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Meeting Title: Briefing on Calvert Cliffs
License Renewal

Meeting Date: 3/3/00

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON CALVERT CLIFFS LICENSE
RENEWAL
PUBLIC MEETING

Location: Rockville, Maryland

Date: Friday, March 3, 2000

Pages: 1 - 57

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF THE SECRETARY

BRIEFING ON CALVERT CLIFFS LICENSE RENEWAL

PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Building 1, Room 1F-16
11555 Rockville Pike
Rockville, Maryland

Friday, March 3, 2000

The Commission met in open session, pursuant to notice, at 9:31 a.m., the Honorable RICHARD A. MESERVE, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:

- RICHARD A. MESERVE, Chairman of the Commission
- GRETA J. DICUS, Member of the Commission
- NILS J. DIAZ, Member of the Commission
- EDWARD McGAFFIGAN, JR., Member of the Commission
- JEFFREY S. MERRIFIELD, Member of the Commission

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STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

- KAREN D. CYR, General Counsel
- ANNETTE L. VIETTI-COOK, Secretary
- BRIAN HOLIAN, Deputy Director, Division of
Reactor Safety, Region I
- ROY ZIMMERMAN, Deputy Director, NRR
- WILLIAM TRAVERS, EDO
- CHRISTOPHER GRIMES, Chief, License Renewal and
Standardization Branch, NRR
- DAVID SOLORIO, Safety Project Manager, NRR
- THOMAS KENYON, Environmental Project Manager, NRR
- BARRY ZALCMAN, Chief, Environmental Financial
Section, NRR
- JACK STROSNIDER, Director, Division of Engineering

P R O C E E D I N G S

[9:31 a.m.]

CHAIRMAN MESERVE: Good morning, ladies and gentlemen. Commissioner Dicus has informed us that she will be here shortly, was unavoidably detained.

Our meeting this morning is to discuss the renewal of the license for the Calvert Cliffs Nuclear Power Plant, Units 1 and 2, for an additional 20 years beyond the current expiration dates. As all of you know, Calvert Cliffs is the first plant that has gone through the Commission's license renewal process.

As I understand it, the application was filed in April of 1998. Since that time the staff has completed both its safety review and its environmental review for this facility and has recommended, on the basis of that, that the plant be renewed. The ACRS has also evaluated the situation and has also recommended license renewal.

This is really an outstanding achievement for us in that I think that this is really in some sense an historic meeting because this is, as you know, the first plant that has gone through this process and we have done it with really remarkable efficiency.

The Oconee plant analysis is now in the final stages as well, and it is my understanding that there are two more applications that have now been received by the

1 NRC. An expectation that we may receive -- we expect 15 and
2 there may well be many more that come in.

3 This is, I think, a development no one would have
4 anticipated three or four years ago, and it is one that I
5 believe is a credit to my efforts of my fellow
6 Commissioners, in that I wasn't here for a lot of the work
7 that was done on this, but is a credit to them that we have
8 accomplished this. And it is a glowing compliment to the
9 NRC staff for not only their -- for the expeditious
10 processing of these materials, which I think has encouraged
11 other licensees to come forward.

12 Let me turn to my colleagues and see if they have
13 any opening statements. Commissioner Merrifield.

14 COMMISSIONER MERRIFIELD: Mr. Chairman, yes, I
15 would like to join you in commending the staff for what I
16 agree is an outstanding job for the way they have conducted
17 themselves on the Calvert Cliffs license renewal
18 application. I think they have managed the process very
19 well. They worked to have significant stakeholder
20 involvement and a thorough and timely review.

21 Congress, as we all know, has been looking very
22 closely at the work that we have been doing as an agency and
23 using this effort as a litmus test on our ability to meet
24 our deadlines. The fact that we set out with a 36 month
25 time period expecting that that would be what it would take,

1 we are now coming in at around 24 months, speaks to I think
2 an outstanding job.

3 In addition, at the time when this renewal began,
4 I think there was an expectation a significant number of the
5 plants in the current inventory would not seek to renew
6 their licenses. As a result of the disciplined process that
7 we have undertaken, the meetings that I have personally had
8 with a number of CEOs last year indicate to me that a very
9 small number of the existing plants will not seek to renew
10 licenses. So I think that really demonstrates a belief that
11 we can come through this and do it in a disciplined manner.

12 The final point I would want to make is, I
13 normally don't do this, but I think it is worth of an
14 exception, I think Chris Grimes in particular should be
15 recognized for a real leadership role in this process and
16 should be complimented for really bringing this one past the
17 line, and so I did want to make that particular note.

18 Thank you, Mr. Chairman.

19 COMMISSIONER DIAZ: I might want to add something
20 I never do, but let me just support the statements of both
21 the Chairman and Commissioner Merrifield. I want to just
22 maybe think a little bit out of the box of what it means to
23 have license renewal. As you know, right now in the world
24 people are looking at what we are doing. And what we are
25 doing is really following the law.

1 When the Atomic Energy Act was established, it was
2 established so that this country would be able to determine,
3 according to a set of rules, whether we should have these
4 areas of technologies, including nuclear power. And it is
5 the duty of this agency to analyze, develop and establish
6 those rules those rules that will permit it, if it is in the
7 best interests of the country to proceed. And I think what
8 we have done in this case is following the spirit and the
9 thoughts of the law to allow that to happen when it is in
10 the best interests of this nation. And in this case I think
11 we have done that, and I am very proud to have participated
12 in the effort.

13 COMMISSIONER MCGAFFIGAN: Mr. Chairman, I will
14 agree with all the other statements and just note that I
15 think Catch is now in, so we do have yet another application
16 on schedule in, and if Calvert does get approved shortly, we
17 will still have two -- three applications, Oconee, Arkansas
18 Nuclear 1, and Hatch currently under review with more coming
19 in. And the staff has done a great job, but they are not
20 going to be allowed to rest on their laurels.

21 CHAIRMAN MESERVE: Why don't we proceed. Mr.
22 Travers.

23 MR. TRAVERS: Good morning. And we will start by
24 not resting today. We have a presentation and expectations
25 are high and we think they should be. We share -- we first

1 of all appreciate the comments by the Chairman and the
2 Commissioners on our efforts in license renewal and
3 certainly they have been significant and we view this
4 meeting as a significant milestone in our efforts to address
5 the first application for renewal from Calvert Cliffs.

6 And if I could have Slide 2. We are, of course,
7 as you pointed out, Mr. Chairman, here to discuss with you
8 the results of our review of the Calvert Cliffs license
9 renewal application. And I think it is important to note
10 that we have been on the road of license renewal for some
11 time. The Commission, in my view, had the foresight,
12 beginning in the mid '80s or so, to decide that even well
13 before any nuclear power plant licenses expired, that we
14 needed to have in place the set of regulations and detailed
15 guidance for how we would carry out our technical reviews of
16 license renewal applications.

17 It took us some time to do that, but I think we
18 have been successful in establishing both the regulations
19 and the processes that we need to implement to carry out
20 reviews in a predictable way to give some assurance to
21 stakeholders generally, and our licensees in particular,
22 that we can in a very disciplined way approach license
23 renewal with a main goal of determining whether nuclear
24 power plants can operate safely in the renewed period.

25 So with that, I will note that we are also today

1 requesting the Commission to authorize the Director of NRR
2 to renew the operating licenses of the Calvert Cliffs Units
3 1 and 2. And I would like to begin by presenting the people
4 at the table who are largely responsible for what has been
5 an outstanding effort, really a multi-office effort on the
6 part of the NRR, the Regions, the Office of Research. But
7 let me introduce, beginning on the far left, Tom Kenyon, who
8 is an Environmental Project Manager in the Office of Nuclear
9 Reactor Regulation; Dave Solorio, who is the Safety Project
10 Manager; Chris Grimes, who you have already recognized as
11 the Chief of the License Renewal and Standardization Branch;
12 Roy Zimmerman, who is the Deputy Director of the Office of
13 Nuclear Reactor Regulations; and down from Pennsylvania,
14 Brian Holian, who is the Deputy Director of the Division of
15 Reactor Safety in Region I.

16 And with that, let me turn it over to Roy
17 Zimmerman.

18 MR. ZIMMERMAN: Good morning. Could I have the
19 next slide, please?

20 The staff carried out its review of the Calvert
21 Cliffs application with recognition of our four performance
22 goals, and all four of these goals are important to us. But
23 we also recognize that the maintain safety goal takes
24 precedence over the other goals, the other key goals.

25 Regarding maintaining safety, the staff's review

1 focused on ensuring that the aging effects would be
2 adequately managed, and the bulk of our presentation this
3 morning will address this issue.

4 On the topic of public confidence, there have been
5 over 30 public meetings that have been held at a management
6 level with the applicant during this review process, and
7 about one-third of those were held in the vicinity of the
8 site. With the environmental scoping reviews, we used a
9 facilitator to try to enhance public participation, and the
10 involvement of the public is important to us in this process
11 and we continue to look to make additional strides in that
12 area with future applications.

