

December 22, 1995

ORGANIZATION: Baltimore Gas and Electric

SUBJECT: SUMMARY OF MEETING BETWEEN THE NRC STAFF AND BALTIMORE GAS AND ELECTRIC TO DISCUSS THE REQUEST FOR INFORMATION ON INTEGRATED PLANT ASSESSMENT METHODOLOGY REPORT

On December 6, 1995, the Nuclear Regulatory Commission (NRC) staff met with representatives of Baltimore Gas and Electric (BG&E) in Rockville, Maryland, to discuss BG&E's proposed responses to the staff's request for additional information (RAI), dated November 16, 1995. The staff's RAIs resulted from its ongoing review of the Calvert Cliffs Integrated Plant Assessment Methodology that was submitted on August 18, 1995. A list of meeting attendees is provided in Attachment 1. BG&E presented, in table format, their intended responses to the 40 questions contained in the staff's November 16 RAI. Attachment 2 contains a copy of BG&E's draft response table. In addition to the draft response table, BG&E also provided additional supporting information. This information (Calvert Cliffs Nuclear Power Plant-Supporting Information for BG&E License Renewal Discussions, December 6, 1995) is available in the NRC public document room.

In addition to the proposed revisions contained in Attachment 2, BG&E agreed to consider revising Section 7 to remove aging management conclusions consistent with a methodology review and to revise Section 6 to address the staff's concern regarding the requirement that aging management programs maintain structure and component function under CLB design conditions; that a license renewal applicant provide a demonstration in an application that the effects of aging are managed; and to describe how generic safety issues will be addressed.

The staff expressed that it would need to see the actual revisions to the methodology before closure could be reached on the RAIs. The staff stated that it still had to consider whether the BG&E methodology would provide sufficient level of detail in a license renewal application regarding the consideration of aging effects. Additionally, the staff stated that the BG&E proposed process for addressing time-limited aging analyses was still being considered.

Original signed by
John P. Moulton, Project Manager
License Renewal and Environmental Review
Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-318, 50-319

- Attachments:
1. List of Meeting Attendees
2. Meeting Materials

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WASHINGTON, D.C. 20555-0001

December 22, 1995

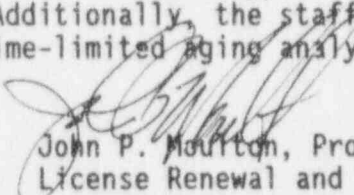
ORGANIZATION: Baltimore Gas and Electric

SUBJECT: SUMMARY OF MEETING BETWEEN THE NRC STAFF AND BALTIMORE GAS AND ELECTRIC TO DISCUSS THE REQUEST FOR INFORMATION ON INTEGRATED PLANT ASSESSMENT METHODOLOGY REPORT

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License Renewal and Environmental Review
Project Directorate
Division of Reactor Program Management
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Attachments:

1. List of Meeting Attendees
2. Meeting Materials

cc: See Service List

Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2

cc:

Ms. Mary Krug, President
Calvert County Board of
Commissioners
175 Main Street
Prince Frederick, Md 20678

D. A. Brune, Esquire
General Counsel
Baltimore Gas and Electric Company
P.O. Box 1475
Baltimore, MD 21203

Jay E. Silberg, Esquire
Shaw, Pittman, Potts and Trowbridge
2300 N Street, NW
Washington, DC 20037

Mr. Terrence J. Camilleri, Director,
NRM
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

Resident Inspector
c/o U.S. Nuclear Regulatory
Commission
P.O. Box 287
St. Leonard, MD 20685

Mr. Richard I. McLean
Administrator - Radioecology
Department of Natural Resources
580 Taylor Avenue
Tawes State Office Building
B3
Annapolis, MD 21401

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Joseph H. Walter, Chief Engineer
Public Service Commission of
Maryland
Engineering Division
6 St. Paul Centre
Baltimore, MD 21202-6806

Kristen A. Burger, Esquire
Maryland People's Counsel
6 St. Paul Centre
Suite 2101
Baltimore, MD 21202-1631

Patricia T. Birnie, Esquire
Co-Director
Maryland Safe Energy Coalition
P.O. Box 33111
Baltimore, MD 21218

Mr. Robert E. Denton
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

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MEETING WITH BALTIMORE GAS AND ELECTRIC

Discussion of the Staff's Request for Additional Information
dated November 16, 1995 re. Integrated Plant Assessment Methodology

December 6, 1995

ATTENDANCE LIST

NAME	AFFILIATION
John P. Moulton	NRC/NRR/DRPM/PDLR
Raj Anand	NRC/NRR/DRPM/PDLR
Steve Hoffman	NRC/NRR/DRPM/PDLR
Bob Prato	NRC/NRR/DRPM/PDLR
Richard E. Johnson	NRC/RES/EMMEB
Steve Reynolds	NRC/NRR/DRPM/PDLR
Paul Shemanski	NRC/NRR/DRPM/PDLR
Sam Lee	NRC/NRR/DRPM/PDLR
B.W. Doroshuk	BGE
Barry Tilden	BGE
Mova Bowman	BGE
Tricia Heroux	for EPRI
David Lewis	Shawn Pittman
James P. Bennett	BGE
Alice Carson	Bechtel
Bob Borsum	BWNT
Winston Liu	NRC/NRR/DRPM/PDLR
Goutam Bagchi	NRC/NRR/DE/ECGB
John M. Osborne	BGE-Nuclear Regulatory Matters
Scott Flanders	NRC/NRR/DRPM/PDLR
H.L. Brammer	NRC/NRR/DE/ECGB
Francis Akstulewicz	NRC/NRR/DRPM/PDLR
Scott Newberry	NRC/NRR/DRPM/PDLR
Sam Lee	NRC/NRR/PDLR
Paul Shemanski	NRC/NRR/PDLR

