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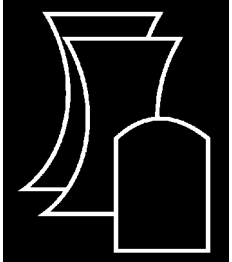

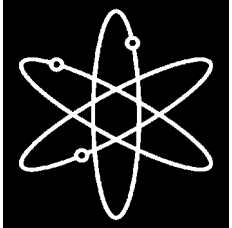

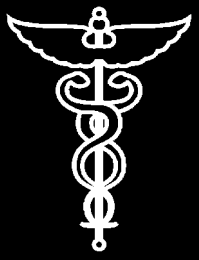

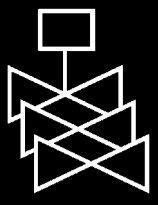

Analysis of Public Comments on the Improved License Renewal Guidance Documents

U.S. Nuclear Regulatory Commission
Office Nuclear Reactor Regulation
Washington, DC 20555-0001

Inside Front Cover
(NRC to supply)

NUREG-1739

Analysis of Public Comments on the Improved License Renewal Guidance Documents

Manuscript Completed: April 2001
Date Published: July 2001

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ABSTRACT

This report contains the staff's analysis of the stakeholder's comments on the license renewal guidance documents, which are the draft Regulatory Guide DG-1104, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses," the draft Standard Review Plan for License Renewal, the draft Generic Aging Lessons Learned (GALL) report, and the Nuclear Energy Institute (NEI) document 95-10, Rev. 3, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule." The license renewal guidance documents were issued for public comment on August 31, 2000 (65 FR 53047). The staff's analysis is presented in a tabular format and contained in five appendices: Appendix A addresses the participant comments from the license renewal public workshop on September 25, 2000; Appendix B addresses the specific written comments submitted by NEI; Appendix C addresses the written comments submitted by various stakeholders, such as the Union of Concerned Scientists, utilities, and private citizens; Appendix D addresses five technical reports provided by the Union of Concerned Scientists; and Appendix E addresses the Advisory Committee on Reactor Safety consultants' structural and electrical comments. The April 2001 version of the license renewal guidance documents incorporated the information in this report.

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ABBREVIATIONS

ACI	American Concrete Institute
ACRS	Advisory Committee on Reactor Safeguards
ADAMS	Agencywide Document Access and Management System
AE	architect engineer
AEA	Atomic Energy Act
AEOD	NRC Office for Analysis and Evaluation of Operational Data
AEP	American Electric Power
AFWS	auxiliary feedwater system
AMP	aging management program
ANL	Argonne National Laboratory
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AUX	auxiliary system
BNL	Brookhaven National Laboratory
BWR	boiling water reactor
BWRVIP	Boiling Water Reactor Vessel and Internals Project
CAN	Citizens Awareness Network
CASS	cast austenitic stainless steel
CCCW	closed-cycle cooling water
CFR	Code of Federal Regulations
CLB	current licensing basis
CM	condition monitoring
CNS	Constellation Nuclear Services
COMED	Commonwealth Edison Company
CP&L	Carolina Power and Light Company
CRD	control rod drive
CVCS	chemical and volume control system
DE	NRC/NRR Division of Engineering
DET	NRC/RES Division of Engineering Technology
DG	Draft Regulatory Guide
DOR	Division of Operating Reactors
DP	Duke Power Company
DRIP	NRC/NRR Division of Regulatory Improvement Programs
DSSA	NRC Division of Systems Safety and Analysis
ECCS	emergency core cooling system
EDG	emergency diesel generator
EMCB	NRC/NRR/DE Materials and Chemical Engineering Branch
EMEB	NRC/NRR/DE Mechanical and Civil Engineering Branch
EOP	emergency operating procedure
EPRI	Electric Power Research Institute
ESF	engineered safety feature
EQ	environmental qualification
FPC	fire pump control
FR	Federal Register

ABBREVIATIONS (continued)

FSAR	final safety analysis report
GALL	Generic Aging Lessons Learned
GDC	general design criteria
GE	General Electric
GEIS	generic environmental impact statement
GL	generic letter
GSI	generic safety issue
HLW	NRC/NMSS Division of High-Level Waste
I&C	instrumentation and control
I&M	Indiana Michigan Power
IEB	IE bulletin
IEEE	Institute of Electrical and Electronics Engineers
IN	information notice
INEEL	Idaho National Environmental and Engineering Laboratory
IPE	individual plant examination
KOPEC	Korea Power Engineering Company
LER	licensee event report
LOCA	loss of coolant accident
LR	license renewal
LRA	license renewal application
LR-PW	license renewal public workshop
LWR	light water reactor
NEI	Nuclear Energy Institute
NEPA	National Environmental Policy Act
NESF	normal engineered safety feature
NIRS	Nuclear Information and Resource Service
NMC	Nuclear Management Company
NMSS	NRC Office of Nuclear Material Safety and Safeguards
NNECO	Northeast Nuclear Energy Company
NPAR	nuclear plant aging research
NRC	Nuclear Regulatory Commission
NRR	NRC Office of Nuclear Reactor Regulation
NUMARC	Nuclear Management and Resources Council
NUS	NUS Information Services
ODSCC	outside diameter stress corrosion cracking
PBPM	planning, budgeting, and performance management
PC	plugging criteria
PECO	Philadelphia Energy Company
PRA	probabilistic risk analysis
PTS	pressurized thermal shock
PWR	pressurized water reactor

ABBREVIATIONS (continued)

PWSCC	primary water stress corrosion cracking
QA	quality assurance
RII	NRC Region II (Atlanta, Georgia)
RAI	request for additional information
RCS	reactor coolant system
RES	NRC Office of Nuclear Regulatory Research
RG	Regulatory Guide
RG&E	Rochester Gas and Electric
RGEB	NRC/NRR/DRIP Generic Issues, Environmental, Financial, and Rulemaking Branch
RHR	residual heat removal
RLSB	NRC/NRR/DRIP License Renewal and Standardization Branch
RROP	Revised Reactor Oversight Program
RWST	refueling water storage tank
SAMG	severe accident management guidelines
SCC	stress corrosion cracking
SER	safety evaluation report
SG	steam generator
SOC	statements of consideration
SNC	Southern Nuclear Company
SPCS	steam and power conversion system
SRM	staff requirements memorandum
SRP-LR	standard review plan
SRP-LR-LR	standard review plan for license renewal
SS	stainless steel
SSC	systems, structures, and components
TLAA	time-limited aging analysis
UCS	Union of Concerned Scientists
UFSAR	updated final safety analysis report
USAEC	U.S. Atomic Energy Commission
UT	ultrasonic testing
VP	Virginia Power
W&S	Winston & Strawn
WEPCO	Wisconsin Electric Power Company
WESCO	Westinghouse Electric Company

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EXECUTIVE SUMMARY

OVERVIEW

On August 31, 2000, the Nuclear Regulatory Commission (NRC) announced the issuance and availability of a draft Regulatory Guide DG-1104, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses"; a draft Standard Review Plan for License Renewal (SRP-LR-LR), "Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants"; a draft Generic Aging Lessons Learned (GALL) report for public comment (65 FR 53047); and DG-1104, which proposed to endorse NEI 95-10, Rev. 3, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule." These improved license renewal guidance documents describe methods acceptable to NRC staff for implementing the license renewal rule (10 CFR Part 54), as well as techniques used by NRC staff in evaluating applications for license renewals. The staff also held public meetings with stakeholders to discuss their comments.

The NRC has taken into consideration all comments received as a result of the solicitation described above and incorporated their NRC dispositions into the April 2001 version of the license renewal guidance documents.

This report provides the evaluation and disposition of all public comments received by the NRC on the license renewal guidance documents.