13 With regard to reducing unnecessary regulatory
14 burden, we believe that future applicants will, in fact,
15 benefit from the first two applicants going through, both
16 Calvert Cliffs and Oconee. In fact, in the Arkansas Nuclear
17 1 application, they were able to model the form and content
18 over the Oconee application, and we have already started
19 seeing efficiencies in that regard. Also, the requests for
20 additional information that have gone out with the first two
21 applicants have provided the following applicants to be able
22 to try to resolve those issues in their applications.

23 So we are upbeat and optimistic about the
24 efficiencies that can be gained in this process. We are
25 also, as you are aware, actively working with the Generic

1 Aging Lessons Learned Report and update of the Draft
2 Standard Review Plan that will provide the framework for
3 future applications. And the staff, in addition to working
4 on the individual applications, is aggressively working on
5 those generic initiatives.

6 And, lastly, I will mention an area of
7 effectiveness and efficiency. Clearly, the GALL and SRP are
8 a key to that. And to this point, we are very comfortable
9 and pleased, as already has been mentioned, that we have met
10 all the milestones for both Calvert Cliffs and Oconee to
11 date.

12 The next slide, please. I think the way I want to
13 address this slide, rather than a top-down approach, is to
14 take a bottom-up approach, if I can. The monitoring and
15 oversight aspects with regard to license renewal, both
16 plant-specific and the process improvements. Being that
17 Calvert represents the first application, as we noted, we
18 have provided considerable monitoring and oversight of the
19 individual applications, as well as the generic process
20 improvements.

21 There have been monthly management meetings that
22 have been held with BG&E to address the technical issues and
23 the open items. There has been a License Renewal Steering
24 Committee that was established that is comprised of senior
25 managers from NRR, from Research, from OGC and from the

1 Regions that has interacted with a similar Executive
2 Committee from NEI and from the industry that has served as
3 a lightning rod for issues both of a technical nature and as
4 well for process improvements, to raise those issues forward
5 so that we continue to make the necessary strides and
6 continue to advance the process.

7 The Executive Council has had a hands-on
8 involvement as well. The Steering Committee has been
9 briefing the Executive Council on a bimonthly frequency.
10 The Steering Committee, likewise, has met bimonthly with the
11 NEI Steering Committee, and the Executive Council has
12 reviewed the progress, reviewed the planning and resources
13 associated with this effort and has ensured that policy
14 matters warranting Commission attention be raised, such as
15 in the area of credit for existing programs. So the
16 monitoring and oversight has served well in this effort as
17 well.

18 With that, let me pass the presentation to Chris
19 Grimes.

20 MR. GRIMES: Thank you, Roy. If I could have
21 Slide 5, please.

22 I would like to start off by pointing out some
23 specific features of the license renewal process that were
24 provided when the regulation was amended in 1995. And I
25 would like to cite from the Statements of Consideration some

1 of the clarity in the mission that we set out on.

2 The first principle of license renewal was that,
3 with the exception of certain age-related degradation, the
4 regulatory process is adequate to ensure that the licensing
5 basis of all currently operating plants provides and
6 maintains an acceptable level of safety. That was very
7 important for us because it established the focus that we
8 needed to establish discipline in the review process.

9 Secondly, and equally important, is the principle
10 that license renewal holds that the plant-specific licensing
11 basis must be maintained during the renewal term in the same
12 manner, and to the same extent as during the original
13 licensing term. This was also important for us to establish
14 discipline in the process because it made clear to us that
15 the current licensing basis was important and needed to be
16 managed separate from the renewal review.

17 If I could have Slide 6, please. Slide 6
18 highlights some of the significant aspects of the renewal
19 review process. At about the time that Calvert Cliffs'
20 application was submitted, the staff had established a clear
21 plan and milestones for the conduct of a renewal review.
22 The plan was based on the review guidance which was
23 established to ensure that the evaluation scope would be
24 disciplined and focused on the desired outcome, that is, a
25 determination that the aging effects would be adequately

1 managed for the period of extended operation.

2 In addition, we evaluated time limited aging
3 analysis, which are simply design analysis that have time
4 assumptions in them that need to be either updated or
5 managed during the period of extended operation.

6 The renewal review guidance included Office
7 Letters for the renewal review process that identified roles
8 and responsibilities in the conduct of the renewal review;
9 an Office Letter on the evaluation of environmental impacts;
10 an industry guide on renewal; a Draft Standard Review Plan
11 for license renewal; and Environmental Standard Review Plan;
12 an inspection program description and inspection procedures.

13 So we had established a fairly rigorous
14 infrastructure when we began the reviews of the first two
15 applications. There was some concern that having the
16 Standard Review Plan in draft form might hamper the renewal
17 review. On the contrary, we found that the guidance in the
18 Draft Standard Review Plan was quite useful and helpful
19 during the review of the first two applications and helped
20 us to focus on areas where future process improvements could
21 be focused.

22 The renewal reviews also had the benefit of other
23 regulatory process improvements like the single round of
24 questions before defining issues to be resolved, weekly
25 internal staff meetings to monitor review progress and

1 ensure accountability. Monthly management meetings to
2 communicate issues and to assign responsibility for actions,
3 and accountability to ensure that all the milestones were
4 met.

5 With that overview of the renewal review process,
6 I would like to turn the presentation over to David Solorio.

7 MR. SOLORIO: Thanks, Chris. Could I have the
8 next slide, please.

9 Good morning, I am Dave Solorio, and I have served
10 as the NRC Project Manager on the staff's safety review of
11 the Calvert Cliffs license renewal application.

12 Slide 7 highlights 13 of the more significant
13 milestones for the safety review that occurred over a 21
14 month period, including related inspection activities that
15 will be discussed later by Brian Holian.

16 The detailed safety review of Baltimore Gas &
17 Electric's renewal application began upon receiving their
18 application on April 10th of '98 and concluded with the
19 issuance of NUREG-1705 documenting the staff's review and
20 conclusion that the effects of aging for the structures,
21 systems and components within the scope of license renewal
22 would be managed during the renewal period.

23 In February, around the first inspection, about 25
24 staff and managers met with BG&E staff at the Calvert Cliffs
25 site over four days to resolve a significant number of

1 technical issues. Over the 21 month period, the staff has
2 held 28 public meetings with BG&E and the Advisory Committee
3 on Reactor Safeguards to ensure continued progress on the
4 review and to resolve issues. These meetings were in
5 addition to the public meetings related to the inspection
6 and environmental efforts.

7 The safety review benefited from teamwork.
8 Research staff assisted with the resolution of technical
9 issues and assisted with the inspections. Technical
10 specialists in headquarters worked closely with the renewal
11 and regional staff to ensure that issues were clearly
12 identified and resolved on a sound technical basis.

13 Next slide, please. The next slide presents two
14 of the significant areas of the Calvert Cliffs' SER. The
15 BG&E review began before the submittal of the April 10th
16 application with the submittal of a methodology for scoping
17 and screening required by 10 CFR 54.21(a)(2). That was
18 approved by the NRC in 1996, as well a few system reports
19 prior to the submittal of BG&E's renewal application.
20 Therefore, the staff's review focused on BG&E's
21 implementation of the previously approved methodology. In
22 the future, we would expect to review the methodology as
23 part of the application.

24 Chapter 2 of the SER documents the staff's
25 evaluation of BG&E's determination of which systems,

1 structures and components should be within the scope of
2 license renewal. Once the scoping evaluation was completed,
3 the next step, screening, involved evaluating the
4 determination of which passive, long-lived structures and
5 components were subject to aging management.

6 The review in this area, predominantly performed
7 by systems specialists, went much quicker in that there were
8 less issues that required interaction between the staff and
9 BG&E. In other these areas, the staff only identified a few
10 issues related to specific components, for example, the
11 station blackout diesel generator building or service water
12 heater.

13 Next slide, please. The next slide highlights the
14 two areas of the SER where the majority of the staff efforts
15 were expended. First is aging management, which is covered
16 in Chapter 3. In this chapter the staff evaluated BG&E's
17 identification of the applicable aging effects and proposed
18 aging management programs to ensure the intended functions
19 for the relevant equipment would be maintained.

20 The majority of the issues in the area related to
21 the extent to which existing programs were determined to be
22 adequate for aging management, and fell into three
23 categories. A large majority of the existing programs, such
24 as the vessel surveillance, system inspections, and
25 environmental qualification, were determined to provide

1 adequate aging management.

2 Modifications to existing programs were made such
3 as the scope of walkdown inspections, which were expanded to
4 inspect additional components, supports and structures;
5 additional inspections for small bore piping and the
6 pressurizer; and the plant-specific resolution of fatigue
7 environmental effects related to GSI-190. And new programs
8 were proposed for the diesel fuel tank caulking and sealants
9 that perform flood protection barriers and buried piping.