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHODOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
<p>1. <u>General</u>: CLARIFY WHAT PARTS OF THE PREVIOUS IPA SUBMITTAL are relied on in this IPA methodology or are the same in this methodology? ALSO, CLARIFY HOW and where in this methodology BG&E addresses the open and confirmatory items from the previous DSER if it is relied on.</p>	None	<p>The attached tables indicate where the resolution is to each of the 1993 RAIs in the August 1995 version of the methodology and how the section numbering of the 1993 submittal is related to the sections in the 1995 submittal.</p>
<p>2. <u>General</u>: Documentation: The methodology makes reference to the need to document the results of the analysis or screening steps. However, the degree of documentation or elements of documentation that will be prepared are not discussed in any substantive form. PROVIDE ADDITIONAL DETAIL ON HOW THE RESULTS WILL BE DOCUMENTED.</p>	Yes	<p>The Rule does not require that the results of scoping be submitted to the NRC. The first submittal product of the IPA is the list of structures and components subject to aging management review per 54.21(a)(1). Therefore, BGE does not believe it is appropriate to describe in this methodology the format of the scoping results. These results will be maintained on site in an auditable and retrievable format.</p> <p>The documentation of the results of the Pre-Evaluation, Aging Management Review, and Commodity Evaluation steps are located in Sections 5.5, 6.4 and 7.3 respectively. The documentation of TLAA results are discussed in Section 8.4 which is entitled "Summary." The title of this section will be revised to be consistent with the titles to other sections of the methodology which describe documentation.</p>
<p>3. <u>General</u>: Operating Experience/Generic Communication/Industry Topical Reports: The methodology mentions the importance of operating experience yet it does not demonstrate how and where consideration of such operating experience is to occur. Such operating experience may be relevant in the identification of aging effects that should be managed and the identification of non-safety systems that can impact a safety system. PROVIDE ADDITIONAL INFORMATION as to when and how operating experience is considered in the IPA. Further, EXPLAIN HOW EXISTING PROGRAMS resulting from responses to NRC generic communications would be factored into the IPA.</p> <p>Additionally, the report indicates that industry documents are reviewed for potential ARDMs. Sampling information in Appendix A found that BG&E has referenced the Nuclear Management and Resources Council (NUMARC) industry report on the pressurized water reactor (PWR) vessel internals for renewal in the second example, "Reactor Coolant System." However, BG&E did not reference the NUMARC industry report on the PWR containment in</p>	None	<p>We utilize operating experience throughout the scoping and IPA process. The method of using this experience is a reliance on the site process which incorporates operating experience into all aspects of plant documentation, maintenance and operation, currently proceduralized in NS-1-100 (attached). No special verification of such experience is needed for scoping or the IPA.</p> <p>In the actual LRA submittals, more effort will be taken to ensure consistent use of references from section to section.</p>

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHODOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
<p>the first example, "Containment."</p> <p>The information on page 4-2 (Section 4.3 of Appendix A) is referenced from the NUMARC industry report on the internals. However, sampling the potential ARDMs discussed, the staff found several unresolved items from the staff review of the subject industry report that are identified as not significant in the BG&E example, such as stress corrosion cracking and creep (core shroud assembly).</p> <p>The information on page 3-1 through 3-5 (Section 3.1 of Appendix A) is not referenced from the NUMARC industry report on the containment. However, sampling the potential ARDMs discussed, the staff found differences in information between the BG&E report and the NUMARC report, such as aggressive chemical attack on concrete and inaccessible areas. These differences should be discussed.</p> <p>DISCUSS THE USE OF INDUSTRY DOCUMENTS such as the NUMARC industry reports for renewal. Also, discuss how BG&E assesses whether it is within the bounds of these reports.</p>		<p>We use the industry reports as a source of information much the same as EPRI reports and NPAR reports. In some cases, one or more of the generic conclusions of these reports do not apply to specific Calvert Cliffs structures and components. In these cases, the non-applicable report would <u>not</u> be referenced for the corresponding conclusion in the detailed Aging Management Review Report and other more pertinent information sources would be used to make the required demonstration. Because of this, BGE does not believe that it is appropriate to describe how industry reports will be used in the methodology. It is not necessary to describe in the methodology, the aging management reports or the license renewal application each instance where a conclusion in an industry reference such as an IR does not apply to Calvert Cliffs equipment.</p>
<p>4. <u>General</u>: The phrase "maintain the pressure boundary" is used repeatedly. WHAT IS THE CRITERIA USED TO DETERMINE when the pressure boundary is not maintained. Is there a difference between maintaining pressure boundary integrity and maintaining pressure boundary?</p>	None	<p>Criteria for maintaining a system pressure boundary vary from system to system and will be presented and documented on a system by system basis. We intended no difference between the term "pressure boundary" and "pressure boundary integrity" in this methodology. The terms are used interchangeably.</p>
<p>5. Page 7. For the definition of "passive" REPLACE "does not require motion" with "is performed without moving parts."</p>	Yes	<p>BGE will make the requested change to the methodology</p>
<p>6. Page 12, Section 2.3.4 states that "techniques provide an equivalent level of assurance." WHAT IS THE PURPOSE IN ASSURING THAT ALL TECHNIQUES PROVIDE EQUIVALENT ASSURANCE. HOW DOES THIS ASSURE THAT THE EVALUATION TECHNIQUES ARE TO PROVIDE the necessary evidence that the findings of 54.29 can be supported?</p>	None <i>ch</i>	<p>All techniques presented in the methodology provide the demonstration necessary to support the finding of 54.29. The IPA approach described in Sections 3 - 6 is related <u>directly</u> to the requirements of the LR Rule in these sections of the methodology to show that these requirements are met. For the alternate process steps shown in Section 7, the methodology shows that the demonstration is equivalent to the normal process</p>