NATURE AND SCOPE OF COMMENTS

In total, 1,084 comments were received and docketed from stakeholders on or before October 16, 2000. The nuclear industry provided 860 comments, with the majority of those from the Nuclear Energy Institute. The public, including public interest groups, provided 177 comments, with 125 of those comments coming from individuals representing themselves and public interest groups. Those 125 general comments were concerned with the validity of the license renewal process. The remainder of the comments (or 47 of the comments) came from the ACRS consultants. This NUREG includes written comments from 128 commentators,which represent comments from 101 individuals, 15 public interest groups, and 12 industry groups that responded to the request for public comments (65 FR 53047).

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1. INTRODUCTION

1.1 BACKGROUND

On August 31, 2000, the Nuclear Regulatory Commission (NRC) announced the issuance and availability of a draft Regulatory Guide DG-1104, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses"; a draft Standard Review Plan for License Renewal (SRP-LR-LR), "Standard Review Plan for the Review of License Renewal Applications for Nuclear Power Plants"; a draft Generic Aging Lessons Learned (GALL) report for public comment (65 FR 53047); and DG-1104, which proposed to endorse NEI 95-10, Rev. 3, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule." These improved license renewal guidance documents describe methods acceptable to NRC staff for implementing the license renewal rule (10 CFR Part 54), as well as techniques used by NRC staff in evaluating applications for license renewals. The NRC also announced a public workshop that was held on September 25, 2000, to facilitate gathering public comment on the draft documents. The NRC was especially interested in stakeholder comments that would improve the safety, effectiveness, and efficiency of the license renewal process. The staff also held public meetings with stakeholders to discuss their comments.

1.2 ORGANIZATION OF REPORT

This report contains the NRC assessment of the stakeholder comments. The evaluation and dispositions are prepared in a tabular format and contained in the following five appendices: Appendix A addresses the participant comments from the license renewal public workshop on September 25, 2000; Appendix B addresses the specific written comments submitted by the Nuclear Energy Institute (NEI); Appendix C addresses the written comments submitted by various stakeholders, such as the Union of Concerned Scientists, utilities, and private citizens; Appendix D addresses five technical reports provided by the Union of Concerned Scientists; and Appendix E addresses the Advisory Committee on Reactor Safety (ACRS) consultant comments on the structural and electrical components.

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APPENDIX A

DISPOSITION OF PARTICIPANT COMMENTS FROM THE LICENSE RENEWAL PUBLIC WORKSHOP, SEPTEMBER 25, 2000

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A.1. INTRODUCTION

NRC's September 25, 2000, license renewal public workshop (LR-PW) was the second outreach workshop (the first was December 6, 1999) to obtain feedback from stakeholders on the NRC development of the "Generic Aging Lessons Learned" (GALL) report and the revised guidance for the conduct of review of license renewal applications.

The draft GALL report dated August 2000, along with the draft SRP-LR dated August 2000, DG-1104, and NEI 95-10 Revision 2, were available for public comment on the Regulatory Guidance website page (http://www.nrc.gov/NRC/REACTOR/LR/guidance.html). The August 2000 Draft GALL report superceded the earlier version of the report, dated December 6, 1999, and the original NUREG/CR-6490, "Nuclear Power Plant Generic Aging Lessons Learned (GALL)," Volumes 1 and 2, issued in December 1996.

The NRC staff made 16 presentations during the workshop that were designed to elicit stakeholder input. The workshop discussion was based on first reviewing the agenda for any add-on topics and then addressing the relevant documents with ten discussion topics addressed by different speakers. The Federal Register Notice Questions (65 FR 53047) were addressed at the end. Thirty-two individuals spoke and/or made comments, with 17 being from the NRC and 15 from other organizations. About 86 different comments were made by these 15 non-NRC stakeholders. Sixty-seven were made by individuals representing industry groups and 19 from individuals representing public interest groups or themselves. The focus of the majority of the discussion seemed to be the technical details or fine points. The nature of the comments was substantially different from that of the December 6, 1999, workshop, during which more general recurring themes, such as credit for existing programs for license renewal, regulatory and/or attribute creep, and adequacy of mechanisms for public review.

All comments made by stakeholders are sorted in alphabetical order by the commenter's last name and listed in Table A of Appendix A, along with the NRC analysis of the stakeholder comments. Stakeholder comments have been incorporated or addressed in the license renewal guidance documents.

A.2. PARTICIPANT AFFILIATION

Of the 115 documented attendees attending NRC's September 25, 1999, License Renewal Public Workshop (LR-PW, http://www.nrc.gov/NRC/REACTOR/LR/IRG/workshop0925.html), 56 were from the NRC. At least 26 participants represented power companies, 10 were from National Laboratories, 1 participant was from the Union of Concerned Scientists, 5 participants represented the Nuclear Energy Institute, and 18 represented other organizations.

The participant list is shown, sorted alphabetically first by organizational affiliation and then by name of attendee. Individuals who participated and whose comments are noted in the official hard copy of the transcript for the NRR-License Renewal Public Workshop (LR-PW) are noted by an asterisk (*) next to their name.

Affiliation	Attendee
AEP-Cook	*Kunsemiller, David
AmerenUE	Bell, Patrick
Analytical Consulting Services	Ely, Richard
ANL	Chopra, Omesh
ANL	Fabian, Ralph (Bud)
ANL	Hull, Amy B.
ANL	*Liu, Yung Y.
ANL	Ma, David C.
ANL	Shah, Vik
ANL	Shelton, Brent
ANL	Tam, Shiu-Wing
Bechtel	Keys, Julie
Bechtel Power Corp.	Smith, Wayne
BNL	Lofaro, Robert
BNL	Morante, Rich
CES	*Chang, Ken
Constellation Nuclear Services (CNS)	*Bowman, Marvin
CNS	*Rycyna, John
CNS	Sturdevant, Lee
CNS	*Taormina, Ernie
CP&L	Fletcher, Michael H.
Dominion	Corbin, Bill
Duke Energy	Robison, Greg
Enercom Services	Masiero, David
Entergy	Young, Garry G.
First Energy	Kurtz, Gene
Entergy Operations	Mosher, Natalie
First Energy Corp.	Borysiak, Michael
Florida Power and Light	*Menocal, Antonio G.
FPC	Becker, Gary
GE	Negres, Paige
Hopkins & Sutter	*Danstanger, Chris (noted in transcript but not on attendance roster)
Hopkins & Sutter	Stenger, Dan
Hopkins & Sutter	Trubatch, Sheldon
NEI	*Beedle, Ralph
NEI	Evans, Robert

Affiliation	Attendee
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NEI	Pietrangelo, Tony
NEI	*Walters, Doug
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NRC/NRR/DE	*Davis, Jim
NRC/NRR/RLSB	*Dozier, Jerry
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A.3. EVALUATION AND DISPOSITION OF COMMENTS

Table A, at the end of Appendix A, contains comments provided by the participants at the workshops. The column heading “Commenter and Affiliation” is primarily intended to provide the source of the comment, meaning the individual and his/her affiliated organization that submitted the comment. For example, Beedle-1, NEI, indicates that the comment was made by Mr. Beedle of NEI and the “1” segregates this comment from all other comments made by that individual. The abbreviations used in this appendix are listed in the front matter of this NUREG. This table is sorted alphanumerically based on the name of the individual and the consecutive number assigned to his/her comment.

A.4. REFERENCES

American National Standards Institute (ANSI) Standard, B31.1 Power Piping Code.

ASME Boiler and Pressure Vessel Code, Section XI, Rules for In-Service Inspection of Nuclear Power Plant Components, American Society of Mechanical Engineers.

Code of Federal Regulations 10 CFR, Part 2 – Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders, Subpart B – Procedure for Imposing Requirements by Order, or for Modification, Suspension, or Revocation of a License, or for Imposing Civil Penalties §2.206 *Requests for action under this subpart*.

Code of Federal Regulations 10 CFR, Part 50, – Domestic Licensing of Production and Utilization Facilities, Appendix A *General Design Criteria for Nuclear Power Plants*.