10 It is expected that the Lessons Learned in this
11 area will significantly improve the efficiency of future
12 renewal reviews.

13 The next significant area of the SER was the
14 evaluation of the time-limited aging analyses discussed in
15 Chapter 4. In this chapter, staff evaluated BG&E's methods
16 to determine how analyses with time-limited assumptions have
17 been or would be managed for the period of extended
18 operation. Time-limited aging analyses included pressure
19 temperature limits for the reactor coolant system, various
20 fatigue analyses which assume a number of cycles over a life
21 period and environmental qualification, which establishes a
22 qualified life for each electrical component.

23 The staff determined that the time-limited aging
24 analyses would be adequately managed during the renewal
25 term.

1 Next slide, please. The next slide lists some
2 significant observations and accomplishments from the
3 staff's safety review. First, the staff confirmed that many
4 existing programs provided adequate aging management..
5 Second, some programs required documentation and new
6 programs were created. For example, BG&E modified the
7 Calvert Cliffs alloy-600 program to include all alloy-600
8 components, not just that perform a pressure boundary
9 function.

10 BG&E agreed to additional inspections of small
11 bore piping and the pressurizer cladding for cracking, and
12 agreed to a plant-specific resolution for GSI-190. And BG&E
13 developed a new tank internal inspection program for the
14 diesel fuel storage tank.

15 Third, BG&E also proposed one-time inspections,
16 which collectively were called age-related degradation
17 inspections, to confirm the absence of potential aging
18 effects warranting management or to demonstrate program
19 adequacy, where appropriate. In a few instances the staff
20 determined that periodic was more appropriate.

21 And, finally, the staff included a proposed
22 license condition as one approach to provide regulatory
23 control under 50.59 for changes to the procedures relied on
24 for the conclusions in the safety evaluation, as are listed
25 in Appendix C to NUREG-1705, which BG&E will incorporate

1 into the Calvert Cliffs final safety analysis report
2 following the issuance of a renewed license.

3 Next slide, please. All of the aging management
4 issues and identification of time-limited aging analyses
5 have been resolved, as documented in NUREG-1705. And on the
6 basis of its evaluation of the Calvert Cliffs license
7 renewal application, the staff concludes that the standards
8 for issuance of a renewed license, as specified in 10 CFR
9 54.29, have been met, which are summarized on this slide.

10 First, actions have been identified and have been
11 or will be taken with respect to managing the effects of
12 aging during the period of extended operation on the
13 functionality of structures and components that have been
14 identified to require an aging management review under
15 54.21(a)(1).

16 Second, actions have been identified and have been
17 or will be taken with respect to time-limited aging analyses
18 that have been identified to require review under 54.21(c).
19 Therefore, the staff finds there is reasonable assurance
20 that the activities authorized by a renewed license will
21 continue to be conducted in accordance with the current
22 licensing basis for the Calvert Cliffs Nuclear Power Plants,
23 Units 1 and 2, as modified by the renewal program changes.

24 And with that, those are my remarks. Tom.

25 MR. KENYON: Good morning. My name is Tom Kenyon,

1 I am the Environmental Project Manager on Calvert Cliffs.

2 Can I have the next slide, please? My first slide
3 describes why we do an environmental review. The NRC has
4 the regulatory responsibility to implement the requirements
5 of the National Environmental Policy Act for the nuclear
6 plants under its purview. Under the National Environmental
7 Policy Act, an Environmental Impact Statement is required
8 for any major federal action that could significantly affect
9 the quality of the human environment, and the NRC has
10 determined that license renewal is just such a major federal
11 action.

12 In 1996 the Commission promulgated 10 CFR Part 51
13 to implement the requirements of the National Environmental
14 Policy Act. The rule reflects the findings of the Generic
15 Environmental Impact Statement for license renewal known as
16 NUREG-1437. And the rule established a framework for
17 addressing over 90 environmental issues.

18 These issues were separated into one of two
19 categories, either those that were generically resolved, as
20 discussed in the Generic Environmental Impact Statement, or
21 those for which a site-specific evaluation is required. In
22 addition, there were two issues which were not categorized,
23 environmental justice and the health effects of
24 electromagnetic fields, and because they were not
25 categorized, however, the staff still performs the

1 site-specific evaluation of the issues.

2 The rule dictates that the NRC issues a
3 site-specific supplement to the Generic Environmental Impact
4 Statement. Supplement 1 was the supplement for Calvert
5 Cliffs, and in that supplement we discuss whether or not
6 there was any new and significant information on any one of
7 these issues.

8 Can I have the next slide, please? During the
9 review period, the staff visited the site and provided
10 members of the public with two opportunities for public
11 interaction. The first comment period began at the
12 beginning of the review while the staff was trying to
13 determine the scope of its environmental review. The second
14 comment period occurs after the Draft Environmental Impact
15 Statement was issued to allow members of the public to
16 comment on our review.

17 The staff, during both of those comment periods,
18 the staff had public meetings to outline the NRC's process
19 and to try to provide information to help members of the
20 public focus on the issues. As you can see, the staff
21 issued the final Environmental Impact Statement in October
22 of 1999.

23 Next slide, please. Of the 90-some issues that
24 were evaluated, 16 issues were determined not to be
25 applicable to Calvert Cliffs either because of the design of

1 the plant, or because no major refurbishment activities were
2 planned. All the other issues were considered and evaluated
3 in the Supplement 1.

4 For your information, I have identified the key
5 findings from the review. The first issue resulted from a
6 recommendation from the U.S. Fish & Wildlife Service, who
7 recommended that The Nature Conservancy, an international
8 conservation group, we allowed foot access to the beaches
9 below the cliffs so they can do monitoring of the tiger
10 beetle population, an endangered species.

11 The second recommendation from the Fish & Wildlife
12 Service was that BGE set constraints on activities within
13 one-quarter mile of the active bald eagle nests. BGE agreed
14 to allow The Nature Conservancy escorted foot access and, of
15 course, they have agreed to set construction constraints on
16 the bald eagle nests' vicinities.

17 During the scoping period, one member of the
18 public raised the concern that -- he wanted to know if
19 microorganisms that could potentially develop and survive in
20 the high temperature and high radiation areas of the nuclear
21 plant could develop, and he also wanted to know what would
22 be the consequences should such microorganisms be released
23 to the environment.

24 The staff consulted microbiologists that
25 specialize in the study of these, such microorganisms, and

1 concluded that even if such microorganisms could develop,
2 say, in the spent fuel pool of a reactor at a reactor plant,
3 that because they had adapted so well to the extreme
4 environment of the high temperature waters, that if they got
5 released into the environment, such as into the Chesapeake
6 Bay, that they would be unlikely to survive. Therefore, the
7 staff determined that, although this was a new issue that
8 was raised, it was not significant because of the low
9 likelihood of survival of these microorganisms.

10 As part of its review, the staff also takes a look
11 at the severe accident mitigation -- severe accident design
12 alternatives, and concluded that BGE made a reasonable
13 effort to try to identify and evaluate these design
14 alternatives.

15 The review of Calvert Cliffs identified four
16 severe accident design alternatives that appear to be cost
17 beneficial when averted onsite costs are considered. The
18 staff has determined that none of these four plant
19 improvements are related to aging and, therefore,
20 implementation is not required as a condition of license
21 renewal.

22 BGE has indicated that they intend to implement
23 one of these, it is the installation of water-tight door to
24 reduce flooding potential. And the staff is further
25 evaluating the Calvert Cliffs risk assessment to better

1 understand why Calvert Cliffs' core damage frequency appears
2 to be higher than other CE plants of similar design.

3 BGE is also reviewing their PRA to see if
4 improvements are warranted. As a matter of fact, the staff
5 is in the process of scheduling a public meeting with BGE to
6 pursue this matter further.

7 Once a realistic and up-to-date risk profile for
8 the plant is established, we will determine whether or not
9 implementation of these alternatives might be warranted
10 under the current operating license.

11 Next slide, please. That brings us to our
12 conclusion, that the staff recommends that the Commission
13 make a determination that the environmental impacts of
14 renewing the Calvert Cliffs license are acceptable during
15 the license renewal period.

16 MR. HOLIAN: Next slide, please. Good morning,
17 Chairman, Commissioners.

18 The Region performed three license renewal
19 inspections. Michael Modes, a Senior Reactor Inspector in
20 the Division of Reactor Safety led all three teams and
21 Michael is also here today sitting behind me. I will note
22 at this time that for consistency and to promote Lessons
23 Learned among the regions, there were team members from
24 Region I and II on each other's inspections, since both
25 these applications came in in a timely manner with each

1 other.

2 The bullets on your slide, on the first slide,
3 summarize the objectives of the first two inspections, and
4 these were based on the inspection procedure for license
5 renewal. The first inspection, which was a week long,
6 focused on scoping and screening. Scoping was evaluating
7 the systems and structures excluded from the scope of
8 license renewal and the screening process was sampling from
9 a scoped-in system what components are included in the age
10 management assessment.

