UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

OFFICE OF THE SECRETARY

***

BRIEFING ON CALVERT CLIFFS LICENSE RENEWAL

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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

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

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

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

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

COMMISSIONER MERRIFIELD: Mr. Chairman, yes, I would like to join you in commending the staff for what I agree is an outstanding job for the way they have conducted themselves on the Calvert Cliffs license renewal application. I think they have managed the process very well. They worked to have significant stakeholder

involvement and a thorough and timely review.

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

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

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

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

Thank you, Mr. Chairman.

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

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

COMMISSIONER McGAFFIGAN: Mr. Chairman, I will agree with all the other statements and just note that I think Catch is now in, so we do have yet another application

on schedule in, and if Calvert does get approved shortly, we will still have two -- three applications, Oconee, Arkansas Nuclear 1, and Hatch currently under review with more coming in. And the staff has done a great job, but they are not going to be allowed to rest on their laurels.

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

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

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

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

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

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

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

Nuclear Reactor Regulations; and down from Pennsylvania, Brian Holian, who is the Deputy Director of the Division of Reactor Safety in Region I.

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

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

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

Regarding maintaining safety, the staff's review

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

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

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

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

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

And, lastly, I will mention an area of effectiveness and efficiency. Clearly, the GALL and SRP are a key to that. And to this point, we are very comfortable

and pleased, as already has been mentioned, that we have met all the milestones for both Calvert Cliffs and Oconee to date.

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

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

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

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

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

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

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

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

The first principle of license renewal was that, with the exception of certain age-related degradation, the regulatory process is adequate to ensure that the licensing basis of all currently operating plants provides and

maintains an acceptable level of safety. That was very important for us because it established the focus that we needed to establish discipline in the review process.

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

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

managed for the period of extended operation.

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

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

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

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

ensure accountability. Monthly management meetings to

communicate issues and to assign responsibility for actions, and accountability to ensure that all the milestones were met.

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

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

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

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

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

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

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

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

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

Chapter 2 of the SER documents the staff's

evaluation of BG&E;'s determination of which systems,

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

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

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

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

adequate aging management.

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

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

The next significant area of the SER was the evaluation of the time-limited aging analyses discussed in Chapter 4. In this chapter, staff evaluated BG&E;'s methods to determine how analyses with time-limited assumptions have been or would be managed for the period of extended operation. Time-limited aging analyses included pressure temperature limits for the reactor coolant system, various fatigue analyses which assume a number of cycles over a life

period and environmental qualification, which establishes a qualified life for each electrical component.

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

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

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

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

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

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

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

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

Second, actions have been identified and have been or will be taken with respect to time-limited aging analyses

that have been identified to require review under 54.21(c). Therefore, the staff finds there is reasonable assurance that the activities authorized by a renewed license will continue to be conducted in accordance with the current licensing basis for the Calvert Cliffs Nuclear Power Plants, Units 1 and 2, as modified by the renewal program changes.

And with that, those are my remarks. Tom.

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

I am the Environmental Project Manager on Calvert Cliffs.

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

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

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

site-specific evaluation of the issues.

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

Can I have the next slide, please? During the review period, the staff visited the site and provided members of the public with two opportunities for public interaction. The first comment period began at the beginning of the review while the staff was trying to determine the scope of its environmental review. The second

comment period occurs after the Draft Environmental Impact Statement was issued to allow members of the public to comment on our review.

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

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

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

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

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

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

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

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

As part of its review, the staff also takes a look

at the severe accident mitigation -- severe accident design alternatives, and concluded that BGE made a reasonable effort to try to identify and evaluate these design alternatives.

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

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

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

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

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

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

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

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

other.

The bullets on your slide, on the first slide, summarize the objectives of the first two inspections, and these were based on the inspection procedure for license renewal. The first inspection, which was a week long, focused on scoping and screening. Scoping was evaluating

the systems and structures excluded from the scope of license renewal and the screening process was sampling from a scoped-in system what components are included in the age management assessment.

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

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

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

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

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

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

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

In addition to a documentation review of the paper work that BG&E; had developed for analyzing these aging mechanisms, comprehensive system walkdowns were performed

during this inspection, and it was crucial that this was done during an outage time to avail themselves to containment. Region II inspection, they went back and looked during an outage time to pick up those portions of the system that were inside containment.

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

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

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

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

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

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

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

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

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

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

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

complement that activity.