Code of Federal Regulations 10 CFR, Part 50, – Domestic Licensing of Production and Utilization Facilities – §50.21, *Class 104 licenses; for medical therapy and research and development facilities.*

Code of Federal Regulations 10 CFR, Part 50, "Domestic Licensing of Production and Utilization Facilities" – §50.49, *Environmental qualification of electrical equipment important to safety for nuclear power plants*.

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Code of Federal Regulations 10 CFR, Part 50, "Domestic Licensing of Production and Utilization Facilities" – §50.55a, *Codes and Standards.*

Code of Federal Regulations 10 CFR, Part 50, "Domestic Licensing of Production and Utilization Facilities" – §50.59, *Changes, tests and experiments*.

Code of Federal Regulations 10 CFR, Part 50, "Domestic Licensing of Production and Utilization Facilities" – §50.61, *Fracture toughness requirements for protection against pressurized thermal shock events*.

Code of Federal Regulations 10 CFR, Part 54 - Requirements for Renewal of Operating Licenses for Nuclear Power Plants, §54.21, *Contents of application – technical information.*

Code of Federal Regulations 10 CFR, Part 54 - Requirements for Renewal of Operating Licenses for Nuclear Power Plants, §54.31, *Issuance of a renewed license*.

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NUREG-1275, "Operating Experience Feedback Report," U.S. Nuclear Regulatory Commission, *SWS Failure and Degradation in LWRs* (Vol. 3) December 1987.

NUREG-1611, *Aging Management of Nuclear Power Plant Containments for License Renewal*, September 1997.

NUREG-1705, Safety Evaluation Report (SER) Related to the License Renewal Application of Calvert Cliffs Nuclear Power Plant Units 1 and 2, Prepared by David L. Solorio, March 1999 (http://www.nrc.gov/NRC/REACTOR/LR/CALVERT/SER/).

NUREG-1723, *Safety Evaluation Report related to the License Renewal of Oconee Nuclear Station, Units 1, 2 and 3,* March 2000 (http://www.nrc.gov/NRC/NUREGS/SR1723/index.html).

NUREG-1801, *Generic Aging Lessons Learned (GALL*), U.S. Nuclear Regulatory Commission, July 2001.

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Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Audience participant-1, Anonymous	40	[Inaudible] I wondered what kind of results you mean. Sometimes the results, types of programs, listed in the GALL report have to be plant-specific.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report contains one acceptable way to manage aging effects for license renewal. An applicant may reference GALL in an application with no further review by NRC staff or may propose plant-specific alternatives for staff review in its license renewal application. If there is no existing program that manages the specific aging effect then the GALL report will identify the required program as "plant specific" with an evaluation by the staff. The GALL report was not revised to address this comment.
Audience participant-2, Anonymous	56	(Inaudible) Could NRC inspection reports be used as a reference in a license renewal application?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Referencing inspection reports as evidence of NRC approval of a program may be difficult because inspection reports generally verify compliance with the licensing basis. However, if there is a relevant NRC exposition on the intended purpose and operating experience of that program, then the report may be adequate as a reference. The GALL report was not revised as a result of this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Beedle-1, NEI	12	It is not clear to NEI how the attributes (10 elements of a program) will be derived, what process controls will be utilized to prevent attribute creep or attribute shrink, and how stakeholder disagreements over the scope of these attributes will be resolved.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report generically evaluates the attributes of existing aging management programs (AMPs) and recommends when those programs should be augmented. NRC management oversight will be the major process control to prevent additional attribute creep or shrink by requiring justification from the NRC staff for any such internal change in the GALL report. Similarly, an applicant must provide justifications for either changes from programs in GALL or new programs proposed in its license renewal application. If disagreements over the attributes of a program cannot be resolved, the disagreement can be appealed in accordance with the process discussed between the NRC's License Renewal Steering Committee and NEI's License Renewal Working Group in meetings on 9/29/00 and 12/9/99. The appeal process is being incorporated into the next revision of NRR Office Letter No. 805, "License Renewal Application Review Process." The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Beedle-2, NEI	13	GALL evaluates the adequacy of existing programs and identifies where enhancements are needed. Since 85-90% of the programs credited in the Calvert Cliffs and Oconee applications were existing programs that did not require enhancement, NEI would expect this result to be reflected in the GALL. Thus the focus should be on program enhancements and new programs for the remaining 10-15%. This will ensure that the license renewal complements the extensive review conducted to assure compliance with the current licensing basis (CLB).	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report is a generic compilation of structures, systems, and components and an evaluation of existing aging management programs. By merely referencing the GALL report, when it is bounding, the NRC review is focused on proposed programs of an applicant that are augmentations of programs in the GALL report or new programs. The GALL report and SRP already took into account individual insights gained during staff reviews of Calvert Cliffs and Oconee. The GALL report and SRP were not revised to address this comment.
Bowman-1, CNS	54	Why did NRC not adopt what is already an existing aging management program for coatings inside containment as opposed to a brand new one?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	NRC adopted the current revision of Reg. Guide 1.54 because the references for the original version were outdated. NRC has no objection to the programs supported in the original version of that regulatory guide. An applicant can use the original version if copies of the supporting standards are available. The GALL report was revised to address this comment by allowing both the original and current revision of the regulatory guide to be utilized.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Bowman-2, CNS	61	Many programs in Section 11 can be considered common or generic programs. One of the difficulties is the lack of a unique identifier for each row. When I am writing up a program evaluation, and I am trying to say it applies to B1.1 and I have about 10 or 12 rows that have that, I then have to not only add that it is B1.1, I have to in some cases add that it is for carbon steel with steam and for a particular aging effect.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	A unique identifier was used in conjunction with each line item number in the GALL report in order to afford better traceability when referencing to a particular line item of the GALL report. The GALL report was globally revised to address this comment. The SRP also was further subdivided in any respective subsection of a chapter by assigning unique, numerical identifiers to paragraphs with different subsection matters.
Bowman-3, CNS	153	The GALL report takes two approaches in regard to non-service-level one coatings. Cranes fall as one approach for coatings, whereas for service-level one, two, three, for other coatings, it takes a different approach. The approach for cranes appears more straightforward and more realistic in terms of the desired objective; i.e., protecting the substrate. Perhaps it would be better to give more credit for the existing Reg. Guide 1.54 1973 programs, and if there are deficiencies that need to be addressed to take credit for that, that would be an improvement to allow either way, either version of Reg. Guide 1.54 to be credited.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Bowman-1 in this Table A. .