11 The second inspection was a two-week long
12 inspection and it looked at this aging management process by
13 determining if credible aging mechanisms were identified and
14 whether aging management was adequately demonstrated.

15 The third and final inspection, which didn't occur
16 till the end of the year, in December '99, looked primarily
17 at open items from the first two inspections.

18 The next slide, please. The team selected the
19 inspection sample sets based on a review of the Calvert
20 Cliffs IPE and this was coupled with a detailed regional
21 inspection plan review. For example, the 13 kilovolt
22 system, the turbine building ventilation system and fire
23 pump house were among those systems and structures chosen to
24 evaluate the scoping process. These were systems or
25 structures that were excluded from their initial review.

1 The team had two findings related to scoping. One
2 involved the exclusion of the fire pump house dike which was
3 intended to contain an oil spill from impacting the electric
4 fire pump that was in the same building. The issue was
5 placed in the licensee's license renewal corrective action
6 plan, and it resulted in that aspect being scoped within the
7 rule. The second issue dealt with the support structures
8 for the station blackout diesel.

9 Related to screening, aux feedwater, salt water,
10 safety injection and the auxiliary and safety-related diesel
11 buildings were among those systems and structures which
12 received a more detailed look by the team to determine
13 whether systems -- the systems components and/or
14 commodities, that would be like the piping or pipe supports,
15 were included or excluded once a system was scoped-in.

16 These components then, by the rule, receive an
17 aging management review by the licensee.

18 The bulk of the inspection effort was spent on the
19 two-week inspection that occurred in April of '99, and that
20 centered on whether BG&E properly implemented the aging
21 management methodology which had been previously approved by
22 the NRC. Examples of some aging mechanisms that were
23 reviewed during the second inspection included galvanic
24 corrosion, pitting, fatigue and primary water stress
25 corrosion cracking.

1 In addition to a documentation review of the paper
2 work that BG&E had developed for analyzing these aging
3 mechanisms, comprehensive system walkdowns were performed
4 during this inspection, and it was crucial that this was
5 done during an outage time to avail themselves to
6 containment. Region II inspection, they went back and
7 looked during an outage time to pick up those portions of
8 the system that were inside containment.

9 During this two-week inspection, an example of an
10 issue that was identified was where BG&E had credited the
11 ISI program, or inservice inspection program, for managing
12 primary water stress corrosion cracking. And the team
13 pointed out, this was in the RCS system, that the ISI
14 program excludes small bore piping, that is about one inch
15 and less. In response, BG&E expanded their existing
16 alloy-600 program to include small bore piping.

17 Next slide, please. As I mentioned, the third
18 inspection was to pick up open items. That occurred in
19 December of '99 and, overall, I would like to state that the
20 Region's inspections were timed to correspond with the
21 development of the safety evaluation for Calvert Cliffs, and
22 this process worked well at integrated reviews by the
23 program office and the Region. One of the items looked on
24 during our final inspection was an item that had come up
25 during the safety evaluation review on CVCS insulation.

1 Overall, the Region concluded in a memo dated
2 January 13th, 2000 from "Hub" Miller that the scoping and
3 the screening process was implemented in conformance with
4 BG&E's application. Applicable aging mechanisms were
5 identified. Appropriate aging management programs were
6 developed. Documentation was auditable. And that BG&E's
7 aging management programs provide an adequate foundation for
8 renewing the license.

9 MR. ZIMMERMAN: Next slide, please. In summary,
10 the staff concludes that the safety review, the evaluation
11 of the environmental impacts, and the inspection
12 verifications support renewal of the licenses for Calvert
13 Cliffs Units 1 and 2, and the staff requested the Commission
14 authorize the Director of NRR to renew both of those
15 licenses.

16 MR. TRAVERS: That concludes our presentations,
17 Mr. Chairman.

18 CHAIRMAN MESERVE: Thank you very much for a very
19 helpful briefing. I have just a few questions. One of them
20 was precipitated by one of the comments that was made on
21 Slide 14. You indicated that the core damage frequency that
22 you observe at Calvert Cliffs is higher than for other CE
23 plants of similar design and vintage. Is that an issue that
24 is one that is being pursued in the context of the license
25 extension?

1 MR. GRIMES: No, sir. No, sir, that is being
2 pursued in the context of the existing license.

3 CHAIRMAN MESERVE: So if there is an issue there,
4 that is something that you will pursue during the remaining
5 term of the operating license?

6 MR. GRIMES: That is correct. We weren't going to
7 attempt to let that be put off. And there has been an
8 ongoing dialogue on the existing license relative to what
9 the implications of the core damage frequency are, and the
10 means by which the core damage frequency could be reduced.
11 And those will continue independent of the license renewal
12 decision.

13 CHAIRMAN MESERVE: The proceduralist matter here
14 may reflect my ignorance of the process here. It is curious
15 to me that this is an issue that popped up in your
16 environmental review rather than the safety review. Is
17 there any easy explanation for that?

18 MR. GRIMES: The best, the simplest explanation
19 that I can give is that the issue of the -- the value of the
20 core damage frequency already existed and was being pursued.
21 These four specific cost beneficial alternatives, mitigation
22 alternatives, they arose from the review of the cost
23 beneficial -- or, excuse me, the design alternatives that
24 were being -- would have been considered. And so we were
25 pursuing it in one way and then found something else to

1 complement that activity.

2 MR. ZIMMERMAN: If I can make a comment on the
3 Calvert Cliffs IPE, I think the utility believes that there
4 are conservatisms in the modeling of that PRA and are
5 intending on continuing to review that area. And we intend
6 on maintaining dialogue starting next month with the utility
7 to understand the areas where they feel some of those overly
8 conservative modeling aspects are in their IPE, as well as
9 those areas that the utility is looking for in terms of
10 potential modifications.

11 Also, the staff has the ability to look at the
12 results as well from the standpoint of our process for
13 backfitting.

14 CHAIRMAN MESERVE: I would like to ask you, if you
15 could, to just step back for a moment from this particular
16 application. Obviously, you have done a remarkable job in
17 meeting all the deadlines, but I am curious as to whether
18 there are any observations you would make about the process
19 as it exists now that ought to be modified in order to make
20 this an even more efficient process in the future.

21 MR. GRIMES: Is your question relative to the
22 license renewal process?

23 CHAIRMAN MESERVE: Yes, license renewal process.

24 MR. GRIMES: Actually, we have collected a number
25 of observations about how we could simplify the review

1 process, how we could take advantage of the Generic Aging
2 Lessons Learned and cataloging findings on generic programs.
3 That should make the review process much simpler in the
4 future. And we have put all of those good ideas that have
5 been collected over the last two years into our efforts to
6 revise, update the SRP and then engage the public in a
7 dialogue about how those process improvements might be
8 implemented.

9 DR. TRAVERS: I think in a broader sense, in an
10 implementation sense, we are looking for improvements to see
11 how we can better carry out the requirements of today's
12 rule. In addition, we are going to look in the longer term
13 at the rule itself and the process that is required under
14 that rule. So, I think in the longer term, perhaps with
15 some more experience from a BWR and some more of the plants
16 that are in the pipeline currently, we are looking at the
17 potential for any improvements that might argue for, as
18 formal changes, a rule change. We haven't identified any.

19 CHAIRMAN MESERVE: As you know, we do intend as a
20 Commission to reexamine this after the first two to see
21 whether they are changes. I just wanted to ask the
22 question, whether there is anything that jumps out now as
23 being so obvious a change that we ought to take action? And
24 I guess my impression is the changes are incremental and, as
25 appropriate, you have been incorporating them in the SRP and

1 the GALL.

2 MR. GRIMES: Yeah. It occurs to me, there was one
3 that jumped out for which we have already taken action, and
4 that was to come up with a standard form and content, a
5 better packaging, because we found that we were working a
6 three-dimensional problem. We had structures and
7 components, and aging effects, and then programs that cut
8 across all of them. A corrosion program can apply across
9 all of the components. So we found that there was a lot of
10 repetition in what we were doing. We are looking at
11 chemistry over here and then chemistry over there.

12 So we met with the industry and the first two
13 applicants, and we talked about ways to better package the
14 information so that the review could be more efficient. And
15 we have already agreed on a new standard form and content,
16 and that is being reflected right now in an update to the
17 industry guide that was just submitted.

18 CHAIRMAN MESERVE: Thank you very much.

19 MR. ZIMMERMAN: If I can add that in addition to
20 the work that is ongoing with the GALL and SRP effort, the
21 utilities that have been in the pipeline have been watching
22 very closely and have been attending meetings to be able to
23 learn those lessons of the types of questions we have been
24 asking, so that they can answer those and address those in
25 those submittals. And we have seen that in the ANO

1 acceptance review that we recently performed. So there are
2 incremental gains that we are making while we are continuing
3 to work on packaging the Lessons Learned in the GALL and SRP
4 reports.

