitor and
2 support the -- there are five fuel cycle facilities
3 that are in partial decommissioning, haven't totally
4 gone to decommissioning but have portions of their
5 sites in decommissioning. And we monitor the 17
6 uranium recovery facilities that are in
7 decommissioning.

8 Their project management still resides in
9 the Fuel Cycle Division of NMSS, but we are involved
10 with those. And as I mentioned, we inherit the fuel
11 cycle sites when they enter full decommissioning. We
12 also report annually to the Commission in our annual
13 report, which includes not only the sites that we
14 manage but also summaries of all the sites that --
15 other decommissioning sites that are managed in other
16 portions of the agency.

17 I'm now switching from the scope to the
18 regulatory framework. In the '90s, the SDMP action
19 plan was what we regulated under. We used the Reg
20 Guide 1.86 for superficial contamination, from our
21 1981 Branch Technical Position for soils, and EPA's
22 primary drinking water standards for groundwater. And
23 all of that comprised the -- what we used to regulate
24 under a concentration-based approach.

25 Now we have the license termination rule,

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1 which is a dose-based regulation for unrestricted use
2 requiring 25 millirem per year plus ALARA, which is an
3 all pathways approach, and which is the dose to the
4 average member of the critical group.

5 The LTR is also a risk-informed graded
6 approach that allows beyond the unrestricted release
7 for options of restricted use and alternate criteria
8 beyond 25 millirem.

9 Next slide, please.

10 Focusing now on the decommissioning
11 options allowed by the regulations, in the '90s the
12 only option was unrestricted release under the
13 concentration-based SDMP action plan. Now, as I just
14 mentioned, the LTR provides graded options of
15 unrestricted release, restricted release, and
16 alternate criteria.

17 And, further, the recent LTR analysis has
18 looked at facilitation of the restricted use option by
19 resolving certain institutional control issues. The
20 LTR analysis has been approved by the Commission and
21 addresses the risk-informed -- excuse me -- addresses
22 certain options under institutional controls.

23 It addresses layering of institutional
24 controls -- for example, deed restrictions and zoning,
25 and it also addresses having the NRC as the

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1 institutional control agency. In other words, either
2 through maintaining deed restrictions and monitoring
3 and enforcing itself, or through continuing with a
4 long-term control license rather than an operating
5 license.

6 Next slide, please.

7 Turning to decommissioning guidance, in
8 the '90s, there were some 80-plus decommissioning
9 guidance documents that were scattered all over and
10 were not easy to discuss with licensees. And now we
11 have just recently in the past year issued NUREG-1757,
12 which is the consolidated NMSS decommissioning
13 guidance.

14 It's a three-volume consolidated document,
15 and that, combined with the NUREG-1700, which is the
16 standard review plan for reactor license termination
17 plans, consists of the two main guidance documents
18 that we and our licensees will use.

19 In addition, we intend to create a parking
20 lot of guidance changes and additions on the
21 decommissioning webpage to make the guidance, as it
22 evolves, easily available to the stakeholders and to
23 make it more efficient for staff when it becomes time
24 to periodically update the guidance.

25 Next slide.

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1 Now I'm going to be speaking, on a number
2 of the next slides, on the process itself. And that
3 has undergone also substantial change.

4 In the '90s, reviews were essentially
5 reactive-type reviews. In other words, we got a
6 submission of a decommissioning plan, and then just
7 developed our request for additional information with
8 limited communication with the licensee.

9 Now we have established a process of
10 proactive review of decommissioning documents. This
11 includes having pre-RAI development meetings with the
12 licensees to focus licensees where we were seeing
13 inadequacies in other submissions, and also to then
14 frequently follow up with meetings, either during the
15 DP review -- and during subsequent cleanup with
16 licensees. We continuously focused them on the
17 appropriate actions.

18 Next slide, please.

19 Looking at another issue addressed in the
20 LTR analysis -- that is, scenario selection and dose
21 modeling -- there has been some change. In the '90s,
22 dose modeling, when used, defaulted to conservative
23 scenarios, which were essentially based on a 100-year
24 timeframe horizon.