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Bowman-4, CNS	155	When you get into a sub-tier of ANSI standards, ASTM standards and so forth, there are substantial differences between the two versions of the Reg. Guide, This puts the applicant in the mode of trying to reconcile and separate the aspects that are really important to service-level-one coatings and not important to other non-containment coatings. It becomes a major bookkeeping exercise with the result of ending up at the same end point – that is, that either program is probably acceptable.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Bowman-1 in this Table A.
Bowman-5, CNS	163	Sometimes credit may be mis-assigned (such as crediting the chemistry program for doing things that the chemistry program really doesn't do). In GALL, the chemistry program includes a one-time inspection element. The plant chemistry people own the chemistry program, but they don't own the inspection program; at plants, it's hard to get people to think across their borders. In the SRP-Appendix A, four different types of aging management activities are presented (prevention, mitigation, condition monitoring, and performance monitoring). There are cases where, when you look through GALL, you find yourself trying to shoehorn all 10 elements around a particular activity, where some of those elements really don't apply. So, for example, for a chemistry program,	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Appendix A of the SRP considers each acceptable AMP to consist of ten elements. An applicant can take exception to one or more of the ten elements of a program in the GALL report and provide justifications in an application. In some cases in the GALL report, more than one program is required to manage a particular aging mechanism in a specific environment. In those cases, each program crosscuts the other, and the combination is treated as a singular program under Appendix A of the SRP. The NRC does not believe that there is any added value gained by classifying each program into the four categories identified in Appendix A of the SRP since the ten elements in a program typically describe the respective characteristics of each of those four categories.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Bowman-5, CNS (cont.)		I think if you characterize the program as the type of program that it is, that would be helpful, identify the chemistry program, this is a mitigation program, and these other – and also think about what of those 10 attributes really are essential for certain of these types of programs and aren't essential for certain of these types of programs. For example, the trending – for a preventive program, trending really isn't very meaningful, whereas for a condition-monitoring program, it is very meaningful.		The GALL report used and evaluated existing AMPs and augmented them as necessary. Consistent with that concept, it was determined that chemistry control and one-time inspections are actually separate aging management programs. The GALL report Chapter XI was revised to address this issue, but not specifically for this comment.
Chang-1, CES	43	In this process of preparing the GALL report and soliciting comments, were any efforts made by the NRC to have foreign utilities review and comment on it [inaudible]?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC did not solicit comments on GALL and SRP from foreign utilities because typically they have different licensing periods then the United States. Some countries re-license their plants every ten years, thus aging effects may not have materialized by now. There has been considerable foreign interest in the development of this guidance. NRC has shared it with many international colleagues but did not seek formal international public comment on these documents. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Chang-2, CES	94	For those plants that apply for license renewal, most of them have already been operated 20, 25 years, so that's one of the main reasons they apply for it. In those 20, 25 years, they have monitoring programs, they have cycle counting, so they know exactly what happens in the past 25 years (and probably different from the design trending conditions). For license renewal, is the applicant supposed to evaluate the fatigue impact on their plants, based on a combined operating for the past, design for the future, or should the applicant evaluate operating in the past and extrapolate for the future? What exactly are the monitoring requirements for a plant to comply with the GALL report?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Fatigue is to be analyzed and evaluated as a time-limited aging analysis (TLAA) in accordance with 10 CFR 54.21(c)(1). For license renewal, there are three ways of maintaining the current licensing basis, for the fatigue usage factor per 10 CFR 54.21(c)(1) : 1. The current TLAA is valid for period of extended operation based on original conservative estimate for number of cycles. Compare estimate with the number of cycles monitored in a component's operating history. 2. Project the usage using a new TLAA based on operating history. Knowledge of the operating history is essential. 3. Monitor the usage (i.e., number of actual and design basis cycles) during extended period and use that as the basis to determine that aging effects will be adequately managed. This is discussed in Chapter X of the GALL report. The GALL report was not revised to address this comment.
Chang-3, CES	95	Can the three ways listed in 10 CFR 54.21(c)(1) be used to handle the fatigue part of the license renewal? Do you need to revise the design transient documents or type in specifications on them, or do you just say this demonstrates operability for 60 years?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Chang-2 in this Table A.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Chang-4, CES	96	At many plants, there is no fatigue design basis in the licensing basis because they are 31.1 plants. Do you have extra requirements for those plants that are 31.1 plants? For critical locations, what are the requirements in regard to fatigue?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Plants licensed prior to ASME Section III are not required to do a fatigue analysis but must still meet the ANSI B31.1 design criteria for bending stresses in regard to the 7000 thermal cycles during plant life. An applicant should address Generic Safety Issue (GSI) 190, regarding environmental effects on fatigue, at fatigue critical locations for 60 years. The GALL report was not revised to address this comment.
Chang-5, CES	97	Regarding the 7,000 cycles you mentioned, those are based on the test results and so on and so forth. Now, if I have a transient that only has 200 cycles, can I increase the number of allowable cycles, or can I increase the allowable stress, since there are fewer cycles?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The allowable stress limit for bending stress in ANSI B31.1 is for less than 7,000 thermal cycles. Only a couple hundred actual thermal cycles occur during the current license term. A simple extrapolation would show that the 7000 cycles would not be exceeded for 60 years. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Chang-6, CES	180	The code editions and addenda are beyond the GALL report. The code edition addendum is a generic issue, and should be considered by ASME to any application or by ACI by any application. GALL should describe a general methodology defining conditions or situations where codes of different edition and addenda can be used to replace the GALL-based code base or the plant design basis code base. If you meet those criteria, then we do not object to a different code edition or addenda. For instance, in the ASME code itself, early codes don't have that high-cycle fatigue. So, for all those infinite cycles, for those flow-induced vibrations, you cannot evaluate. Old plants are designed to one code. You have to use ASME code for doing any fatigue evaluation or assessment. The NRC Reg. Guide 1.84, issued periodically – always tells you what code edition and addenda and code case are approved by the NRC. Those are the basis of using different code base edition, addenda for any evaluation, and the GALL report, GALL evaluation should not be different from that.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The intent in the GALL report is to refer to a particular code, including chapter and section, and provide sufficient criteria to allow an excerpt or summary of a code requirement to stand independent of the revision of the code or standard it was taken from. An applicant can compare the latest revision of a code or standard with the excerpt or summary. This comparison provides the technical basis to determine if the position in the GALL report is still bounding in order to adopt the latest code revision. The Commission has a process to endorse the ASME Code. To ensure that the GALL report will remain valid when future editions of the ASME code are approved by the NRC, the staff will perform an evaluation of future code revisions as part of the 10 CFR 50.55a rulemaking. This evaluation will determine the adequacy of code revision with respect to the ten-element program evaluation described in the GALL report. The GALL report was not revised to address this comment.
Danstanger-1, Hopkins & Sutter	127	How will the new risk-informed Part 50 be incorporated into license renewal?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment UCS-3 in Table C of this NUREG.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Kunsemiller-1, AEP	47	How does the GALL report differentiate in its applicability and treatment of plants constructed before and after the General Design Criteria of 10 CFR 50, Appendix A was invoked?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	GALL was drafted to evaluate aging management of SSCs in particular environments irrespective of the vintage of a plant. For instance, the applications of older plants may discuss why particular SSCs need no AMPs. This could be done, for example, by noting that, per CLB, particular SSCs have no intended functions that would be impaired if aging effects were not prevented or controlled. The GALL report was not revised to address this comment.
Lochbaum-1, UCS	15	Does the draft GALL report provide sufficient credit for existing aging management programs? Is the adequacy of existing programs being ensured?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report is a generic evaluation of existing AMPs and it sometimes recommends augmentation of those programs to adequately manage specific aging effects. An applicant can take credit in his application by referencing the existing programs in the GALL report with only limited review by staff. The applicant must demonstrate “reasonable assurance” that new, existing, or augmented programs other than those evaluated in the GALL report will be effective in managing effects of aging on structures and components in the period of extended operation. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-2, UCS	16	There are clearly times when one-time inspections are warranted. However, the adequacy of these one-time inspections will be in question for some time into the future until some of them are actually implemented.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Both Calvert Cliffs and Oconee proposed one-time inspections. Although these plants had rigorous chemistry control programs, the one-time inspections were designed to examine areas most susceptible to crevice or pitting corrosion and to confirm the adequacy of the chemistry control program to manage aging. A one-time inspection, performed to verify if an aging effect is being adequately managed, is a reasonable action to take where there is some uncertainty about the occurrence and progression of the aging effect. The GALL report was not revised to address this comment.