5 CHAIRMAN MESERVE: Commissioner Dicus.

6 COMMISSIONER DICUS: Thank you, Mr. Chairman.
7 First of all, let me apologize to my Commission colleagues,
8 the staff, members of the public, the licensee, their
9 representative for my late arrival. I had a very early
10 morning therapy session on my knee that went slightly awry
11 so it had to be iced down for a while, but it is in a much
12 better frame of mind, so, so am I.

13 I probably have a couple of technical questions
14 and then I want to follow up on one of the questions that
15 the Chairman asked; and perhaps a process question.

16 I noticed that with license -- potential
17 conditions for Unit 2 are somewhat different than ones for
18 Unit 1. Could you give me a little bit of information about
19 that?

20 MR. GRIMES: The differences between the two
21 licenses exist today. Those were there and we carried those
22 over. License renewal did not attempt to try and clean up
23 the unit differences that have evolved over time. One of
24 the units has a loop operation limitation. We didn't create
25 those, we just carried them forward.

1 COMMISSIONER DICUS: Okay. The second question
2 has to do with these cables that are buried or inaccessible.
3 I understand the licensee has made some commitments on what
4 they are going to do about that. Could you give me some
5 information on what those commitments are?

6 MR. GRIMES: Dave, do you recall the specifics of
7 the cable inspection program?

8 MR. SOLORIO: Well, to address what I think you
9 are asking is BG&E has committed to take the root cause
10 results that are available from the Davis-Besse event and
11 evaluate their inaccessible cables that are potentially
12 subjected to wet environment to determine if the root cause
13 would drive them to make any modifications to their program.
14 And they made a commitment to that effect in a letter dated
15 the 13th or the 12th of January.

16 MR. GRIMES: But to answer your question more
17 broadly, in both of the applications, we have looked for a
18 more robust inspection program for cable insulation that
19 will extend observations into cables that are in
20 inaccessible areas.

21 COMMISSIONER DICUS: Okay.

22 MR. GRIMES: And, in fact, we expect to see
23 licensees replacing cable on the basis of their inspection
24 findings.

25 COMMISSIONER DICUS: Okay. So you are comfortable

1 with this?

2 MR. GRIMES: That is correct.

3 COMMISSIONER DICUS: A comfort level with it. On
4 your Slide 17, you mention some of the risk insights that
5 were used in the renewal process. Are these the only ones,
6 or were there other risk insights used?

7 MR. HOLIAN: Well, for the selection of the
8 systems, we used the IPE risk ranking. Aux feed water was
9 one of our primary systems, and the RCS was another one, and
10 some of the electrical systems. During the -- if you were
11 determining were risk insights used during the safety
12 evaluation review, I will turn that over to Dave.

13 MR. GRIMES: In the safety evaluation review, it
14 is largely deterministic. We are looking at programs to an
15 applicable scope, and so we -- there wasn't really an
16 opportunity for us to try and apply risk insights. That is
17 one of the potential process improvements we are considering
18 for the future.

19 COMMISSIONER DICUS: Okay. And then, finally,
20 following up on the Chairman's questions with regard to
21 Lessons Learned and what we are doing with the draft SRP, I
22 wasn't clear whether you are going to try to make
23 modifications in the draft SRP as we go along. Are you
24 going to wait at some point after we reevaluate the first
25 two applications and then work on them? That wasn't clear.

1 MR. GRIMES: We have an established schedule in
2 response to the Commission's staff requirements memo on
3 credit for existing programs that lays out a fairly
4 aggressive schedule to put together GALL and the SRP, go out
5 for public comment and then bring back to the Commission
6 those comments and a proposed resolution by about November.
7 We also have heard that we might want to come talk to the
8 Commission in the summer about Lessons Learned, and as sort
9 of an interim status report.

10 COMMISSIONER DICUS: Okay. Thank you, Mr.
11 Chairman.

12 CHAIRMAN MESERVE: Commissioner Diaz.

13 COMMISSIONER DIAZ: Yes. Let's see, the first
14 thing on technical issues. On the work that the staff has
15 done during all this time regarding the aging degradation,
16 or the management of aging degradation, the things that
17 really we work with, has there been any series of issues
18 that all of sudden came out that were more important that
19 actually, you know, you now can say these are the kind of
20 issues that we really need to work with, and these other
21 issues that we thought were not important are really not,
22 you know, creating that much problem? Have there been, with
23 the watch, a series of issues come up that say these are the
24 ones we need to deal with when we are dealing with aging
25 issues?

1 MR. GRIMES: I think it is interesting that when
2 we were trying to assemble the Generic Aging Lessons Learned
3 and catalog the programs, actually, we weren't surprised
4 very much. We found that the aging mechanisms that have
5 evolved since the nuclear plant aging research began in 1982
6 are still the effects that tend to occupy engineers and
7 require close attention, stress corrosion cracking,
8 reduction in brittle fracture, corrosion and erosion. Those
9 things still tend to dominate the needs of these programs.

10 And then, of course, the resolution of Generic
11 Safety Issue-190 concluded that, although it is not a
12 serious enough effect to warrant backfitting all the fatigue
13 analysis, there is an environmental effect that tends to eat
14 away that margin that needs to be accounted for in fatigue
15 management programs. And, similarly, the environmental
16 qualification research that is ongoing is still teaching us
17 lessons about failure modes and effects for cable insulation
18 that requires careful inspection and evaluation and
19 corrective action. But that basic process of inspecting for
20 these effects, identifying where they are occurring and then
21 correcting them, that is essentially what we rely on to
22 ensure that aging management programs would be effective.

23 COMMISSIONER DIAZ: Okay. But no new issues that
24 are serious enough that might require that Research looks at
25 it or that we put some emphasis on it just to make sure that

1 they are properly addressed and over the long periods of
2 times that we are going to be doing license renewals, and
3 plants that have been reviewed.

4 MR. GRIMES: I would say that the aging of cable
5 insulation is one where we are pursuing, we are looking at
6 the results of the Davis-Besse event and determining whether
7 or not we should pursue more research in that area. And
8 that is something that Mr. Strosnider and Mr. Mayfield both
9 have been quite helpful in the renewal process in terms of
10 guiding the decision-making on what constitutes an
11 acceptable aging management program.

12 COMMISSIONER DIAZ: No significant surprises on
13 any of the mechanisms regarding stress corrosion cracking,
14 fatigue, nothing that you will say it demands additional
15 attention?

16 MR. GRIMES: No, nothing that surprised or showed
17 us, but the usual frustrations, I would say.

18 COMMISSIONER DIAZ: Well, that is to be expected
19 and that is what you get paid for.

20 [Laughter.]

21 COMMISSIONER DIAZ: Now, let me turn to Slide 15,
22 and you might have noticed that I am not a lawyer, so I have
23 sometimes problems with wording. But let me read this
24 conclusion. "The adverse environmental impacts of license
25 renewal for Calvert Cliffs Nuclear Power Plant Unit 1 and 2

1 are not so great that preserving the options of licensee
2 renewal for energy planning decision-makers would be
3 unreasonable."

4 Now, I don't know who crafted this or not, but if
5 I were a member of the public and I would read this, I would
6 say, well, they are not so great, but they might be great
7 enough. And, you know, although they might, you know, could
8 be -- might not be unreasonable, are they reasonable? And
9 my question to you is, from the technical analysis, would a
10 statement that would better reflect, you know, your
11 conclusions, would it be adequate, and can we avoid having
12 lawyers drafting this statement?

13 I am sorry, Karen.

14 MS. CYR: Well, actually, the Commission approved
15 this, of course, because this is in 51.95, when the
16 Commission approved the Generic Environmental Impact
17 Statement.

18 COMMISSIONER DIAZ: That was before my time. I
19 was in kindergarten when that happened.

20 I think it is a statement that obviously, probably
21 does what it is, but it might portray the wrong conclusion.
22 I am just bringing it on, that it is not so great, doesn't
23 seem to me is a very definite conclusion. And, you know,
24 rather than would be unreasonable, you know, would be
25 reasonable, be something more that to my -- you know, it

1 will really give me a better level of comfort in this
2 environmental assessment. Just bring that out. I am sure
3 it is going to create some alignments, and maybe Karen might
4 be able to address it.

5 MS. CYR: Well, I mean the rule requires that the
6 EIS contain the staff's recommendation regarding the
7 environmental acceptability of the license renewal action.
8 I think they analyzed that in determining, in a sense, to
9 include there their conclusions with respect to whether --
10 that they are small and acceptable and so on. But the
11 ultimate finding which is reflected here was because of the
12 interplay between what we are doing here in terms of the
13 action that we have here.

14 So it is not that we are making, because of the
15 decision of whether or not that the plant will actually
16 operate in a renewed period is the licensee's in conjunction
17 with whatever their public utility commission decision with
18 respect or not they can get approval, or whatever approvals
19 they need with respect to operating the plant for an
20 extended period, whatever those are.