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHODOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
		described in sections 3 - 6 and therefore also meets the requirements of the LR Rule.
<p>7. Page 19, Section 3.3.1.1 states, "By relying on the Q-List Accident Shutdown Flow Sheets and Vital Auxiliaries Flow Sheets, SR SSs are identified, as well as all SSs that could fail and prevent the functioning of SR SSCs. This identification is not limited to first level, second level or any specific level of support equipment. Rather, the scoping is performed consistent with the CCNPP Q-List Design Standard which was developed with the intent of identifying and controlling a similar scope of SSCs to that defined by the first two criteria of 54.4." This statement indicates that the Vital Auxiliaries Flow Sheets in the Q-List have identified all non-safety related SSCs whose failure could prevent satisfactory accomplishment of any of the functions identified in 54.4(a)(1).</p> <p>The Open Item in the DSER questioned how the previous methodology would identify a non-safety-related SSC that provides supporting functions to another non-safety-related SSC that is required for a safety-related SSC to perform its function. PROVIDE A DISCUSSION OR AN EXAMPLE FROM THE VITAL AUXILIARIES FLOW SHEETS IN THE Q-LIST to show that a non-safety-related SSC that provides supporting functions to another non-safety-related SSC that is required for a safety-related SSC to perform its function would be identified as within the scope of license renewal.</p>	None	<p>As stated in the methodology, the BGE Q List controls all SSCs which meet 54.4(a)(1) and (2) as "safety related" at Calvert Cliffs. It makes no distinction between the SSC which satisfy criterion 54.4(a)(1) versus (2). Therefore, any example provided is controlled as safety related at Calvert Cliffs.</p> <p>We do not believe that including an example in the methodology that fits the situation described in this RAI would provide any additional clarification of how the scoping is conducted.</p> <p>The following example is provided for your information. Note that all four levels of cascading are controlled as safety related at Calvert Cliffs.</p> <p>A certain HVAC unit is a safety related vital auxiliary because it maintains the environment in the control room and cable spreading room so that the reactor protection system and ESFAS system can perform their required safety functions. The electrical cables and panels which supply power to these units are also included in the scope of license renewal because their failure would prevent the operation of the HVAC units which in turn could prevent the operation of the RPS and ESFAS systems.</p>
<p>8. Page 20, Section 3.3.2 states, "These evaluations are reviewed to identify SSs that are relied on to mitigate the subject plant event as well as any systems or structures whose failure would result in failure of other equipment to mitigate the particular event." PROVIDE A DISCUSSION OR AN EXAMPLE to show that a non-safety-related system or structure that provides supporting functions to another non-safety-related system or structure that is relied on to meet the regulated events in 54.4(a)(3) would be identified as within the scope of license renewal.</p>	None	<p>We do not believe that including an example in the methodology that fits the situation described in this RAI would provide any additional clarification of how the scoping is conducted.</p> <p>The following example is provided for your information. Note that both levels of cascading are non safety-related.</p> <p>The diesel driven fire pump is required under 10 CFR 50.48. The description of how this pump must function to comply with this regulation includes the requirement to provide diesel fuel for the pump. Therefore, the diesel fuel oil system piping which provides</p>

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHODOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
		the fuel oil to this pump is included within the scope of license renewal.
9. Page 31, Section 4.1.1 discusses system intended functions. However, it does not contain details of the CLB design loading conditions under which the system is required to function. A system may be required to have structural integrity under normal, upset, emergency, and faulted conditions in accordance with the CLB. For example, a system may be required to withstand a seismic event while another system, such as the fire protection shutdown system installed to ensure post-fire shutdown capability (Paragraph II.L.6 of Appendix R), may not be required to withstand a seismic event. The difference in the intended function based on the design conditions between these two systems could affect the aging management program for renewal. Thus, THE CLB DESIGN LOADING CONDITIONS SHOULD BE IDENTIFIED AND SUBSEQUENTLY TRANSFERRED TO THE STRUCTURE AND COMPONENT INTENDED FUNCTIONS FOR CONSIDERATION in developing aging management programs, as appropriate.	None	The definition of intended function in 54.4(b) does not include any reference to design conditions under which a system must perform its intended function. Therefore, BGE believes that this RAI requests information not identified during the scoping step. As discussed further in subsequent RAI responses, we believe that the appropriate place to factor in the design conditions is during the assessment/analysis phase of the aging management strategy. During this phase, the effects of aging are assessed to determine whether they impact the ability of the structure or component to fulfill its intended function during all of the required conditions.
10. Page 31, Section 4.1.1 discusses system intended functions. IT SHOULD INCLUDE A DISCUSSION RELATING TO REDUNDANCY, DIVERSITY, AND DEFENSE-IN-DEPTH. Where the plant's licensing basis includes requirements for redundancy, diversity, and defense-in-depth, the system intended functions include providing for the same redundancy, diversity, and defense-in-depth during the period of extended operation. For example, a system with two independent trains, according to the plant's CLB, has to perform the intended functions by each independent train.	None	The BGE methodology for scoping systems and structures does not recognize redundancy, diversity or defense in depth as functions. In addition, the BGE process does not allow exclusion of any SSCs based on redundancy, diversity or defense in depth arguments. Therefore, the suggested discussion is not needed in the methodology.
11. Page 31, Section 4.1.1 pressure boundary function SHOULD INCLUDE: (1) structural integrity under CLB design loading conditions, and (2) General Design Criterion 19, "Control Room," in addition to Part 100 when discussing adequate radiation protection.	Yes	The current definition of pressure boundary is quoted directly from the Calvert Cliffs Q List Design Standard and BGE does not see the need to modify this definition for license renewal. Safety related equipment must perform their intended functions as described in the CLB. A statement to this effect will be added to the first paragraph in Section 4.1.1.
12. Page 39, Section 4.3 shows the commodity groups. ARE CABLE TRAYS	None	Cable trays are in the component supports commodity evaluation.