Lochbaum-3, UCS	17	There seem to be mechanisms for shrinking the level of effort in the GALL report, but not mechanisms for increasing its scope.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Lochbaum-1 in this Table A for demonstrated adequacy of the staff review of applicant's program. See NRC disposition of comment Beedle-1 in this Table A on process controls to ensure integrity of the GALL report. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-4, UCS	17	Are the efforts of the group formerly known as AEOD (NRC Office for Analysis and Evaluation of Operational Data) factored back into the GALL report? Is there another group that continues the efforts of AEOD or some other means to factor in lessons learned from plant operation into the license renewal effort?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Significant safety and important generic issues of the AEOD reports on aging of long-lived passive components and structures have been included in the GALL report. 1. The majority of AEOD reports address safety and generic problems or issues of system operations and active components. Few AEOD reports deal with the aging aspects of long-lived passive components and structures. 2. The significant safety and important generic issues identified in AEOD reports have been addressed in NRC generic communications, such as GL, BL, and IN. The generic communications have been reviewed by ANL, INEEL, and BNL in the GALL report. 3. Many former AEOD staff participated in the RES review of the GALL report. They are either authors of AEOD reports or are aware of AEOD reports that are relevant to their specific review areas. They have factored the applicable AEOD reports into their reviews. As an example, the AEOD Report, NUREG-1275, Vol. 3, SWS Failure and Degradation in LWRs, was addressed in GL 89-13. Bill Jones, one of the authors of the AEOD report, S-96-02, *Assessment of Spent Fuel Pool*, was assigned to review the GALL-2 Chapter VII spent fuel sections. Harold Ornstein, the author of NUREG-1275, Vol. 2, *Air System Problem*s, reviewed the GALL report compressed air system section.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-4, UCS (cont.)				The Office of NRC Research continues to monitor operating experience at plants and will continue to provide information to license renewal activities.The GALL report was not revised to address this comment.
Lochbaum-5, UCS	17	The actual feedback on implementation of aging programs will not occur until plants begin operation in the extended period. Will preliminary feedback be factored in from renewal applications approved to date, Calvert Cliffs and Oconee, which are not real road tests of success of the license renewal process, to decrease the scope of the GALL report or to make it less conservative?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Lochbaum-1 in this Table A on intended purpose of the GALL report. The staff positions in SERs for plants reviewed have been or will be integrated into the GALL report, but the intent is not to make the GALL report less conservative. After the issuance of a license for extended operation, the plant will be subject to the same regulatory oversight as under CLB. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-6, UCS	18	The license renewal applications submitted to date do not seem to provide adequate information for the ten elements in every case as required by the SRP, Appendix A for the aging management programs.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Current experience indicates that the 10 elements are found in most programs, but sometimes they crosscut. When an element does not apply to a specific program, Chapter XI of the GALL report identifies it. The ten elements should be present in an effective AMP. Some individual programs standing alone may not have all ten elements, but there is a synergy between different programs. The applicant should identify what combination of aging programs is most effective so as to provide reasonable assurance that aging effects are being adequately managed. In addition, the SRP is not a requirement but a guidance document which provides information to facilitate staff reviews. The GALL report was revised to address this issue, but not specifically for this comment, by modifying the program evaluations in Chapter XI of the GALL report as appropriate to ensure there is adequate information in each one.
Lochbaum-7, UCS	*19*	The NRC staff stated previously in written correspondence that IPE submittals for GL 88-20 are obsolete or out of date. However, page 2.1-3 of the SRP still requires their review as part of NRC staff review of scoping and screening methodology of an application.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	IPE submittals for GL 88-20 are considered only one source of many that are reviewed to help the reviewer understand the functions of plant systems, structures, and components for scoping purposes. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-8, UCS	*43*	Will the guidance documents - the GALL report, SRP, and draft Reg. Guide - be the vehicles for communication to the public or will something else be provided that is more easily understood by the general public?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC envisions these guidance documents as being the primary means of communicating to the public the license renewal process. In their present form, these documents are designed more for practitioners. The NRC is considering whether to develop a summary form of this information for the general public as part of public outreach activities. The license renewal guidance documents were not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-9, UCS	*71*	The guidance documents submitted for formal review and made available to all stakeholders were modified during the review period without communicating to all stakeholders ("bait and switch") either in the Federal Register or other means the reasons for and types of changes being made.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC has reformatted the GALL report to make it easier to understand and use. The substance of the information provided to the public was not expected to change as a result of this reformatting. If the public provided comments on information that was changed, the NRC evaluated if the comments would negate or affect the changes. The tables in the GALL report were reformatted by combining information in columns "Structure and Component" and "Region of Interest" into a column titled "Structure and/or Component" and also in columns "Aging Effect" and "Aging Mechanism" into column "Aging Effect/Mechanism." In addition, the staff relocated the information in columns "References" and "Evaluation and Technical Basis" into Chapter XI under the various aging management programs with applicable references in table to the respective programs. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-10, UCS	*73*	*Only one hour of the September 25, 2000, agenda is focused on the Federal Register notice that the public has to comment on. The bulk of the meeting concerns topics that aren't officially out for public comment.*	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Guidance documents for license renewal were officially made available to the public with no constraints on the nature of comments that could be made. The NRC specifically asked in the Federal Register Notice for input on four areas very important to the credibility and public confidence in these guidance documents. This NRC workshop and others like it were open to the public and the NRC has tried to be very open in all communications to the general public. The GALL report was not revised to address this comment.
Lochbaum-11, UCS	125	There is a move afoot to move towards a risk-informed regulation, and 50.49 is one of the target regulations. Assuming that move continues on and makes some progress and things actually happen, is the implication to have two GALL reports? A GALL report for the risk-uninformed plants, and something like a "GALL-lite" for the risk-informed plants? How do you foresee handling that situation?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment UCS-3 in Table C of this NUREG.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-12, UCS	140	NRC did not refer to or address in this workshop the petition for rulemaking submitted by UCS. What is the current status of that petition for rulemaking?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The request for action by UCS filed under 10 CFR 2.206 was in regard to operation of the Edwin Hatch nuclear plant outside its design and licensing basis for liquid or gaseous radioactive waste systems. A copy of the Final Director's Decision (DD-00-05, ADAMS ascension no. ML003758416) in regard to this matter was filed with the Commission on October 18, 2000 and was officially final 25 days from that date or about November 22, 2000. The GALL report was not revised to address this comment.
Lochbaum-13, UCS	155	If an applicant submits an application, relies on GALL and meets all 10 attributes without exception or variation, the NRC approves the license and the SER cites reliance on meeting GALL. Does NRC view that, then, as a licensing commitment that requires prior approval, review and approval, if any changes are made by the licensee to how they do aging management in that area?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC views it as a commitment and as part of the licensing basis, since the rule requires a summary of these programs in the FSAR supplement. Any change in this licensing basis is by the 10 CFR 50.59 process. If a license condition is imposed, any changes to it require prior approval by the NRC. The GALL report was not revised to address this comment.
Lochbaum-14, UCS	156	If the applicant later changes the procedure for addressing aging management, is it necessary to return to NRC for further evaluation?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Lochbaum-13 in this Table A.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Lochbaum-15, UCS	185	Since in the single-page format adopted, the reference column was deleted altogether, would not any discussion about references become a moot point?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Lochbaum-9 in this Table A. The reference column in the August 2000 version contains redundant information that is already contained in the other columns in the GALL report. The information was not lost, just relocated to a more central location in the GALL report. Therefore, the reference column was deleted in the reformatting of the GALL report. A citation to a code or standard ,as applicable is in the text of the Aging Management Programs contained in Chapter XI of the GALL report. The actual references to a code and standard for a specific AMP are included at the end of each AMP. The GALL report was not revised to address this comment.