25 Now, through the LTR analysis, we are

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1 looking at realistic dose modeling scenario selection,
2 use of reasonably foreseeable land uses, looking more
3 in the 10- to 100-year timeframe, and acquiring input
4 from local planners and stakeholders in making those
5 decisions.

6 Next slide.

7 The process of the decommissioning plan
8 and license termination plan review begins with an
9 acceptance review. In the '90s, we conducted a 30-day
10 quick look at general information that was submitted
11 in one of these documents, and just then accepted that
12 all the major pieces were there, which generally
13 resulted in multiple rounds of requests for additional
14 information during the review.

15 Now we have established a more lengthy 90-
16 day acceptance review period, which focuses on key
17 technical and financial components in some detail,
18 identifying fatal flaws in the submittal, if we see
19 them, and then rejecting those if they have fatal
20 flaws, so that our staff's time is not wasted in early
21 reviews and then significant questions.

22 We communicate those results with the
23 licensee, and generally have seen that this would
24 result in savings and staff effort, instead of trying
25 to fix them, because the goal of our group is to have

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1 one set of requests for additional information.

2 Next slide, please.

3 Okay. The process for restricted use
4 reviews has been established. So in the '90s there
5 was no process for restricted use site termination,
6 because we did not have that as an option. Now we
7 have phased focused reviews for restricted use sites
8 -- DPs -- prior to the actual technical review.

9 This includes a pre-look at the adequacy
10 and appropriateness of institutional controls for the
11 site and the sufficiency of financial assurance for
12 long-term control and maintenance of the site, and
13 then ensures that there is upfront public
14 participation pursuant to 10 CFR 20.1403 and 1404.

15 Next slide, please.

16 The inspection process has also changed.
17 In the '90s, annual inspection of sites was done using
18 the standard inspection approach, and that was an
19 annual inspection of all sites. And now we have
20 improved efficiency of our inspections by limiting
21 inspections to the actively decommissioning sites and
22 by timely inspections to align with key
23 decommissioning activities that are ongoing at each
24 site.

25 Next slide.

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1 Financial assurance requirements has also
2 changed.

3 VICE CHAIRMAN RYAN: Dan?

4 MR. GILLEN: Yes.

5 VICE CHAIRMAN RYAN: You're one slide
6 behind. That's all right. Just go one slide ahead.
7 I think we just got a little out of sync with your
8 words. Are we missing one?

9 MR. GILLEN: Oh. Okay, yes. I guess I
10 got mine out of order here.

11 Okay. Internal communication and
12 decommissioning program has changed, and in the '90s
13 there was essentially informal intra-agency
14 coordination of site management as ad hoc meetings.
15 Now we have a formal process of monthly
16 decommissioning board meetings that we have involving
17 all other groups within the agency that are involved
18 in decommissioning, and the regions.

19 We have an annual counterparts meeting
20 that I mentioned in the introduction. And we have
21 this annual decommissioning report, which now will be
22 in the form of a NUREG, which we'll be starting as a
23 NUREG this year. And that's usually published in the
24 fall and coincides with our annual briefing of the
25 Commission on decommissioning.

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1 Now I guess I'm -- I'm on 18.

2 Okay. Thanks, Nick.

3 The financial assurance requirements have
4 changed. Previously, before 2003, financial assurance
5 regulations were based on early 1990 cost data. Now
6 there has been a 2003 rulemaking which has now changed
7 our -- the certification amounts that -- I'm sorry --
8 that waste brokers and large irradiators will now be
9 required to have financial assurance, where in the
10 past they were not.

11 And we have a three-year update of
12 decommissioning cost estimates, when before it was
13 based on 15-year-old cost data. This aggressive
14 regulatory approach will help to prevent future legacy
15 sites.