21 And so we are not here in a sense to be the final
22 one who endorses whether or not that plant operates. We are
23 making a safety determination, an environmental
24 determination of whether or not this plant meets our
25 requirements such that the state PUC, with respect to

1 whatever decisions they have to make, can consider this.
2 And so that is why it is stated in this sort of cumbersome
3 fashion. In a sense, we are sort of preserving the option.
4 We are saying, yes, this option is a viable one. From a
5 safety and an environmental standpoint, that the state can
6 feel free to consider it, assuming the licensee applies to
7 operate this facility for an extended period of time beyond
8 which they have already considered.

9 So it comes out in kind of an awkward way. But
10 the staff, as the rule requires that they go ahead and make
11 determinations on the environmental acceptability of the
12 license renewal action, which they have done in the text and
13 the body of the environmental report.

14 CHAIRMAN MESERVE: In fact, I would note that when
15 this slide was summarized, I had the same problem. And I
16 noticed when this slide was summarized, the phraseology was
17 used that the environment effects are acceptable during the
18 license renewal term, so that the actual oral briefing we
19 got did depart from the language -- or plain English.

20 MS. CYR: Because the rule requires, given this
21 information, the Commission shall determine whether or not
22 the adverse effects are so great that any option would be
23 unreasonable. I mean, but again, that is -- the staff is
24 parroting back to you the language that was adopted in the
25 rule.

1 COMMISSIONER DIAZ: Okay. Thank you.

2 CHAIRMAN MESERVE: Mr. McGaffigan.

3 COMMISSIONER MCGAFFIGAN: I am glad that our
4 Chairman, who is a lawyer, likes plain English, too. But I
5 do have to tell Commissioner Diaz, I have Part 51 in front
6 of us, and I recall voting on it. It was during our tenure.

7 [Laughter.]

8 COMMISSIONER MCGAFFIGAN: December 18th, 1996, the
9 rule was effective.

10 COMMISSIONER DICUS: So we have to blame ourselves
11 for this.

12 COMMISSIONER MCGAFFIGAN: So we let it slip past
13 us.

14 COMMISSIONER DIAZ: I have a very convenient
15 memory.

16 [Laughter.]

17 COMMISSIONER MERRIFIELD: Actually, just a note,
18 just so the record is clear, both the attorneys on the panel
19 have stated in public as of today that they are in support
20 of plain English. Having done so on many occasions in the
21 past, I am glad that our Chairman has joined in that.

22 COMMISSIONER DICUS: But, actually, I guess
23 neither one of them can be blamed for this because they
24 weren't on the Commission.

25 CHAIRMAN MESERVE: They weren't on the Commission.

1 COMMISSIONER MERRIFIELD: That's right. Had we
2 been, --

3 COMMISSIONER MCGAFFIGAN: Let me start by again
4 complimenting the staff. I have said at previous meetings
5 something along the lines of what Roy said at the outset,
6 that we had an extraordinary process in this proceeding, in
7 this review, to try and involved the public. I am not sure
8 the public always understood. I have reviewed some of the
9 dialogues at the Environmental Impact Statement, not the
10 scoping meeting, but the comment meetings, and there was
11 clear public misunderstanding of some of our processes. But
12 we had public meetings, 30 you count, I get about that
13 number as I go through the SER and the EIS. If you throw in
14 the ACRS meetings, I think it is about 30.

15 And any member of the public who wanted to have a
16 significant role in this process was clearly afforded that
17 opportunity in my view. So I will just make point. Perhaps
18 we can improve it. I think going through the process a
19 couple of times will improve it. But I think you got
20 significant comments, certainly on the environmental side.
21 It is unfortunate that on the safety side, I don't think the
22 opportunity was taken up as much to attend these monthly
23 meetings and to raise issues.

24 Another body I think I would like to thank, we
25 should have done it yesterday, but ACRS, I think, did an

1 extraordinary job carrying out their statutory function of
2 reviewing the safety evaluation report and getting their
3 views in by December 10th, just -- I think it was 20 or 30
4 days after the staff had completed the report and submitted
5 it to them. And we, obviously, from talking yesterday and
6 listening to their priority of continuing to do a good job
7 there, I think they continue to plan to do these parallel
8 reviews that will allow for a very timely input from ACRS
9 and allow these processes in the future to move rapidly.

10 On the issue that the Chairman started with in
11 the, you know, the severe accident mitigation alternative
12 chapter, this issue of averted onsite comes up. And I am
13 sure you have had the conversation with Baltimore Gas &
14 Electric, you know, the Commission unanimously last year
15 said that averted onsite costs are an appropriate part of
16 our analysis, it is consist with OMB guidance, et cetera, so
17 there isn't an issue as far as this Commissioner or the
18 Commission as a whole is concerned. So I think some of the
19 issues that are left for follow-up, I do hope you follow up
20 in the new license period.

21 One of the most risk -- 529, page 529 says the
22 most risk significant enhancements, 48(a), has a CDF
23 reduction of approximately 30 percent under bounding
24 assumptions and 10 percent under best estimate assumptions.
25 It costs a bit, it costs half a million dollars is my

1 recollection from the chart, but I would think that any
2 backfit analysis of 30 percent reduction in CDF, or at least
3 a 10 percent would meet the substantial benefit test under
4 backfit. And, so, if this analysis is accurate, I sure hope
5 you guys continue to pursue that. Maybe not the license
6 renewal staff, but the staff that handles the license as a
7 whole.

8 MR. GRIMES: Yes, I would like to comment on that.
9 I may have muddied the waters before and I want to make sure
10 that it is clear. Before the license renewal application
11 was received, the staff was already trying to understand the
12 Calvert Cliffs model and its implications. You know, why is
13 the CDF for Calvert Cliffs so much higher than the rest of
14 the combustion engineering fleet?

15 And Baltimore Gas & Electric has already
16 undertaken to start implementing those alternatives that
17 they found to be cost beneficial without -- irrespective of
18 the issue of averted onsite cost. But when I spoke with
19 Rich Barrett about the status of their review, the first
20 thing the staff wants to do is to understand whether or not
21 these things are modeling differences that might have
22 generic implications before we would then pursue in a formal
23 way a backfitting decision to determine whether or not we
24 feel that these, with the consideration of averted onsite
25 costs, it is worth requiring that these changes be made.

1 And in the meantime, BG&E is continuing to refine
2 their model and continue to implement changes. So rather
3 license renewal, you know, made a decision on the basis of
4 the plant design at a point in time. The process will
5 continue to pursue that question.

6 COMMISSIONER MCGAFFIGAN: Right. That is all I am
7 saying is I hope the process continues, if the analysis in
8 here is accurate. I mean there is this big issue and BG&E
9 was asserting the NEI and industry position, which we also
10 heard when we were doing the CSIS report, that averted
11 onsite costs shouldn't be part of our analysis. But we
12 would be unique in government if we were to drop averted
13 onsite costs as part of a cost benefit calculation. And, as
14 I say, that decision has already been made, so future
15 licensees, whether it is in license renewal or in Rich
16 Barrett's shop, have to understand that that is part of the
17 analysis and we are going to make judgments based on that.

18 One of the things, in reviewing the SER -- in
19 reviewing the EIS, there were an awful lot of comments on
20 Category 1 issues, as I read it and read the transcript of
21 some of these meetings, and those issues were largely
22 resolved in this 1996 rulemaking that we all, at least three
23 of us were present for. Was there a lot of public
24 involvement?

25 I mean I don't -- I was new and I only dealt with

1 the paper as we received probably in October-November of
2 '96, but the process presumably had preceded that rulemaking
3 and that -- in the development of that GEIS. GEISs have
4 scoping meetings, they have public comment meetings. Was
5 there significant public involvement in that rulemaking?

6 MR. GRIMES: In the GEIS?

7 COMMISSIONER MCGAFFIGAN: In the GEIS rulemaking
8 back in '86?

9 MR. GRIMES: Tom, were you? Hang on a second.

10 MR. KENYON: Mr. Barry Zalzman from the staff.

11 MR. ZALCMAN: My name is Barry Zalzman, Chief of
12 the Environmental Financial Section in NRR. The efforts to
13 undertake that rulemaking began in the late 1980s and had
14 significant involvement, significant workshops during the
15 scoping process, as well as during the actual rulemaking
16 process. It involved not only interactions with the public
17 but other stakeholders, Environmental Protection Agency,
18 Council on Environmental Quality as well. So there was a
19 big effort.

20 What had happened subsequent was the application.
21 The application came in in the late 1990s and the staff, in
22 undertaking its review, looked at all the issues, even those
23 considered Category 1 issues under the GEIS, to assure that
24 no new and significant information had arisen since the
25 snapshot of the GEIS, so that is the staff's obligation.

1 COMMISSIONER MCGAFFIGAN: But a lot of the
2 comments, as I read them, were really challenging, without
3 new information, challenging the Category 1 decisions that
4 had been made in the 1996 rulemaking.