Menocal-1, Florida Power and Light	63	The latest version of the draft GALL included a new section for carbon steel external surfaces for steam and power conversion, aux systems normal engineered safety feature (NESF), yet it looked like in some cases external surfaces were also addressed within the body of the sections. Was the intent to have that new section address all the external surfaces for each section of the GALL?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The intent of the last Section in each of Chapters IV, V, VII, and VIII discussing carbon steel external surfaces was to cover all carbon steel surfaces in each of those respective chapters of GALL. It was done to comprehensively cover all carbon steel external surfaces without listing each component or requiring any further evaluation. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Menocal-2, Florida Power and Light	118	Is crevice corrosion one of the mechanisms that are of concern with respect to adequacy of existing chemistry programs and can it be detected and verified by one-time inspection in accordance with GALL? Is a corrective action program with root cause identification a suitable substitute for a one-time inspection?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Crevice corrosion is an aging mechanism of concern in certain areas of particular systems, and combinations of environments. One aging management program to control crevice corrosion aging effects as presented in GALL is a chemistry program in conjunction with a one-time inspection. The one-time inspection, conducted prior to expiration of the current license, is a validation of either the presence or absence of corrosion and is implemented by nondestructive evaluation techniques. Any corrosion detected is evaluated and corrective actions are implemented if necessary. Any program that similarly verifies that corrosion is either present or not can be credited as an acceptable alternative. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Menocal-3, Florida Power and Light	119	Will the absence of symptoms of aging mechanisms such as crevice corrosion, based on a one-time inspection, appropriately permit the conclusion that a problem does not exist? Certain other aging effects may be found other than the specific effects for which the inspections were initiated.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The one-time inspection is used to confirm either the lack of corrosion or the slow progression of corrosion, which has an innocuous effect, and to evaluate any corrosion detected, per established acceptance criteria. It is not a stand-alone aging management program. The primary aging management program, which the one-time inspection is used to validate as performing as intended, will still be in effect even if no corrosion is detected to ensure the continued management of that aging mechanism. An applicant would be well advised to look for as many aging effects/mechanisms as would be applicable in a specific one-time inspection. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Mulvehill-1, Southern Nuclear	126	Can an applicant just select the more economical option three, 10 CFR 54.21(c)(1)(iii), or will he have to update the EQ calculation?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	An applicant is allowed to select the option listed in 10 CFR 54.21 (c)(1)(iii), which means the applicant must show the ability to manage the aging effects of the electrical components during the renewal period under its current EQ program. This allows the applicant to delay the decision as to whether to update the EQ calculation or replace those components until just prior to the renewal period in order to extend their qualification under 10 CFR 50.49 into the renewal period. The GALL report was not revised to address this comment.
Newton-1, WEPCO	100	For the reactor vessel, could a program like the Master Curve Approach be included in the GALL report, and how can programs like that be recognized in the GALL report as acceptable?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Any program like the Master Curve Approach can be incorporated into the GALL report if deemed of a generic nature and if approved by NRC staff. Specifically, for the Master Curve Approach, a rule change would probably be needed. To use the Master Curve Approach instead of the screening criteria in the pressurized thermal shock (PTS) rule in 10 CFR 50.61, an exemption could be granted in the interim, but over the long term, there would have to be a change in the 10 CFR 50.54 rule. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Newton-2, WEPCO	102	What if a utility came in, and in their application, referenced specifically planned future use of the Master Curve. How would that be reviewed and assessed as an acceptable aging management program?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The Master Curve Approach in regard to licensing renewal would be a TLAA and would have to meet the requirements of 10 CFR 50.21(c)(1). An applicant would have to show that under the present technology, the screening criteria or the basis for the PTS rule in 10 CFR 50.61 is met. The staff would have to know how the Master Curve Approach would be used and how it would be implemented in order to review it as a means to manage aging. The GALL report was not revised to address this comment.
Newton-3, WEPCO	103	If existing rules were used and a reactor vessel only meets the screening criteria for some arbitrary number (say 55 years) and the applicant intends to apply the Master Curve Approach, before that time period expires; -- how would that program be reviewed and accepted?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC would need to condition the license to require a demonstration of adequate reactor vessel toughness past 55 years. The GALL report was not revised to address this comment.
Newton-4, WEPCO	104	The NRC has accepted TLAAs where the analysis was not valid for the entire 60 years for license renewal applications already granted. So why would the NRC not accept a TLAA for the reactor vessel if the analysis similarly was either not valid for or had not been projected to the end of the period of extended operation?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	If an analysis is not updated to be valid for the entire 60 years, then the NRC will require reasonable assurance that aging effects are being adequately managed for the entire extended period or until the analysis is updated. The applicant has the burden under 10 CFR 54.21(c)(1)(iii) to demonstrate this is actually the case. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Newton-5, WEPCO	109	One vision of the future with respect to reactor vessel internals is that applicants can learn from each other's inspections, and show their applicability to similar plants. Is that vision shared by the NRC?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC looks for opportunities to focus the staff's review on unique aspects and relies on generic efforts to increase the efficiency of that review. The NRC is open to increasing the generic aspects of GALL based on the staff's review of the inspection and research activities performed by applicants. Licensees of plants with renewed licenses are participating in industry programs and workshops to share their license renewal experiences. The NRC expects that, as a result of these industry forums, future applicants and holders of renewed licenses will propose changes to their programs and possibly to programs in the GALL report. With many aging mechanisms and aging effects, it is unclear when they become critical in regard to impeding an intended function. NRC's experience with its research programs, inspections, and industry insights will provide some guidance. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Newton-6, WEPCO	142	Is it correct that the SRP causes an examination of what is not in the scope? Is it clear that the applicant knows what NRC staff is looking for during site visits when NRC staff want to confirm what's in and what's out of scope in the SRP?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The rule requires an applicant to develop a screening and scoping methodology that will ultimately classify those SSCs that are and are not in scope. The staff visits the site to understand the applicant's scoping and screening process and making sure that it is consistent with the requirements of the rule. The NRC first tries to understand the applicant's methodology and then reviews the SSCs the applicant classified as being in scope based on that methodology. The SRP provides guidance for the staff in reviewing the applicant's methodology and scoping results. The SRP was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Newton-7, WEPCO	182	Codes and standards very seldom make up the entire 10 set of attributes that we use in a program; they could be used for an inspection technique, scope definition, etc. So, when the NRC looks at what we've referenced from a code or standards standpoint, they really look at what attribute it's trying to satisfy in a program. Once you've accepted that code and standard in that program, we can then use that as a guide to say we are equivalent or better to that. I anticipate that you're going to look at the standard and say, for this attribute, it's all right in that one, then we can use that in the future, and once you've blessed it for that, we can use that as the process by which it gets approved.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Usually, the NRC relies on codes and standards for certain important attributes – scope, method, frequency – the key features of an aging management program. The objective is to find a way to maximize the efficiency of GALL by defining an attribute in such a way so as to give maximum credit. However, the SRP in Appendix A discusses ten elements (attributes) for aging management programs. Although typically only the most important attributes require a benchmark to be established from a reference or code, it is up to the staff to determine the weight assigned to each attribute of a program in regard to managing specific aging effects and mechanisms. The GALL report was not revised to address this comment.
Newton-8, WEPCO	187	If the applicant does not justify, in its application, the omission of any aging effects identified in the GALL report, that the applicant has determined not to be applicable will the applicant get an RAI (Request for Additional Information) asking it anyway?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	If an applicant does not justify in applications instances where GALL is not bounding, the staff should focus its review on those aging programs. The objective is to allow maximum credit for programs that adequately manage aging effects. If that standard is not met, RAIs should be issued to help reviewers to fully understand the augmented or new programs proposed in the application. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Patel-1, PECO Energy	32	How will the GALL report be used in the future? Is NRC planning to revise the GALL as more plants apply for license renewal?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report looks back and reflects on experience; future GALL updates would address the most recent experience. The NRC looks for opportunities to focus the staff's review on unique aspects and relies on generic efforts to increase the efficiency of review. The staff plans to update these license renewal guidance documents to capture additional lessons learned from future reviews and industry activities. However, the schedule of this update is not determined. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Patel-2, PECO Energy	46	There seems to be some inconsistency in guidelines in different sections of the SRP corresponding to the GALL report – is the intent to include the 10 attribute table or is it just a three line or a four line statement?