16 Next slide, please.

17 As far as public outreach, in the '90s
18 there was basically an unstructured approach to
19 dealing with the public on decommissioning sites. Now
20 we have public outreach efforts that include guidance
21 and site-specific communication plans that have been
22 developed. We had a report prepared by the U.S.
23 Institute for Environmental Conflict Resolution, which
24 establishes best practices for stakeholder
25 involvement.

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1 We hold stakeholder workshops on various
2 issues, and we have stakeholder participation in
3 guidance development as in the most recent NUREG-1757.
4 And we host public meetings for each one of our sites
5 where we are initiating our decommissioning plan
6 review and license termination plan review.

7 Next slide.

8 As far as interagency coordination, in the
9 '90s there was a single MOU that we had with the
10 Pennsylvania Department of Environmental Protection
11 for coordination of sites in Pennsylvania. And we
12 coordinated with other agencies -- EPA -- on a site-
13 specific basis.

14 Now we have signed recently an EPA MOU
15 which establishes coordination with EPA on sites that
16 are in decommissioning, and establishes a process to
17 eliminate or mitigate dual regulation. And we have
18 established certain steps that we will take to consult
19 with EPA on sites as they exceed certain trigger
20 values of radionuclides.

21 We have also established an MOU with the
22 Corps of Engineers to assist us in working with them
23 on the FUSRAP sites.

24 Next slide. As far as communication with
25 the Commission, in the '90s we were required to go to

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1 the Commission for approval to terminate site
2 licenses, particularly sites on the SDMP list. And
3 now recently we have gotten Commission approval to
4 only inform them of sites terminating when we have a
5 site that exceeds the 25 millirem criterion in the
6 license termination rule.

7 I have a couple of slides on future
8 changes, and both of these are highlighting things
9 we're going to be doing in the follow up to the LTR
10 analysis to prevent future legacy sites. The first
11 slide indicates that we're going to be pursuing
12 changes to requirements for licensee operations and
13 increased licensee monitoring and reporting
14 requirements, and focusing inspections and licensee
15 monitoring and reporting on high-risk areas.

16 There will be some more details on the
17 license termination rule analysis provided in a
18 subsequent ACNW briefing coming up in one of the
19 months -- in the next three or four months I think it
20 is. I know you've had a briefing on that in the past
21 as we first went through the license termination rule
22 analysis.

23 Next slide, please.

24 And then this identifies the actions we're
25 going to be taking relative to the other aspect of

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1 preventing future legacy sites related to financial
2 assurance. And this will take the most -- the more
3 recent 2003 rulemaking and take it a step further to
4 require additional -- to establish additional
5 requirements for licensees on financial assurance.

6 And the last slide, please.

7 As far as what's on the horizon -- and I
8 mentioned a lot of the actions that we'd be taking in
9 following up on the license termination rule, and we
10 will be continuing to implement that through either
11 guidance changes or rulemakings.

12 And we have a Regulatory Issue Summary --
13 a RIS -- being issued to all interested parties within
14 the next couple of weeks. And that will be followed
15 in the next couple of fiscal years with guidance
16 changes and rulemaking.

17 We will also be implementing one of the
18 issues that was identified in the license termination
19 rule analysis, but was kind of lagging behind and had
20 a separate Commission paper associated with it, which
21 was recommendations on intentional mixing of soils,
22 contaminated soils at sites.

23 We got recent Commission buy-in to certain
24 use of this in certain instances, and we'll be
25 implementing that. We've already had a number of

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1 licensees contact us on that one, so they are very
2 interested in that.

3 As I mentioned before, we're going to be
4 doing some webpage enhancements, which include tying
5 in from a database that we developed for each -- for
6 all of our sites to creation of site summaries of each
7 site on the webpage, and also guidance updates on the
8 webpage.

9 And I mentioned the site summaries because
10 the approval we got from the Commission on doing our
11 annual report included an annual NUREG, but that NUREG
12 would be only every other year, starting with this
13 year. In the odd years, we would be just having a
14 short Commission paper where we summarized any
15 activities going on during that fiscal year, and then
16 -- but pretty much did it by reference to the webpage,
17 which would include updated site summaries. And those
18 site summaries would be updated by all our project
19 managers on a quarterly basis.