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHODOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
CONSIDERED PART OF A SPECIFIED COMMODITY GROUP?		
13. Page 42, Sections 5.1.1 and 5.1.2, REPLACE the word "motion" with "moving parts".	Yes	We will make the requested change to the methodology.
14. Page 43, Section 5.2, Determination of Long-lived: Replacement on performance or condition. The rule does not allow structures and components to be determined to be short-lived (not long-lived) based on a condition monitoring program. The portion of the SOC that is referenced on page 43 is intended to clarify the agency's position that structures and components are considered long-lived if they are subject to a condition monitoring program (and not subject to a replacement based on a qualified life or specified time period) and that these structures and components are subject to an aging management review. Additionally, the SOC indicates that an applicant can use replacement programs based on performance or condition that provides reasonable assurance that the functionality of that structure or component will be maintained. THIS SECTION NEEDS TO BE REVISED TO BE IN COMPLIANCE WITH THE RULE OR A DISCUSSION NEEDS TO BE PROVIDED AS TO HOW THIS WOULD SATISFY THE REQUIREMENTS OF THE RULE. Additionally, it is not clear what site documentation will be available that justifies that the three criteria of Table 5-1 are met. PROVIDE ADDITIONAL INFORMATION EXPLAINING THE SITE DOCUMENTATION that will exist for these determinations and the level of detail in this documentation.	Yes	The replacement on condition steps of Section 5.2 resulted from a BGE misinterpretation of the SOC (60FR22478). We will move the discussion of replacement on condition to Section 6 (including Table 5-1) and characterize these steps as another approach to performing an aging management review without specifically addressing age-related degradation mechanisms. The BGE process will continue to eliminate specific consumable subparts of components from the aging management review because these consumables are replaced regularly (e.g. packing, O-ring seals, gaskets and air filters). Based on the above change, the documentation to support this step will be changed to be consistent with the aging management review process documentation.
15. Page 50, Section 6.1.1 indicates that the pressure-retaining components in the diesel generator supporting equipment would be managed by the diesel generator performance and condition monitoring program. The staff does not believe that the performance and condition monitoring program ensures the structural integrity of these pressure-retaining components under CLB design loading conditions during the period of extended operation. PROVIDE ADDITIONAL DISCUSSION TO DEMONSTRATE HOW STRUCTURAL INTEGRITY UNDER DESIGN LOADS IS ADDRESSED BY THE PERFORMANCE AND CONDITION	Yes	The ability of SCs to perform their intended functions under all design conditions should be addressed during the assessment/ analysis phase of the aging management program after the effects of aging are discovered. We agree that the discovery techniques available through performance and condition monitoring <u>may</u> require additional supporting evaluations or inspection to ensure that degradation of pressure retaining components is discovered in a <u>timely manner</u> . In these cases, BGE would develop a

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHODOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
MONITORING PROGRAM.		sampling inspection of selected pressure retaining components. The inspection would be conducted prior to the period of extended operation to discover aging effects that might impact the intended functions under design conditions. The extent of follow-on inspections and/or other activities will be determined based on the results of the sampling inspections.
16. Page 50, Section 6.1.1. In addition to the diesel generator supporting equipment, WHAT OTHER COMPLEX ASSEMBLIES whose only passive function is closely linked to active performance have been identified?	None	This process was also applied to the refrigerant loops of the Control Room HVAC System and the Aux Building and Rad Waste HVAC System.
17. Page 51, Section 6.1.1, Criteria for use of performance and condition monitoring of complex assemblies as adequate aging management for passive function. One of the criteria is that the "complex assembly" be covered by the maintenance rule. PROVIDE SPECIFIC EXAMPLES THAT DEMONSTRATE THE USE OF THIS CRITERION. INCLUDE THE TECHNICAL BASIS for how the passive functions of that "complex assembly" would be preserved by existing maintenance rule programs.	Yes	The BGE methodology does not rely on the Maintenance Rule alone to manage the effects of aging. The methodology includes the Maintenance Rule as one factor among many, in providing the required demonstration. The contribution of the Maintenance Rule to the IPA demonstration is primarily that the existing performance and condition monitoring programs would have a regulated mechanism which would require periodic assessment of their effectiveness and would lead to improvements in the programs if needed. The methodology will be changed to clarify that the bullets on page 51 describe the circumstances when this approach should be applied, not the steps of the approach itself.
18. Page 51, Section 6.1.2 discusses component assemblies subject to refurbishment. It is not clear how the proposed approach addresses the pressure boundary function. For example, page 52 states, "The assembly components and subcomponents are inspected for signs of aging and other degraded conditions." WORDS LIKE "INCLUDING THE PRESSURE-RETAINING BOUNDARY" SHOULD BE INSERTED AFTER THE WORD "SUBCOMPONENTS" in this statement to indicate that the inspection includes looking for degradation in the pressure-retaining boundary. In addition, page 52 states, "The component assembly's intended functions are tested after the refurbishment." CLARIFY THIS STATEMENT because the intended functions are to be performed under CLB design loading conditions which may be difficult to simulate in a test.	Yes	We will add "including pressure boundary" as requested to the cited section of the methodology. The refurbishment activity specifically includes a direct visual observation of the effects of aging and includes a post refurbishment performance test consistent with current industry practices and the CLB.