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

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

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

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

CHAIRMAN MESERVE: Yes, license renewal process.

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

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

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

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

the GALL.

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

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

CHAIRMAN MESERVE: Thank you very much.

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

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

CHAIRMAN MESERVE: Commissioner Dicus.

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

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

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

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

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

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

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

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

COMMISSIONER DICUS: Okay.

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

COMMISSIONER DICUS: Okay. So you are comfortable

with this?

MR. GRIMES: That is correct.

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

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

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

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

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

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

CHAIRMAN MESERVE: Commissioner Diaz.

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

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

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

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

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

MR. GRIMES: I would say that the aging of cable insulation is one where we are pursuing, we are looking at the results of the Davis-Besse event and determining whether or not we should pursue more research in that area. And that is something that Mr. Strosnider and Mr. Mayfield both

have been quite helpful in the renewal process in terms of guiding the decision-making on what constitutes an acceptable aging management program.

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

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

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

[Laughter.]

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

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

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

I am sorry, Karen.

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

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

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

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

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

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

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

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

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

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

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

COMMISSIONER DIAZ: Okay. Thank you.

CHAIRMAN MESERVE: Mr. McGaffigan.

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

[Laughter.]

COMMISSIONER McGAFFIGAN: December 18th, 1996, the rule was effective.

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

COMMISSIONER McGAFFIGAN: So we let it slip past us.

COMMISSIONER DIAZ: I have a very convenient memory.

[Laughter.]

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

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

CHAIRMAN MESERVE: They weren't on the Commission.

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

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

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

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

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

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

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

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

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

And Baltimore Gas & Electric has already undertaken to start implementing those alternatives that they found to be cost beneficial without -- irrespective of the issue of averted onsite cost. But when I spoke with Rich Barrett about the status of their review, the first thing the staff wants to do is to understand whether or not

these things are modeling differences that might have generic implications before we would then pursue in a formal way a backfitting decision to determine whether or not we feel that these, with the consideration of averted onsite costs, it is worth requiring that these changes be made.

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

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

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

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

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

MR. GRIMES: In the GEIS?

COMMISSIONER McGAFFIGAN: In the GEIS rulemaking back in '86?

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

MR. KENYON: Mr. Barry Zalcman from the staff.

MR. ZALCMAN: My name is Barry Zalcman, Chief of the Environmental Financial Section in NRR. The efforts to undertake that rulemaking began in the late 1980s and had significant involvement, significant workshops during the scoping process, as well as during the actual rulemaking process. It involved not only interactions with the public

but other stakeholders, Environmental Protection Agency, Council on Environmental Quality as well. So there was a big effort.

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

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

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

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

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

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

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

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

COMMISSIONER McGAFFIGAN: Sure.

MR. STROSNIDER: It helps to understand a little bit about how these vessels were fabricated and what was

going on during the fabrication process. They are fabricated from rolled plates that are welded into rings and then welded into a cylinder. And if you can turn back the clock about 30 years or so when these vessels were on the floor of the vendors' shops, there was essentially an assembly line of reactor vessels in various stages of fabrication. So on any given day, there would be welds being made in three or four different reactor vessels. And when they went to the supply room to get the weld material, that weld would end up in three or four different reactor vessels.

The weld material that is in the Calvert Cliffs

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

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

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

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

COMMISSIONER McGAFFIGAN: I appreciate that, I think that is a very good explanation, trying to match Lochbaum, which is almost impossible. It sounds like getting your spleen removed on the advice of the doctor. If your twin has had previous problems with -- identical twin

has previous problems with that spleen, you might want to have your spleen removed if you are showing similar symptoms. But that is a poor imitation of David, and I apologize to him. But I appreciate the explanation.

CHAIRMAN MESERVE: Commissioner Merrifield.

COMMISSIONER MERRIFIELD: Thank you, Mr. Chairman.

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

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

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

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

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

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

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

renewals?

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

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

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

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

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

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

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

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

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

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

actually took an effort within NRR to reconstruct an environmental organization. So we have an organization in

NRR today, but, as Roy indicated, we do rely upon resources, predominantly the national laboratories, and have developed over time their expertise to assist us in these reviews, in developing the staff guidance, the Environmental Standard Review Plan as well. They have participated, and we were very effective, we believe, in the conduct of our effort because of our interactions.

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

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

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

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

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

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

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

Let me turn to my colleagues for any closing statements.

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

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

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

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

Thank you, Mr. Chairman.

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

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