20 And then, lastly, I have -- oh, and that's
21 the biennial report.

22 So that's my presentation this morning,
23 and I will field any questions you may have now.

24 VICE CHAIRMAN RYAN: Dan, thanks very
25 much. That was a comprehensive presentation.

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1 I have a couple of questions I'd like to
2 ask you. The first one is, in decommissioning a site,
3 usually the engine that drives the bus is what you
4 throw away, not what you leave behind. In other
5 words, where you're going to disposition materials and
6 how. Is it going to be cleared? Is it going to be
7 low-level waste on the 10 CFR 61? Is it going to be
8 sent to Envirocare? You know, Bulk Materials, or
9 those kind of things, because it's a big financial
10 swing.

11 You know, the intentional mixing, the EPA
12 initiative to look at, you know, when there's small
13 quantities of RCRA materials or radioactive materials
14 going either way -- they've had two -- all have a big
15 influence on disposition decisions during
16 decommissioning.

17 Could you comment on whether you see that
18 as really the engine? Am I right, or -- you know, how
19 does that factor into your thinking and plans and how
20 you deal with decommissioning plans? Because very
21 often the disposition plans are what, to me, drive the
22 bus.

23 MR. GILLEN: Yes. I think probably you're
24 right, because that's where the licensees -- many of
25 our licensees are -- do not have deep pockets. We

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1 have a number of them that are close to bankruptcy.
2 We have some sites we're dealing with that aren't even
3 licensees, that were formally licensees. And so money
4 is a big thing.

5 And if you have to send everything to a
6 low-level waste disposal facility or to Envirocare, it
7 could be very expensive shipping across country, which
8 drives licensees to be looking for other alternatives
9 and has -- as you say, you know, we're looking closely
10 at what EPA does in their action. We're also, you
11 know, coming up with innovative approaches, looking at
12 the intentional mixing type options.

13 VICE CHAIRMAN RYAN: I mean, I guess I
14 would perceive that as just a perception from past
15 experience, but that is probably the biggest challenge
16 for decommissioning. I mean, taking buildings apart
17 and doing an analysis against the LTR now is pretty
18 well prescribed and straightforward, and it's really
19 these disposition plans that sort of factor back into
20 the technical plans for what you do with what, what
21 you leave behind and what you send where, or how you
22 decommission it.

23 You know, very often, if I can take a
24 margin and now average it over soil, I'll just leave
25 less behind, and it cuts down my analytical costs and

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1 things like that. There's lots of options in that
2 framework. And what I'm hearing you say is, yes, that
3 sounds about right.

4 MR. GILLEN: That's true. And another
5 thing I mentioned is, of course, the clearance
6 activity --

7 VICE CHAIRMAN RYAN: Right.

8 MR. GILLEN: -- which right now for
9 reactors, you know, they are releasing some materials
10 based on the non-detect approach that reactors have
11 had over this time. So we're sort of pre-clearance
12 dealing with some issues in this area, too, so --

13 VICE CHAIRMAN RYAN: Yes. And I know the
14 Commission has directed that clearance be addressed in
15 the rulemaking. It's kind of underway.

16 MR. GILLEN: Oh, yes.

17 VICE CHAIRMAN RYAN: It's a busy area.

18 MR. GILLEN: Yes.

19 VICE CHAIRMAN RYAN: Okay. Well, you've
20 answered my questions. I appreciate your
21 presentation.

22 Other questions from members?

23 MEMBER WEINER: How is your implementation
24 of the license termination rule risk-informed? Are
25 you incorporating a risk-informed approach?