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHC DOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
<p>19. Page 52, Section 6.1.3, Long-Lived EQ components</p> <p>This section states that components having an EQ life of greater than 40 years are adequately managed by the EQ program. This is not an acceptable argument. PROVIDE THE RATIONALE TO BE USED TO DEMONSTRATE FURTHER QUALIFICATION OF THESE COMPONENTS for the extended period of operation. For example, how will the qualification of cables for the additional period of service life be demonstrated?</p> <p>Additionally, this section states that the EQ program requires that the component be reanalyzed to extend the qualified life. THE NRC WILL GENERALLY NOT ACCEPT ANALYSIS IN LIEU OF TESTING to determine the qualified life of components. Any one of the four methods in 50.49(f) is acceptable to extend the qualified life of a component.</p>	Yes	<p>The portions of the long-lived EQ components which are covered by the EQ program (organic materials) will be identified as a TLAA and evaluated as a TLAA. (See response to RAI 36). The options for addressing this TLAA are discussed further in the BGE response to RAI 40.</p> <p>The portions of the long-lived EQ program which are not covered by the EQ program (e.g. valve bodies of solenoid valves) will be addressed in a separate IPA report which addresses the effects of aging using the process described in Section 6.2 of the methodology.</p> <p>Section 6.1.3 will be changed consistent with the above discussion.</p>
<p>20. Page 55, Section 6.2.3 indicates that the rationale for designating whether each ARDM is applicable or not is maintained onsite. This assessment is part of the aging review and SHOULD BE DISCUSSED AS PART OF THE RENEWAL APPLICATION to demonstrate how the requirements of 54.21(a)(3) are being met.</p>	None	<p>BGE believes that the level of detail requested in this RAI is not required to be included in the LRA by the Rule and accompanying SOC. The SOC (60FR 22479) states only that "the demonstration must include a description of activities, as well as any changes to the CLB and plant modifications that are relied on to demonstrate that the intended functions will be adequately maintained despite the effects of aging in the period of extended operations." The requested rationale will be available on site for detailed review by NRC Staff and for the use of plant personnel.</p>
<p>21. Page 55, Section 6.3.1 states, "The first phase of a maintenance strategy is identification that detrimental effects of aging are or could be occurring." THE DISCUSSION ON "DISCOVERY" TO THE STRUCTURE AND COMPONENT INTENDED FUNCTIONS UNDER CLB DESIGN LOADING CONDITIONS. For example, a phrase like "affecting the structure and component intended functions under CLB design loading conditions" could be inserted after the word "aging" in the above statement. The remainder of the text should also be revised accordingly, such as Sections 6.3.2 and 6.3.3. This would avoid relying on inspections that would not discover aging effects before a loss of intended function under a CLB design load.</p>	None	<p>We believe that the ability of SCs to perform their intended functions under all design conditions should be addressed during the <u>assessment/analysis</u> phase of the aging management program after the effects of aging are discovered. This approach is consistent with the current functional evaluation and operability determination procedures (NO-1-106 attached) used at BGE for maintaining equipment functionality. Once the effects are discovered, a determination will be made of their impact on the ability of the affected components to perform their intended functions under CLB conditions.</p>

REQUEST FOR ADDITIONAL INFORMATION ON THE BG&E IPA METHODOLOGY

NRC Comment	Meth. Changes	BGE Response - DRAFT -
<p>22. Page 55, Section 6.3.1 discusses "Discovery." DOES THE METHODOLOGY CALL FOR THE SPECIFIC FREQUENCY of the associated activities, such as inspections, to be described in the renewal application?</p>	None	<p>The methodology does not require inclusion of this level of detail in the license renewal application. Such information is available, where appropriate, in controlled documents maintained on site.</p>
<p>23. Page 55, Section 6.3.1 states, "Monitoring and evaluating industry experience also serves as a discovery activity for managing aging since other plants may discover aging effects before CCNPP." Page 60 (Section 6.3.3.5) states, "Monitoring plant and industry experience therefore provides reasonable assurance that these ARDMs will be discovered before they severely affect intended functions at CCNPP." THIS IS NOT CONSISTENT WITH THE REQUIREMENTS OF THE RENEWAL RULE.</p> <p>The statements of consideration accompanying the renewal rule explicitly addresses how aging related Generic Safety Issues and Unresolved Safety Issues, that is, those being tracked in NUREG-0933, will be treated in renewal (60 FR 22484). However, for other applicable aging effects, the applicant is expected to provide a demonstration that the effects of aging will be adequately managed to ensure the intended function for renewal. Monitoring industry experience to manage aging for renewal is similar to relying on the regulatory process to manage aging for renewal, which was a proposal considered during rulemaking to revise the rule but was not adopted in the final rule.</p> <p>Industry operating experience is important in identifying potential aging effects for evaluation in a renewal application. However, a renewal applicant cannot rely solely on monitoring future industry development in lieu of proposing adequate aging management programs in the renewal application. As permitted by the renewal rule, a licensee can modify the aging management programs for renewal to take advantage of future industry development following the requirements of 50.59 or 50.92 if the program is addressed by a technical specification or license condition.</p> <p>DELETE THIS OPTION AS AGING MANAGEMENT FROM THE METHODOLOGY.</p>	None	<p>As stated in the methodology, this is a technique used for "unknown, emerging and hypothetical ARDMs ..." It is not appropriate to take any other actions to manage such aging mechanism unless and until the need for other actions is demonstrated and what actions would be effective are determined. We believe that this technique for managing such aging mechanisms does meet the requirements of the Rule and is the only reasonable technique under these circumstances. We will not eliminate this option from the methodology.</p>