5 MR. ZALCMAN: Yeah, there have been concerns by
6 the public on that.

7 COMMISSIONER MCGAFFIGAN: The last issue I will
8 raise is David Lochbaum, in a recent interview, had some
9 comments on license renewal. I will try to get to the heart
10 of the technical comment if I can do that, and it seems to
11 have to do with reactor vessel embrittlement. You know, he
12 cite the Yankee Rowe experience where they were coming in
13 for a license renewal, discovered they had an embrittlement
14 problem and then they obviously shut down.

15 And what he says about this application that seems
16 to be his concern, "There is some" -- "In the specific case
17 of Calvert Cliffs, there is some concern about its reactor
18 vessel similar, although not quite as bad as Yankee Rowe."
19 This is -- I am quoting Mr. Lochbaum. "What Calvert Cliffs'
20 owners are doing is using data from the Shoreham reactor
21 that didn't operate very long," and that is an
22 understatement, "and the McGuire reactor in North Carolina,
23 both of which were built at about the same time, to give
24 confidence in its own reactor vessel. I have said that if I
25 was in a hospital with a major illness, I wouldn't want the

1 doctor saying we are going to do surgery on you based on
2 another guy who was about your age and weight, and he says,
3 'You need your spleen removed.'" It is typical David, it is
4 great stuff.

5 But did you guys rely on Shoreham and McGuire data
6 in trying to deal with any reactor vessel embrittlement
7 issues that there may or may not be at Calvert Cliffs?

8 MR. STROSNIDER: I am Jack Strosnider, Director of
9 the Division of Engineering. The answer is yes. And I
10 think perhaps a little explanation might help.

11 COMMISSIONER MCGAFFIGAN: Sure.

12 MR. STROSNIDER: It helps to understand a little
13 bit about how these vessels were fabricated and what was
14 going on during the fabrication process. They are
15 fabricated from rolled plates that are welded into rings and
16 then welded into a cylinder. And if you can turn back the
17 clock about 30 years or so when these vessels were on the
18 floor of the vendors' shops, there was essentially an
19 assembly line of reactor vessels in various stages of
20 fabrication. So on any given day, there would be welds
21 being made in three or four different reactor vessels. And
22 when they went to the supply room to get the weld material,
23 that weld would end up in three or four different reactor
24 vessels.

25 The weld material that is in the Calvert Cliffs

1 reactor vessel is also in the McGuire vessel, the Pilgrim
2 vessel and the Shoreham vessel. So, in fact, there are good
3 data with regard to characterizing that weld material that
4 should be used. In fact, I would suggest we would be remiss
5 if we didn't use it.

6 With regard to chemistry, as an example, you can
7 get copper and nickel values from all those weld materials
8 to help better understand the chemistry of the weld, which
9 influences the rate of embrittlement. And in the case of
10 Calvert Cliffs, actually, the limiting material in the
11 vessel, that is the one that has the highest fluence and
12 combination of material properties that will dictate its
13 life, okay, is not actually in their surveillance program.
14 But it in the McGuire surveillance program. So the notion
15 is that you go look at how that material is performing in
16 the McGuire vessel and understand then what that -- how that
17 material responds. And that is all very relevant to
18 understanding the Calvert Cliffs analysis.

19 It is a little tricky when you go from one vessel
20 to another when there are different vendors. I would point
21 out Calvert Cliffs is, of course, CE, McGuire being
22 Westinghouse. But we have done -- the Research office has
23 looked at this and we understand, for example, Calvert
24 operates about 10 degrees lower than McGuire, but we know
25 how to adjust for that based on research results. So, it is

1 done very carefully, but, in fact, we do use data from the
2 other plants, and it is very important data. We would only
3 be using a small portion of the available information if we
4 didn't do that. So that is the explanation.

5 COMMISSIONER MCGAFFIGAN: I appreciate that, I
6 think that is a very good explanation, trying to match
7 Lochbaum, which is almost impossible. It sounds like
8 getting your spleen removed on the advice of the doctor. If
9 your twin has had previous problems with -- identical twin
10 has previous problems with that spleen, you might want to
11 have your spleen removed if you are showing similar
12 symptoms. But that is a poor imitation of David, and I
13 apologize to him. But I appreciate the explanation.

14 CHAIRMAN MESERVE: Commissioner Merrifield.

15 COMMISSIONER MERRIFIELD: Thank you, Mr. Chairman.

16 Turning to Slide 10, the second bullet, where you
17 talk about some programs are modified to ensure adequate
18 aging management, and a plant-specific approach to resolve
19 fatigue. I am wondering if you could flesh this out for me
20 a little bit more in terms of why you focus on a
21 plant-specific approach to do this. Could you explain why
22 that was the right way to go?

23 MR. GRIMES: This was intended to be illustrative
24 of the kinds of program changes that represent a license
25 renewal impact, that 20 or so percent of the existing

1 programs that need to be augmented in order to account for
2 an aging effect. And in this particular case, it was also
3 unique because there was an original expectation that
4 Generic Safety Issue 190 was going to provide a generic
5 solution that would identify what action would need to be
6 taken, and we proceeded down that path.

7 But then the result was a conclusion that there is
8 no generic solution for it by means of backfitting
9 requirements for fatigue analysis, but it is still an effect
10 that needs to be addressed. And BG&E came in with a
11 proposal for an inspection program that would monitor and
12 correct for this environmental effect, and we found that
13 plant-specific approach acceptable.

14 COMMISSIONER MERRIFIELD: You may not have this
15 information on this readily available. What level of
16 inspection hours do we have to spend in order to conduct
17 this license renewal effort?

18 MR. HOLIAN: It was, in general, right around 1
19 FTE total. That was what was scoped in the inspection
20 procedure, between 1 and 1.2, and the Region used about 680
21 hours direct inspection time and it was over 600 hours
22 preparation and documentation time, too. So you are looking
23 around 1,300-1,400 hours.

24 COMMISSIONER MERRIFIELD: 1,300-1,400. Do you
25 anticipate a similar level of effort with future license

1 renewals?

2 MR. HOLIAN: Yes. Region II used about a little
3 more in hours, from our understanding with them, and we
4 worked closely with them. And Region IV is scoping a little
5 over 1 FTE also, and I think that is the assumption going
6 out through 2002.

7 MR. GRIMES: From a planning perspective, I think
8 that this three inspection set seems about appropriate, and
9 that that level of verification is probably something we
10 want to plan for.

11 COMMISSIONER MERRIFIELD: I was particularly -- my
12 interest was particularly piqued by Slide 14, where we
13 talked about microorganisms that thrive in high radiation,
14 high temperature environments. This is something new for
15 us, and I think is reflective of the fact that we were
16 really responsive to public concerns about new issues that
17 were out there. And so that was something that we
18 considered and had to address.

19 And I guess it raises a question to me. We are
20 going to have presumably similar questions raised down the
21 road when we have new license renewals come in. Do we feel
22 we have got the resources and the expertise in-house to
23 handle these types of environmental questions?

24 MR. ZIMMERMAN: I think that it is made up of a
25 couple of parts. We are somewhat reliant on contractor

1 assistance in this area for some of the specialty areas, but
2 we also want to bring in some additional talent. So, as we
3 look at our hiring profile, we are looking at bringing on
4 some additional talent in this area, but it will be
5 significantly complemented through these contracts.

6 DR. TRAVERS: It is interesting to note that years
7 ago, when we were actually in a very active licensing mode,
8 that we had quite a lot more environmental specialist type
9 scientists on the staff and that number has diminished
10 significantly, but with the advent of license renewal, I
11 think Roy has mentioned that we probably need to look at
12 staffing that up some.

13 COMMISSIONER MERRIFIELD: Well, obviously, that
14 may be part of the GALL report.

15 MR. ZALCMAN: If I could add again, this is Barry
16 Zalcmán, staff. This is an issue the Commission had raised
17 in an earlier context, in the early 1990s. At that time
18 they were looking at Part 52 on early site permits, and had
19 concerns about the ability of the staff to deal with those
20 issues in environmental and siting space.

21 At that time what we did was look at the
22 cross-section of the organization to assure that we knew
23 where the resources did exist within the agency. So we do
24 still have specialists that do have the environmental
25 background within the agency. And in the late 1990s, we

1 actually took an effort within NRR to reconstruct an
2 environmental organization. So we have an organization in
3 NRR today, but, as Roy indicated, we do rely upon resources,
4 predominantly the national laboratories, and have developed
5 over time their expertise to assist us in these reviews, in
6 developing the staff guidance, the Environmental Standard
7 Review Plan as well. They have participated, and we were
8 very effective, we believe, in the conduct of our effort
9 because of our interactions.

10 In the upcoming years, we anticipate a significant
11 additional load and we are expanding our resources to
12 include more than just a single national laboratory, we are
13 going to four national laboratories, building up for the
14 surge of renewal applications that we anticipate. We are
15 looking over the hill.