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report is a topical report that an applicant can merely reference in an application to focus staff efforts on the evaluation of plant-specific AMPs or exceptions to the GALL report. By merely referencing the GALL report when it is bounding, the applicant decreases the volume of the application and the review time of the staff. These references and any exceptions to the GALL report may be in tables, footnotes to tables, or in a separate section in the front or the back of the application. The applicant typically would include only those components or AMPs that are either exceptions or plant-specific as the case may be in the application with the remainder of supporting information for material in application, bounded by GALL, in auditable form at plant site. The Final Safety Analysis Report (FSAR) supplement that is included in the application may take the form of tables, for both components and aging management programs, as outlined in Chapter 3 of the SRP. This would be for those components and AMPs identical to those in the GALL report. If additional components are added, then the applicant must, as previously stated, denote somewhere in the application the inclusion of those components. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Patel-3, PECO Energy	50	When the word "program" is used, many plants don't necessarily have what could be considered a full-fledged program in all cases. For example, the mechanism a plant uses to meet the intent of GL 89-13 (Service Water System Problems Affecting Safety-Related Equipment) may be a series of activities. One of the NEI's previous comments was to call these "aging management activities" rather than "aging management programs." Clarify what is considered an aging management program.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	There is no distinction between the terms "program" and "activity" in the GALL report. A program should consist of ten elements as stated in SRP, Appendix A, Section A.1.2.2. and in Chapter XI of the GALL report, and if it does not, then it must be justified by the applicant and evaluated by the staff. Many of the "existing programs" at plants serve multiple purposes whereas the definition of program used here is exclusively for managing aging effects. The GALL report was not revised to address this comment.
Patel-4, PECO Energy	63	The 2-pg format in the August 2000 draft of GALL had the effect of sometimes carrying over an extensive write-up of the 10 elements for the AMPs. This would be displaced to a location in the table that would be two pages away (leaving the left side of the page blank when there was no change in line item). This made the tables sometimes difficult to read.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The tables in various chapters of GALL now refer to the aging management programs in Chapter XI of the GALL report. Thus, this problem of AMP descriptions extending to several pages was eliminated. The GALL report was revised to address this comment by placing all AMPs in Chapter XI of the GALL report and have the various line items in the GALL report (Chapters 2 through 8) under the "Aging Management Programs" column refer to those AMPs.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Patel-5, PECO Energy	75	When NRC said 'scoping questions' does this focus only on systems and components or does this also include aging effects? If I don't have an aging effect, then I don't need to manage it. Do I need to explain it in my application?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report is completely independent of the scoping issue. The GALL report is a generic evaluation of aging management programs for components in specific environments. The inclusion or exclusion of an SSC into GALL does not dictate that an SSC will be included or excluded in the application. Thus, its associated aging effect or mechanism would be treated similarly. The GALL report was not revised to address this comment.
Patel-6, PECO Energy	76	If the GALL report calls out an aging effect or an aging mechanism for a certain material and component, and an applicant determines that this is not relevant to the plant, is it necessary to explain why it is not applicable?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report is a generic evaluation of aging management programs and is not a scoping document. An applicant is required to identify and list structures and components that are within the scope of the 10 CFR 50.54 rule in the application. For the GALL report, any exceptions to programs for particular SSCs must be identified and justified in an application. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Patel-7, PECO Energy	108	If the applicant has the BWR VIP program with an SER for license renewal, will this be recognized in GALL Chapter XI "Aging Management Programs?" If a relevant AMP is included in GALL Chapter XI, then aging effects considered by the BWRVIP, will be covered. At present, this information is absent.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	All aging management programs were placed in GALL Chapter XI in order to present this guidance only once. This provides a user-friendlier document and an easier format to understand. Chapter XI, Sections M1 (ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD), XI.M4 (BWR Vessel ID Attachment Welds), XI.M7 (BWR Stress Corrosion Cracking), XI.M8 (BWR Bottom Head Penetration), and especially XI.M9 (BWR Vessel Internals) rely heavily on BWRVIP guidance. A new AMP, XI.M9 (BWR Vessel Internals), was drafted and inserted in GALL, Chapter XI, concerning Aging Management Programs. This particularly references the Boiling Water Reactor Vessel Internals Programs (BWRVIP). The GALL report was revised to address this comment and other similar comments by placing all aging management programs in Chapter XI and basing several aging management programs in part on BWRVIPs.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Patel-8, PECO Energy	185	The GALL report provides too much detail on ASME Section XI in the evaluation basis, right down to the category level; with the new codes coming out, with the new editions coming out, those categories would change. The Gall report still lists references down to the category level for the '89 version of that code. Some plants have already switched to the '95 version and some categories have changed. So, even though we meet the intent of the GALL and meet all the attributes, we still cannot say we meet all of the requirements of the GALL, because the categories have changed.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Chang-6 in this Table A in regard to updating the GALL report for new ASME code revisions.
Polaski-1, PECO Energy	51	From a license renewal perspective, many plants that have plant-unique configurations may be placed at a disadvantage. It would be better if the GALL report does not become so overly-prescriptive that it does not allow for existing plant-specific exceptions for those programs that have been in place at plants for years.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	If a program was developed in conformance to a Regulatory Guide, staff position, standard, or code (with some exceptions noted) and was documented in that plant's CLB or previously evaluated by the NRC, then the applicant should make a statement to that effect in the application. If GALL were binding, other than the exception noted for license renewal, the staff would evaluate the impact of the exception on the program. The NRC staff may still need to review exceptions to programs or the CLB to determine the applicability to license renewal. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Polaski-2, PECO Energy	87	Containment and inspections – Is there any reason that an applicant couldn't just cite his inspections that he does in accordance with IWE, IWL, which are mandated by regulations and acceptable programs? But when the NRC promulgated that rule, they found that it was an acceptable aging management program for current-term and the renewal term. So the question is, why do we need to do more than what's currently mandated by regulation for renewal term?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Walters-8 in this Table A.
Polaski-3, PECO Energy	88	The NRC, for licensing renewal, requires inspections in inaccessible areas with no presence of corrosion in accessible areas. This seems counter to some current regulations.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC, in conjunction with industry, has proposed acceptance criteria for addressing inaccessible areas. Exceeding the criteria will probably denote the presence of corrosion in inaccessible areas. If the threshold of the acceptance criteria is exceeded, then inspection of those inaccessible areas will be performed. The GALL report was revised to address this comment by incorporating into AMPs XI.S1 (ASME Section XI, Subsection IWE) and XI.S2 (ASME Section XI, Subsection IWL) in Chapter XI of GALL acceptance criteria.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Polaski-4, PECO Energy	148	What is the significance about the maintenance rule for scoping mentioned earlier in the public workshop? It ought to be fairly easy and straightforward to take the maintenance rule answers which were developed under regulation and just apply them to license renewal.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The intents of the license renewal rule and the maintenance rule are similar in that they both verify that the effects of aging on functionality of SSCs will be adequately managed. The Commission has determined that the license renewal rule should credit the existing maintenance rule including the area of scoping for most SSCs when applicable. This is in accordance with the first principle of license renewal, i.e., the reliance on the current regulatory process to protect the public health and safety except for age-related degradation issues. Therefore, an applicant should exercise credit for both the scoping of SSCs and programs developed for the maintenance rule in addressing compliance with the license renewal rule to the extent possible within the guidelines of license renewal. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Polaski-5, PECO Energy	157	A general concern is that the plants that are going through license renewal right now are some of the original plants that were licensed, and a lot of the programs that are credited in GALL are written from the viewpoint of latest, best industry standards that would be suitable to a fairly recent plant, like a Watts Bar or a plant like that, but have no applicability at all to the earlier plants; and so, some of the earlier plants are going to expend a great effort to try to use GALL to the extent that was hoped it would be. Part of the challenge will be to adapt GALL so that it reflects, justifiably, earlier applications for older plants which were accepted despite some disagreements with the presentation and aging management programs in the GALL report. The reason being is not to have subsequent plants of a similar vintage to submit applications and to have to revisit issues and concerns that were previously accepted by the NRC in some respect anyway.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Patel-1 in this Table A.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Polaski-6, PECO Energy	159	It is not clear that we will have the immediate increase in efficiency that some people hoped we would have, where it would have been. If I'm putting in an application two years from now for a plant that was built and the license will expire in 2012, I ought to be able to go right down the list and match up. I think you're going to find there's going to be some disparity. Maybe 10 years from now, when you're talking about a Watts Bar and some of the latest plants, it should be very clear-cut that that process will go real easy.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	If industry representatives or future applicants think the GALL report is too limited in scope in the number of SSCs presented, or in the number or content of the evaluations of AMPs (thus applying only to newer plants), the NRC should be informed of such. The NRC is sensitive to this issue, but the GALL report cannot envelope all plant-specific details because it would not be a generic evaluation of aging management programs that applicants could use to present and justify their own programs. The GALL report was not revised to address this comment.