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<p>24. Page 55, Section 6.3.1 discusses "Assessment/Analysis." DISCUSS HOW THE STRUCTURE AND COMPONENT INTENDED FUNCTION UNDER CLB DESIGN LOADING CONDITIONS would be factored into the assessment/analysis. Also, VERIFY THAT THE ACCEPTANCE CRITERIA would be included in the renewal application.</p>	Yes	<p>During the assessment/analysis phase of the maintenance strategy, the need for and the nature of required corrective actions are based on the effects of aging that are discovered and their impact on the ability of the component to perform its intended function under all design conditions. (This a currently a requirement of site procedures (NO-1-106)). The following statement from NO-1-106 will be added to Section 6.3.1(2) - "A safety or safety support system shall be capable of performing its specified safety function for accident prevention and/or mitigation as described in the CLB."</p> <p>With respect to whether the acceptance criteria are included in the LRA, the methodology does not require inclusion of this level of detail in the license renewal application. Such information is available, where appropriate, in controlled documents maintained on site.</p>
<p>25. Page 56, Section 6.3.1 discusses "Corrective Action." IT SHOULD ALSO INCLUDE ROOT CAUSE DETERMINATION AND CORRECTIVE ACTIONS to preclude recurrence.</p>	Yes	<p>We will revise the methodology to clarify that such activities are already required under site procedures (QL-2-100) in accordance with 10 CFR 50 Appendix B.</p>
<p>26. Page 58, Section 6.3.3.1 discusses plant programs relied on for renewal. It indicates that the inservice inspection program is one of the programs. Sampling the examples in Appendix A of the report found that the specific edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI inservice inspection program proposed for renewal is not identified. Because the ASME Section XI program can vary with code editions, REVISE THE METHODOLOGY TO HAVE SPECIFIC CODE EDITIONS IDENTIFIED FOR RENEWAL PROGRAMS BEING EVALUATED.</p> <p>Also DISCUSS HOW THE METHODOLOGY WOULD ENSURE the reliability of ultrasonic examinations as described in Appendix VIII of the ASME Section XI code.</p>	Yes	<p>We will revise the methodology to require the specific edition to an industry code to be included in the LRA where the code is credited as part or all of the aging management program.</p> <p>It is not appropriate to address the reliability of any specific program in the methodology. As stated in Section 6.4, BGE will demonstrate the adequacy of any credited aging management program in the specific system, structure or commodity aging management report, not in the methodology.</p>

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27. Page 58, second paragraph. DEFINE THE CONTENT OF A "CONDITION MONITORING" PROGRAM as discussed in this paragraph.	None	We believe the phrase is already well understood in the industry and needs no further definition in our methodology. Several examples of condition monitoring programs are included in Table 6-1 (e.g. eddy current testing, vibration monitoring, thermography...).
28. Page 58, fifth paragraph. The report states that the LRA could include a commitment to implement a program or modification at an appropriate future date before or during the extended period of operation. THE REPORT SHOULD REFLECT THAT FOR PROGRAMS or modifications delayed until sometime during the extended period of operation and after the initial licensed term, a justification must be provided that the aging effects will be managed (or does not require management) until such implementation. Additionally, THE REPORT SHOULD BE REVISED TO STATE THAT THE IMPLEMENTATION DATE OF FUTURE PROGRAMS OR MODIFICATIONS WILL BE SPECIFIED IN THE LRA.	Yes	<p>The methodology will be modified to clarify that justification must be provided for actions which will not be taken until after the beginning of the period of extended operations.</p> <p>With respect to implementation dates of future activities, the methodology does not require inclusion of this level of detail in the license renewal application. Such information is available, where appropriate, in controlled documents maintained on site.</p>
29. Page 59, Section 6.3.3.2 indicates that aging management could rely on less formal activities, such as plant tours by managers. PROVIDE EXAMPLES ON HOW SUCH INCIDENTAL ACTIVITIES can be relied on to manage aging to ensure intended functions.	Yes	The methodology will be revised to clarify that such techniques are intended to be complementary to other activities such as one-time inspections and represent a defense in depth approach to aging management. These less formal activities are recognized in observing plant operation and identifying degraded conditions in Generic Letter 91-18.
30. Page 60, Section 6.3.3.4, One-time inspections		
a) THE REPORT NEEDS TO BE MODIFIED TO INCORPORATE THE FOLLOWING. Where applicable, the staff will require that any proposed one-time inspections be performed before the end of the initial 40 year license. In this way the staff can assure itself that there are no significant aging concerns prior to operation beyond the initial licensed term. The staff may accept one time inspections after the end of the initial licensed term if the licensee provides adequate evidence that the specific issue of concern will not be a problem up to that time.	Yes	a) The methodology will be modified to clarify this point.
b) the report states that the one-time inspection can be used to argue that the degradation is adequately managed. The staff believes that THE CORRECT	Yes	The methodology will be modified as suggested.