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1 MR. GILLEN: Well, yes. I think the very
2 concept of the graded approach of the license
3 termination rule is a risk-informed approach --
4 allowing for -- depending on the risk at particular
5 sites -- to go from either unrestricted use to a
6 restricted use and even a greater -- a wider approach
7 to restricted use, as I mentioned, from our recent LTR
8 analysis. And then even beyond that to alternate
9 criteria if it warrants, for a licensee to go to
10 something beyond 25 millirem, to 100 or even 500
11 millirem.

12 MEMBER WEINER: How is that working out
13 with EPA? Is that something that you cover in the
14 MOU, or are you still working on it?

15 MR. GILLEN: Well, of course, that's why
16 we developed an MOU, because we were running into
17 problems agreeing with EPA. And we still may, but
18 we're kind of only in the initial early stages of
19 implementing that MOU. It has taken us a while just
20 to get to a point where we have a process for how
21 we're going to consult with them, which we now have
22 initiated.

23 We've issued three letters to EPA on three
24 sites that we know already have tripped the criteria
25 of the MOU. EPA has indicated they are going to

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1 respond back with letters to us on those, one of which
2 we expect they may have some disagreement on where
3 we're headed.

4 But the process we have established is a
5 two-step process where we first have initial
6 consultation more or less just informing them of a
7 site that has tripped the MOU, and that is always in
8 the early stage, because we inform them then right
9 when we get a decommissioning plan or an LTP.

10 As we go through the process, many of
11 those sites that have tripped the EPA MOU are liable
12 to, in the final end when they do the final status
13 survey, not trip the MOU, because they have cleaned up
14 the levels below where the DP indicated.

15 However, there may still be some, and at
16 that point in time, if there is some that exceed the
17 trigger values of the MOU, at that point in time we'd
18 enter into a second phase of consultation, which would
19 be more of a formal consultation. And if we have
20 disagreements, then we -- you know, it may get
21 elevated up the line, and in the end we may still just
22 agree to disagree, and then EPA could step in if they
23 have strong feelings.

24 MEMBER WEINER: Well, that was going to be
25 my next question. What if you agree to disagree?

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1 What happens then?

2 MR. GILLEN: Well, I think then we're left
3 with the way some of the pre-MOU sites were, and we
4 get to a point where EPA has to decide. Do they
5 accept NRC's decision, or do they take some further
6 action?

7 MEMBER WEINER: How do you -- on your
8 slide 18 you spoke of high risk. How do you define
9 "high risk"?

10 MR. GILLEN: I can't remember what
11 slide 18.

12 MEMBER WEINER: Well, it wasn't -- then it
13 wasn't 18.

14 MR. GILLEN: Well, whatever slide.

15 MEMBER WEINER: Yes.

16 MR. GILLEN: I mean, what was it with
17 regard to?

18 MEMBER WEINER: You were talking about
19 high risk of -- I have to look back at my -- slide 21.

20 MEMBER HORNBERGER: Slide 21. Focus
21 license monitoring reporting on high risk of
22 subsurface contamination.

23 MR. GILLEN: I think that just means that
24 sites where there has been evidence of greater
25 contamination of the -- you know, the spills and type

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1 of things of higher levels of radionuclides in the
2 past through historical documents.

3 Do you have some kind of quantitative
4 standard that -- you said that's the slide that
5 focused staff inspections on high-risk sites. Is it
6 your qualitative estimate of past -- the past history
7 of the site, or is there some quantitative measure?

8 MR. GILLEN: This is with regard to one of
9 the license termination rule alternatives. Robert
10 Johnson is in the audience, who is the author of that.
11 And I'm not sure -- Robert, when we looked at that,
12 did we have any quantitative, or was it more
13 qualitative?

14 MR. JOHNSON: When we looked at it, we had
15 to -- we recognized we had to develop a process and a
16 procedure and some of the criteria you're referring
17 to. So those haven't been developed yet, but next
18 year that -- and starting later this year that's one
19 of our tasks under that action.