16 COMMISSIONER MERRIFIELD: Thank you. A final
17 question. Given the fact that we are early in the license
18 renewal process, obviously, there is a balance we have to
19 strike and that is making sure that we have sufficient
20 resources to deal with the review of applications that are
21 in-house, but also having resources necessary to build a
22 regulatory infrastructure so that we have an effective,
23 consistent review for future applications.

24 And, so, as an overall question, I just want to
25 make sure that we have got some comfort level about the fact

1 we are not sacrificing one to do the other. Do we feel we
2 have the right resources necessary to do both?

3 MR. ZIMMERMAN: The answer is yes. It is not easy
4 for us in the office to be able to maintain the aggressive
5 schedules that we have on the plant-specific applications,
6 as well as what it takes to do the appropriate good work on
7 the GALL report and the SRP, but this is a very high
8 priority for the office, and we are devoting the resources
9 necessary to be able to do both efforts in an outstanding
10 manner in parallel with each other.

11 CHAIRMAN MESERVE: Thank you. I would like again
12 to congratulate the staff for their work here. It
13 demonstrated both your capacity to really handle difficult
14 technical issues and an ability to have a predictable
15 process, a focused process to reach an outcome, and you are
16 to be congratulated for having done this so well.

17 I think that there is -- the bad news of this is
18 that you have now created expectations. That we wish you
19 continued good service as we handle the rest of these.

20 Let me turn to my colleagues for any closing
21 statements.

22 COMMISSIONER MERRIFIELD: Yes, Mr. Chairman, I
23 would like to make a closing statement. Initially, I made
24 comments complimenting the staff for the hard work that they
25 did, and I want to make clear, at least from standpoint,

1 that I would have made the same comments to them
2 irrespective of the recommendation that they would have
3 made. Our requirement is to weigh on this license renewal
4 application and determine whether it is appropriate to
5 protect the health and safety of the public.

6 The Commission and the staff, after a significant
7 number of stakeholder meetings, a significant inspection
8 effort, an effort to try to move expeditiously, yet at the
9 same time balancing out the need to answer those health and
10 safety concerns, has come up with a document recommending
11 that this Commission move forward on renewing this license
12 renewal.

13 That paper was sent to the Commission on January
14 14th of this year. The Commission has had some time to take
15 a look at it. I think the meeting today was very helpful in
16 my review and understanding of where we should go on this,
17 and, at least from my standpoint, given this meeting we have
18 had today, it is my expectation that I will be voting in
19 favor of renewing the license, or giving the staff the
20 authorization to renew the license for Calvert Cliffs.

21 Thank you, Mr. Chairman.

22 CHAIRMAN MESERVE: Thank you. With that, we stand
23 adjourned.

24 [Whereupon, at 10:52 a.m., the briefing was
25 concluded.]

CERTIFICATE

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

TITLE OF MEETING: BRIEFING ON CALVERT CLIFFS LICENSE
RENEWAL
PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Friday, March 3, 2000

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

Transcriber: Martha Brazil

Reporter: Jon Hundley

Calvert Cliffs License Renewal March 3, 2000

Roy Zimmerman -Deputy Director, NRR
Christopher Grimes - License Renewal & Standardization, NRR
David Solorio - Safety Project Manager
Thomas Kenyon - Environmental Project Manager
Brian Holian - Deputy Director, Division of Reactor Safety, Region I

1

Purpose

- Inform the Commission of the results of the review of the Calvert Cliffs license renewal application
- Request the Commission authorize the Director of NRR to renew the operating licenses for Calvert Cliffs, Units 1 and 2

2

Performance Goals

- Maintain Safety
- Increase Public Confidence
- Reduce Unnecessary Regulatory Burden
- Make NRC decisions effective, efficient & realistic

3

License Renewal

Program Monitoring and Oversight

- Executive Council oversight
- Steering Committee guidance and coordination
 - ▶ Interface with NEI Working Group
 - ▶ Coordination of technical and process issues
 - ▶ Monitoring of success measures and resources
- Monthly management meetings
 - ▶ Facilitate communications
 - ▶ Identify issues and assign actions

4

License Renewal Principles

- The regulatory process is adequate to maintain safety, with the possible exception of the detrimental effects of aging
- The licensing basis must be maintained during the renewal term

5

Renewal Process

- Focus on aging management and time-limited design analysis
- Draft standard review plan provided aging management program attributes and reasonable review scope

6

Safety Review Milestones

- April 10, 1998 – Received application from BGE
- September 7, 1998 – Complete issuance of staff questions
- December 14, 1999 – Received BGE responses
- February 8-12, 1999 – Scoping/Screening Inspection
- March 21, 1999 – Published SER with open items (OIs) & confirmatory items (CIs)
- April 5-16, 1999 – Aging Management Inspection
- April 28- 29, 1999 – ACRS briefing on SER
- November 16, 1999 – SER closure of OIs & CIs
- November 29, 1999 – Followup Inspection
- December 2, 1999 – ACRS briefing on SER
- December 1999 – Published NUREG-1705

7

Review Results

- Scoping & Screening [§54.4 - SER Chapter 2]
 - ▶ Evaluated applicant's determination of which systems, structures, and components should be within the scope of license renewal
 - ▶ Evaluated applicant's determination of which passive, long-lived structures and components are subject to aging management

8

Review Results - continued

- Aging Management [54.21(a)(3) - SER Chapter 3]
 - ▶ Evaluated applicant's identification of applicable aging effects and proposed programs to manage aging effects to ensure relevant equipment intended functions are maintained

- Time-Limited Aging Analysis (TLAA) [54.21(c) - SER Chapter 4]
 - ▶ Evaluated applicant's methods to determine how analyses with time-limited assumptions have been or will be managed for period of extended operation

Safety Review Highlights

- Many existing programs, including environmental qualification, provide adequate aging management

- Some programs modified to ensure adequate aging management
 - ▶ Plant-specific approach to resolve fatigue

- One-time inspections to resolve potential aging effects or demonstration of program adequacy

- Significant program features listed in Appendix E of the SER to facilitate the FSAR update

Safety Conclusion

- Actions have been or will be taken with respect to managing the effects of aging
- Actions have been or will be taken with respect to time-limited aging analyses
- The staff finds that there is reasonable assurance that the activities authorized by a renewed license will continue to be conducted in accordance with the licensing basis for the CCNPP Units 1 and 2, as revised by the renewal commitments

Environmental Review

- National Environmental Policy Act (NEPA) requires environmental impact statement for major federal actions.
 - ▶ 10 CFR Part 51 implements NEPA
- Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (GEIS)
 - ▶ Category 1 issues (generically resolved)
 - ▶ Category 2 issues (site-specific evaluation)
 - ▶ Uncategorized (site-specific evaluation)
- Calvert Cliffs site specific evaluation, NUREG-1437, Supplement 1

Environmental Milestones

- May 19, 1998 - Notice of Acceptance for Docketing
- June 10, 1998 - Notice of Intent to Prepare EIS/Conduct Scoping
- June 10 - August 7, 1998 - Public Comment Period for Scoping
- July 9, 1998 - 2 Public Scoping Meetings
- July 7 -10, 1998 - Site Visit & Audit
- February 24, 1999 - Draft EIS Issued
- March 5 - May 20, 1999 - Public Comment Period on Draft EIS
- April 6, 1999 - 2 Public Meetings on Draft EIS
- October 5, 1999 - Final EIS Issued

13

Environmental Review Results

- BGE amended its agreement with the Nature Conservancy relative to tiger beetles & set constraints on activities in the vicinity of bald eagle nests
- Public identified a new issue regarding microorganisms that potentially thrive in high-radiation, high-temperature environments
- Severe Accident Mitigation Alternatives (SAMAs)

14

Environmental Impact Conclusion

- The adverse environmental impacts of license renewal for Calvert Cliffs Nuclear Power Plant Unit 1 and Unit 2 are not so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable

15

Inspection Program

Region I Activity

- Determine if scoping and screening, as applied, was consistent with the application and rule
- Determine if the applicant's aging management programs were adequately demonstrated and consistent with the application, rule, and safety evaluation conclusions
- Verify the supporting documentation was auditable

16

Inspection Program

- Using risk insights:
 - ▶ Selected 6 systems and 4 structures excluded by the BGE scoping process
 - ▶ Selected 13 systems and 4 structures to determine the adequacy of the screening
- Reviewed 43 aging mechanisms affecting the selected systems and structures

17

Inspection Conclusions

- BGE appropriately implemented the scoping and screening methodology and established aging management programs
- BGE demonstrated the capability to manage aging effects and retrieve supporting documentation
- BGE aging management programs provide an adequate foundation for renewing the license

18

Overall Conclusion

Staff Recommendation

- The conclusions of the safety review, evaluation of environmental impacts, and inspection verifications support renewal of the licenses for Calvert Cliffs Units 1 and 2
- The staff requests that the Commission authorize the Director of NRR to renew licenses DPR-53 and DPR-69 with expiration dates of July 31, 2034 and August 13, 2036, respectively