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600" in the methodology.		
32. Page 62, Section 6.3.4 indicates that "Assessment," "Corrective Action," and "Confirmation" phases of the aging management are performed through the existing "site issue reporting" and "corrective action program." Describe how the existing site issue reporting and corrective action program would be sensitive to license renewal issues. For example, "Assessment" would contain acceptance criteria for evaluation to ensure license renewal intended functions. DESCRIBE HOW THE SITE ISSUE REPORTING AND CORRECTIVE ACTION PROGRAM WOULD BE ALERTED TO THOSE criteria, including non-safety related equipment that may not have attracted much attention before renewal.	None	None of the systems, structures and components within the scope of license renewal are any more important because of license renewal. They are within the scope of LR because they perform important functions independent of license renewal. Consequently, controls are already in place for such components which ensure issues related to their ability to perform their intended functions are adequately addressed.
33. Page 62, Section 6.4 indicates that the renewal application would contain a description of the programs and activities that are relied upon to manage the effects of aging. Detailed justification of the adequacy of the programs will be maintained onsite. THIS PROPOSAL COULD RESULT IN A RENEWAL APPLICATION WITHOUT SUFFICIENT DETAIL FOR AN NRC REVIEW. The renewal application must describe the aging management programs and justify why the proposed programs, either existing or additional, are adequate for renewal. Detailed program procedures need not be included in the application. The place for a summary description of programs and activities for managing the effects of aging is the FSAR supplement and not the renewal application. The documentation description needs to be revised accordingly.	None	The BGE methodology is consistent with the guidance provided in the Rule and SOC as discussed in the BGE response to RAI 20.
34. Page 63, Section 7.0 addresses "Commodity Groups." Although the use of commodity groups is generally acceptable, Section 7.0 actually contains the specific aging management programs for these commodity groups. Because the report addresses the IPA methodology and the review at this time is on the methodology, the staff has not reviewed the aging management programs. BG&E SHOULD RELOCATE SPECIFIC AGING MANAGEMENT PROGRAMS FOR COMMODITY GROUPS TO APPENDIX A AS EXAMPLES. Aging management of commodities could follow the methodology in Section 6 of the report. Further, the need for Section 7 of the report is unclear. Page 63 (Section 7.0) creates potential confusion by calling some commodity evaluations "equivalent	None	Section 7 describes alternate IPA process steps. Of necessity some of these steps reflect technical details which dictate the nature of the process. Approval is requested of these alternate process steps.

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to entire IPA" and some evaluations "equivalent to just AMR." It seems that all of the commodity groups could be pre-evaluated in Section 5.3, including a discussion of any special steps which caused the "equivalent to entire IPA" and "equivalent to just A MR" distinction. Then, based on the above comment, SECTION 7.0 MAY BE DELETED WITH THE SPECIFIC AGING MANAGEMENT PROGRAMS RELOCATED TO APPENDIX A.		
35. Page 68, Section 7.2.1.2. For all non-EQ cables, in addition to thermal aging, potential RADIATION HOT SPOTS SHOULD BE ACCOUNTED FOR in the aging management review for the cable commodity.	Yes	The methodology will be revised to clarify that no radiation hot spots exist outside of containment and therefore radiation hot spots do not need to be considered for non-EQ cable.
36. Page 82, Figure 8-1 indicates that, for an evaluation that otherwise meets the definition of TLAA, a "yes" response to "Is SSC covered by CLB program which updates potential TLAA?" would make the evaluation not a TLAA. This is not consistent with 54.3. The CLB program could be a basis for re-evaluating the TLAA for renewal in 54.21(c) but not a basis for disposing the issue as not a TLAA in 54.3. THE REPORT NEEDS TO BE REVISED TO PROPERLY LABEL TLAAS.	Yes	We will revise the methodology to move the cited TLAA step. Potential TLAAs which satisfy this criterion will be identified as TLAAs and listed in the LRA. This step will be used in the TLAA evaluation process as an aid in resolving the TLAA issue.
37. Page 83 Section 8.1, What was the RANGE OF SEARCHES USED TO IDENTIFY TLAAS?	None	The range of TLAA searches will be provided in the TLAA submittal, not in the methodology. For your information, the searches are listed in Attachment XX to this letter.
38. Page 84, Section 8.2 indicates that EQ is not a TLAA because of a CLB program called EQ. Similarly, the methodology does not call out the containment prestressed tendons as a TLAA requiring a re-evaluation in the renewal application (see page 3-5 of Appendix A). Issues such as EQ, metal fatigue, and prestressed tendons are TLAAs in accordance with 54.3. The renewal rule in 54.21(c) specifically requires such issues to be re-evaluated to cover the period of extended operation. RELIANCE ON A FUTURE PROCESS IN LIEU OF A RE-EVALUATION IN THE RENEWAL APPLICATION WILL NOT SATISFY THE REQUIREMENTS OF THE RULE. The METHODOLOGY NEEDS TO BE REVISED SO THAT ISSUES SUCH AS EQ,	Yes None None	With respect to the Section 8.2 statement regarding EQ, this statement will be deleted consist with the BGE response to RAI 36. With respect to the items not identified as TLAAs in Appendix A, TLAAs are addressed in a separate aging management report. Additionally, the listing and evaluation results of TLAAs are provided in a separate section of the LRA. With respect to reliance on a future actions, 54.21(c) and 54.29 do not require re-analysis of all TLAAs prior to submittal of the LRA. 54.21(c) requires evaluation of the TLAAs and lists three equally acceptable actions for addressing TLAAs. The 54.29 finding states that TLAAs are