20 MEMBER WEINER: Thanks.

21 VICE CHAIRMAN RYAN: Just a quick follow
22 up. A lot of the sites I imagine, except for, say,
23 the reactors, are agreement state licensees. Is that
24 a fair -- I mean, there's a lot of agreement state
25 action here or --

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1 MR. GILLEN: There are some, but we --
2 once we turn a site over to an agreement state, that's
3 their site.

4 VICE CHAIRMAN RYAN: And I guess the
5 second part of my question -- has the license
6 termination rule flowed into agreement state
7 regulations yet, or --

8 MR. GILLEN: Yes, it has.

9 VICE CHAIRMAN RYAN: Okay. So it's a
10 matter of compatibility?

11 MR. GILLEN: Yes.

12 VICE CHAIRMAN RYAN: Okay. All right. So
13 they will kind of be in the same framework --

14 MR. GILLEN: The same or stricter, yes.

15 VICE CHAIRMAN RYAN: -- a couple of years
16 down the line. Have you seen -- how has the
17 implementation gone? Are they being more strict, or
18 do you have a sense of it yet? It might be too early.

19 MR. GILLEN: Nick, do we have a sense of
20 the -- Nick is my historian here.

21 MR. ORLANDO: Well, you know, this
22 obviously flows to agreement states, because most of
23 the licensees ultimately will be agreement state
24 licensees.

25 MR. GILLEN: How is it going?

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1 VICE CHAIRMAN RYAN: Are they being more
2 strict?

3 MR. ORLANDO: Nick Orlando. My
4 understanding is 20-plus have adopted regulations that
5 are at least compatible. I can't swear to that. I
6 know that some have had some concerns. I think
7 California's was just thrown out. Some states have
8 indicated that they feel a lower number is necessary.
9 I think Connecticut -- or Maine. I can't remember
10 which one. Connecticut.

11 And then some have indicated that they
12 feel that the number should be lower, even though they
13 haven't promulgated a reg yet. So it's kind of all
14 over the board.

15 MR. GILLEN: And then we have -- like I
16 indicated, we have that agreement with PADEP --
17 Pennsylvania -- who is not an agreement state but is
18 very active in these sites also, so that we interact
19 with them. And they are probably our most active
20 state.

21 VICE CHAIRMAN RYAN: They are a limited
22 agreement state, though, right, on low-level waste?

23 MR. GILLEN: Yes.

24 VICE CHAIRMAN RYAN: Yes. Okay. But not
25 in --

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1 MR. GILLEN: Not in the decommissioning
2 area, right.

3 DR. CROFF: For restricted use sites, what
4 do you assume for the duration of institutional
5 controls at those sites?

6 MR. GILLEN: Robert, what is --

7 MR. JOHNSON: Robert Johnson. The LTR has
8 two assumptions. One is when you're assuming an
9 institutional controls function, and then there's a
10 second one where you assume institutional controls
11 fail. So it's really kind of bounding, both assuming
12 that they will be effective for the whole duration
13 that they're needed, and the other one -- how bad can
14 it be if they do fail? And that could be day one.

15 DR. CROFF: Okay. When you say "for the
16 duration they're needed," does -- that could be
17 decades, long times?

18 MR. JOHNSON: That could be decades or in
19 perpetuity. It depends on the site and the
20 contamination, and that's determined in the
21 decommissioning plan review -- what the duration
22 that's appropriate for that site is.

23 VICE CHAIRMAN RYAN: I think a key point
24 here is it's really kind of site by site and what the
25 -- what the licensee proposes is kind of where you

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1 start. It's not like stylized calculations for low-
2 level waste or high-level waste.

3 MR. JOHNSON: That's right.

4 DR. CROFF: Who is the controller? Who is
5 the institution, I guess?

6 MR. JOHNSON: Again, that could be
7 tailored to the site. You know, it could be the
8 licensee with a deed restriction. It could be a state
9 ownership or -- in one of the sites that we're working
10 on right now, you know, it may end up being a long-
11 term control license, you know, where we would be
12 monitoring and enforcing, and the owner of the site
13 would be providing the actual onsite control and
14 maintenance and monitoring.