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METAL FATIGUE, AND CONTAINMENT PRESTRESSED TENDONS WILL ALSO BE IDENTIFIED AS TLAAS.		identified and actions identified and have been taken <u>or will be taken</u> with respect to TLAAs.
<p>39. Page 84, Section 8.3 indicates that all TLAAs subject to renewal review are necessarily affecting SSCs within the scope of renewal and therefore the IPA process would have managed aging of the long-lived passive SCs. Thus, the only TLAA issue to be reviewed is for active and short-lived SCs. Although the report correctly pointed out that TLAAs, by definition, affect the same SSCs within the scope of renewal, it is an over-simplification to say that the IPA will necessarily address the TLAAs.</p> <p>TLAAs generally address aging effects that are difficult to be directly monitored. For example, there is currently no acceptable non-destructive methods to measure the extent of embrittlement of a reactor vessel. Also, there is currently no acceptable non-destructive methods to measure the integrity of cables. Thus, in general, it may be unrealistic to rely on the IPA to completely address TLAAs.</p> <p>The TLAA DISCUSSION NEEDS TO BE REVISED TO BETTER REFLECT THE AGING MANAGEMENT EXPECTATIONS.</p>	Yes	<p>We will remove the methodology wording in Section 8.3 that causes the misconception that TLAAs associated with long lived passive SSCs are categorically excluded from TLAA evaluation because of the IPA process. Instead, the section will explain in more detail the relationship between the IPA and the TLAA for these SSCs.</p> <p>The IPA requires a demonstration that the effects of aging are adequately managed for all SCs within the scope of license renewal that are passive and long lived. 54.21(c) allows three options for addressing TLAAs, one being a demonstration that the effects of aging are adequately managed for the SCs affected by the TLAA. The definition of TLAA provides that only analyses affecting SCs within the scope of license renewal are defined as TLAAs. Therefore, if the IPA was able to make the required demonstration (i.e. that the effects of aging are adequately managed by a plant program) for a set of SCs, it must follow that the requirement under 54.21(c) would also be satisfied. (The requirements are identical.)</p> <p>If certain aging effects are difficult or impossible to monitor directly as suggested, the IPA process would have been unsuccessful in demonstrating that the effects of aging are adequately managed by a plant program. Instead, the IPA process would have chosen a more analytical approach, either by extending the existing time-related analysis or substituting an alternate analysis, to demonstrate that the effects of aging would not prevent performance of the intended function. In either case, the requirements of 54.21(c) would still have been satisfied, since 54.21(c) allows extending the TLAA or justifying by analysis that the current analysis remains valid for the period of extended operation.</p>
40. Page 84, Section 8.3 does not provide a methodology on how the re-evaluation of TLAAs would be performed. The rule in 54.21(c) provides options in	Yes	We believe that the actual techniques for reanalysis or extending an existing TLAA would be specific to each time dependent issue. Where

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<p>evaluating TLAA's. Take metal fatigue as an example: A component would meet 54.21(c)(1)(i) if it has been designed for 200 fatigue cycles and is expected to see less than 200 cycles for 60 years. A component would meet 54.21(c)(1)(ii) if it has a fatigue "cumulative usage factor (CUF)" of less than 0.6 for 40 years, which would be less than unity if increased by 50 percent to cover 60 years. The option in 54.21(c)(1)(iii) would be evaluated case-by-case, such as ASME Section XI ongoing activities regarding management of components with CUFs that may have exceeded the code limit of unity.</p> <p>The REPORT SHOULD EXPAND SECTION 8.3 TO DESCRIBE THE METHODOLOGY FOR RE-EVALUATING TLAAS.</p>		<p>there is already a well defined, widely accepted practice (such as 10 CFR 50.61, 10 CFR 50.49 or ASME code) which governs the TLAA, we will continue to use that process to re-evaluate or extend the TLAA. Wording will be added to Section 8.3 to reflect this discussion.</p> <p>For example, 10 CFR 50.61 clearly describes the requirements associated with Pressurized Thermal Shock. These requirements would be implemented to account for PTS during the period of extended operations. Because this regulation requires a submittal prior to LRA approval, the results of this analysis would be submitted and approved prior to LRA approval.</p> <p>If there is an outstanding generic issue associated with the re-analysis process (such as for EQ), the SOC to the Rule (FR 22484) provides three options (1) If the issue is resolved before LRA submittal, the applicant can incorporate the resolution into their LRA. (2) An applicant can justify that the CLB will be maintained until a point in time when one or more reasonable options would be available to adequately manage the effects of aging. (For this alternative, the applicant would have to describe how the CLB would be maintained until the chosen point in time and generally describe the options available in the future.) (3) An applicant could develop a plant specific program that incorporates a resolution to the aging issue.</p> <p>For example, the requirements for extending a qualified life under the EQ Program are defined in 50.49 and supporting regulatory information. Since there is a generic safety issue associated with EQ, BGE may chose option (2) above to resolve this TLAA. Reliance on the existing 40 year qualification would demonstrate that the CLB is maintained until the 40 year point. The current regulatory documents related to this GSI already describe the alternatives which are available to resolve the issue.</p>