15 DR. CROFF: Thank you.

16 VICE CHAIRMAN RYAN: Just from a history
17 perspective, how does a possession-only license fit
18 into the scheme now of decommissioning?

19 MR. GILLEN: Well, as I mentioned, that's
20 one of the things we're looking at under the widening
21 options of institutional controls. We have one,
22 actually, that we're working which could potentially
23 go to a possession-only license, but that -- that's
24 more because it's a site where there is unexploded
25 ordnance on the site, and you can't go out, really,

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1 and immediately decommission.

2 So we're looking at, as an option, to
3 potentially go to possession-only for long term for
4 that site.

5 VICE CHAIRMAN RYAN: That's interesting.
6 The Agnes facility in Barnwell was in a possession-
7 only state for quite a while, and then finally it was
8 decommissioned. You know, it just made sense later on
9 after all of the financial issues were resolved. It
10 was interesting to see that happen.

11 George, questions? John?

12 CHAIRMAN GARRICK: I wasn't here, so I can
13 ask anything I want.

14 (Laughter.)

15 And I'm sorry I missed your presentation.

16 MR. GILLEN: That's all right.

17 CHAIRMAN GARRICK: But I was curious about
18 one thing when I was glancing through your viewgraphs.
19 With the dominance that safeguards and security issues
20 have had on NRC activities of the last few months,
21 couple years, has there been any impact at all on
22 changes in your -- in the decommissioning program?

23 MR. GILLEN: We work closely with NSER as
24 they develop any regulatory changes for our
25 decommissioning licensees, and particularly reactors

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1 where they go to independent spent fuel storage
2 installations, maintain that on their site as they
3 decommission.

4 CHAIRMAN GARRICK: But it hasn't changed
5 any fundamental rules, regulations?

6 MR. GILLEN: No.

7 CHAIRMAN GARRICK: Guidance, guidelines,
8 what have you, of the decommissioning program?

9 MR. GILLEN: No, not that I'm aware of.

10 CHAIRMAN GARRICK: Well, you're one of the
11 lucky ones. Thank you.

12 VICE CHAIRMAN RYAN: Questions from staff?

13 MR. LARSON: The role of the regions -- I
14 don't know if -- I mean, they -- you mentioned it in
15 the counterpart discussion, but I'm not sure that
16 people fully understand it.

17 MR. GILLEN: Right. We at headquarters
18 maintain program lead. There are a number of sites --
19 well, of course, the regions are the inspectors, and
20 I talked about Regions I, III, and IV, because
21 Region II has no decommissioning sites. They did have
22 a couple, but they transferred it to Region II, so --
23 I mean, Region I. So we only deal with I, III, and
24 IV. And they, of course, are the inspectors at all of
25 our sites in decommissioning.

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1 They also have an additional role in
2 project managing some of the sites. It was determined
3 back in the early stages of the program that the
4 regions would maintain some project management of
5 sites -- some of them SDMP sites. Mostly Region I has
6 the most sites. There are four or five sites that
7 Region III has as project managers, and four or five
8 sites that Region IV has.

9 Recently we discussed with the regions
10 some approaches to centralizing that somewhat, and we
11 have now agreed to any new site that comes on to the
12 complex scene -- in other words, we define a complex
13 site as a site requiring a decommissioning plan.
14 There are many sites that don't require
15 decommissioning -- non-complex activities.

16 If they cross the threshold into a complex
17 site, and it's a new one that's submitted, that the
18 regions would send that to headquarters, and we would
19 project manage it here. It makes sense, because we
20 have the technical experts here. Many times the
21 regions have a site, and to get the technical reviews
22 they just technical assistance request headquarters.
23 And we have all of the people in our division doing
24 those reviews.

25 So we're looking for them to complete the

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1 ones that they are project management, but all new
2 ones would be sent to headquarters for project
3 management.

4 MR. LARSON: Just one other dumb question.
5 When does your group become responsible for reactor
6 decommissioning plans and programs and stuff? I mean,
7 there used to be a rule, but I don't know whether that
8 still exists.

9 MR. GILLEN: Yes, there's criteria. I'm
10 not so sure I can explain it without -- I might be
11 able to get Nick Orlando. I know it has evolved, and
12 this is something that when they turn it over to us,
13 now it is at an earlier stage than it used to be.

14 But, Nick, can you give the exact --

15 MR. ORLANDO: Yes. In '95, we -- this is
16 Nick Orlando. We had a memorandum of understanding
17 with NRR, and at that time any -- when the spent fuel
18 permanently was removed from the spent fuel pool, it
19 would be transferred to NMSS.

20 About 2000 or 2001, we reevaluated that,
21 and now after the reactors go through a series of
22 administrative and technical -- physical changes that
23 more make the site akin to a large contaminated
24 materials site than an operating reactor, is when
25 they'll come over to us.

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1 There is a whole list of activities that
2 have to be completed, including some emergency
3 preparedness activities, the fuel has to be in a
4 certain configuration, and generally it's out of the
5 pool. But there's a few more things than just that,
6 but it does get it over to us a little bit earlier.

7 VICE CHAIRMAN RYAN: It's things like
8 still high activity --

9 MR. ORLANDO: Yes, it could be.

10 VICE CHAIRMAN RYAN: It could be.

11 MR. ORLANDO: Yes.

12 VICE CHAIRMAN RYAN: Okay. Any other
13 questions?

14 Well, Dan, again thanks. That's a very
15 good, comprehensive review. It looks like you've made
16 a lot of robust changes in decommissioning and have a
17 lot of -- a lot more robust changes on the horizon.
18 So --

19 MR. GILLEN: Well, thanks for your time.
20 And I've been talking to Howard about potentially, you
21 know, other presentations. We have some coming on
22 your horizon with the license termination rule, also
23 one on intentional mixing. And Howard had indicated
24 that he recognized there are a lot of things going on
25 in our program, and you might want to hear more from

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1 that, either in a presentation by us or by John
2 Greeves in your, you know, pre-meeting presentations.

3 VICE CHAIRMAN RYAN: My comment about how
4 things fit together in terms of waste disposition is
5 probably a focal point to think about, because it is
6 intentional mixing. It's how the EPA rule moves
7 forward. It's clearance and all those things, and all
8 those are the -- kind of the tools that folks facing
9 decommissioning have to use.

10 As we discussed -- and I think agreed --
11 you know, those are economic drivers that really help
12 people determine what is their option for it to
13 decommission -- in a proper way meeting requirements,
14 but also optimizing their expenditure of money.

15 So hearing about how things focus together
16 in that area, that would be really interesting to us.

17 MR. GILLEN: I can see that, yes, being
18 one you might want to have --

19 VICE CHAIRMAN RYAN: Right.

20 MR. GILLEN: -- a little ways down the
21 road after clearance has moved a little farther and
22 maybe EPA has moved a little farther.

23 VICE CHAIRMAN RYAN: Yes. And I'm sure it
24 will evolve over time, but that's -- that, to me, I
25 think is a good way for you to perhaps think about,

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1 you know, when and how the updates ought to be focused
2 and scheduled, and so forth.

3 MR. GILLEN: Okay.

4 VICE CHAIRMAN RYAN: Great. Thanks very
5 much. Appreciate it.

6 MR. GILLEN: Thank you.

7 VICE CHAIRMAN RYAN: Okay. Mr. Chairman,
8 I'll turn the meeting back to you, sir.

9 CHAIRMAN GARRICK: All right. Thank you
10 very much.

11 I think this, frankly, ends the recording
12 requirements of the meeting. And I think we'll take
13 a break and get prepared for our next meeting with the
14 Commissioners and our report-writing. So we'll take
15 a 15-minute break.

16 (Whereupon, at 10:24 a.m., the
17 proceedings in the foregoing matter went
18 off the record.)

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