Robinson-1, Duke Energy	111	During the Oconee work, one-time inspections played a very important role for us, in that there were certain areas where we could not characterize the aging that was going on. We proposed one-time inspections as an opportunity to go in, look at the hardware, characterize what may be going on, and then determine if follow-up and more perpetual aging management programs were required. Could you address the characterization of aging, versus proving that an aging management program is effective?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	NRC presented the position in the GALL report that a one-time inspection was a verification of an existing AMP that probably was adequately managing the aging effect, and that new proposed programs or modifications of the existing program, based on input from the one-time inspections, were not out of the question, but were not likely. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Robinson-2, Duke Energy	112	The one-time inspections at Oconee were aimed at areas where no program existed or the aging mechanisms occurring could not be characterized. Using the water chemistry program as an example, after over 20-25 years of operating nuclear power plants with chemistry programs, if corrosion was going to occur in the systems in which chemistry is controlled then evidence of that would have been apparent by now. One-time inspections can be very valuable in helping you characterize things where knowledge of what prevailing synergistic effects are going to do to hardware is not available. But be careful when you're including well established, and well run programs, like a chemistry program, for which additional sampling is not required, based on operating experience, into the bin of programs to be verified by one-time inspections.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	One-time inspections are appropriate to "verify" that an aging effect is being adequately managed by existing programs, if it is postulated that a very slow-acting aging mechanism is in progress or no aging effect is to be observed. However, there are concerns about possibly long incubation periods or lack of evidence about an aging effect. Corrective action process based on either operating experience or inspections could be used to initiate a plant-specific program. The GALL report identifies the need for a one-time inspection on a case-by-case basis. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Robinson-3, Duke Energy	146	The whole scoping methodology exercise seems to be evolving to the point of looking at what's not in scope. There seems to still be a disconnect between the scoping phase and the aging management review phase of renewal. My first comment is that it seems there could be a more efficient way to get through that. The second comment is that we focus a lot of scoping on structures and systems. There's the other aspect of commodity reviews that we do, sort of super-set reviews that we do at the aging management review level.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The reviews of an applicants' scoping and screening methodologies will become more efficient as more applications are processed and the staff knows what questions to ask to not only expedite the review but also to obtain reasonable assurance that all aging effects are being adequately managed. The GALL report was not revised to address this comment.
Robinson-4, Duke Energy	161	The write-up in the SRP and GALL on the words to be used in an applicant's FSAR supplement may cause future applicants some concern. For Oconee we have included our FSAR supplement in our FSAR, and are trying to make sure we have procedures in place to maintain those words into the future. Reasonably specific information in a FSAR will be required in order to give guidance to future generations. Some of the words in the GALL and SRP are not specific and strong enough about their intent or meaning to prevent an applicant from changing the words in his FSAR at a later date to something that is less specific than originally intended.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The write-up in the SRP on the content of the FSAR supplement represents minimum information. An applicant may propose to include more details if that helps in maintaining the licensing commitment for its plant. NRC would welcome any suggested improvements during or subsequent to the public comment period of the license renewal guidance documents so as to assist applicants in the future maintenance of their FSAR's content. The nature of such suggestions would have to be specific in order for the staff to assess their merit and make the necessary changes to the GALL report and the SRP on the content of the FSAR supplement. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Robinson-5, Duke Energy	173	If we meet some information in GALL, then we should take credit for it. A code or standard does not manage aging, but it's the actions under the program that manages aging. A code or guidance document gives us some help in setting up that program, but we still have to do the program in-house. If our code or standard is a later version than the one referenced in GALL then we have to make sure that we're doing the appropriate aging management task in-house. Referencing a code like 50.55(a) means nothing, it's the program actions themselves that we have to justify so that you can make a judgment on them not the codes and standards.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Chang-6 in this Table A. .
Robinson-6, Duke Energy	175	There are really two issues. One is how you measure up to GALL and what happens if you want to use a code that's outside of the particular rev that's been described in GALL. That's sort of an administrative process you have to go through. The other question is, once you've signed up for a program that has certain elements to it that will help you manage aging, how do you, in a systematic way, begin to progress and mature beyond that?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Chang-6 in this Table A for what to do when references in the GALL report and in an applicant's application are different prior to granting a renewed license. The process to change a code or standard after granting an applicant a renewed license is the 10 CFR 50.59 process. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Robinson-7, Duke Energy	176	Being clear with what's written in GALL, whether I agree with it or I want to take a deviation from it, you've got to be specific. You can't just say an in-service inspection, but if you call out a particular type of volumetric inspection or a particular technique that you believe works or that you've seen in industry practice that works and you want to report that in GALL and I want to deviate from it, you have to be specific enough so I can know how to deviate.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report is a generic evaluation of aging management programs for specific materials in certain environments. The GALL report describes one acceptable way to manage aging effects. An applicant can deviate from any program but must then provide reasonable assurance on the adequacy of his program to manage aging. This also applies to the codes and standards on which an aging management program is based. The NRC received several comments during the formal public comment period on how to modify the GALL report to make it more specific and evaluated them individually. Any additional comments on this same matter should identify where the GALL report lacks specificity. The GALL report was revised to address this comment and other similar public comments by modifying the AMPs in the GALL report.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Robinson-8, Duke Energy	191	When aging effects are identified in GALL, they should not be just someone's perspective or experiences that can not be substantiated by operating experience or a legitimate reference document. An assertion based on some laboratory experience in graduate school but with no operating experience should not be allowed since there is really nothing for an objective reviewer to follow up on. A word search should be done to avoid using phrasing such as "based on staff experience, these effects occur."	The basis for this comment is contained in and around the denoted transcript page (T-pg).	One of the elements requested of all programs is operating experience per SRP, Appendix A. All programs in the GALL report, chapter XI, have supporting evidence why they are legitimate programs. The NRC has made all operating experience provided in the GALL report objective rather than the subjective viewpoint of the staff that developed a particular program. A word search produced no instances where aging programs were not adequately supported. In addition, the NRC reverified any operating experience that had been questioned based on formal comments submitted. The GALL report was not revised to address this comment.
Rycyna-1, CNS	160	What are the expectations of those plants that have programs similar to those in the GALL report but for which it's more effort to justify similarity with the GALL than to do the 10-point review and just ignore the GALL?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	If the GALL report is bounding then an applicant can merely reference the GALL report. If not, an applicant should provide reasonable assurance on the suitability of a new or augmented program for a particular application. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Taormina-1, CNS	188	Can an applicant identify in GALL the appropriately corresponding system, components, with the same materials and environments and make the conclusion that it has the same aging effects and put that in his application? Is it acceptable to use the GALL as a basis for the aging effects requiring management for a particular system? I don't feel I should have to address an aging effect that's in the GALL if my own analysis shows I don't require to manage that, unless you can let me use the GALL to draw those conclusions, in which case, if I need to dispute the finding in the GALL, I'd like to see those technical bases for those conclusions that are in the GALL.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report is not a scoping document, and an applicant can only reference it when the GALL report is bounding. The applicant bears the entire responsibility for determining and defending what applicable aging effects and mechanisms are relevant for his plant. The inclusion or exclusion of an SSC in the GALL report does not dictate that an SSC will be included or excluded in the application. Thus, its associated aging effect or mechanism would be treated similarly. For example, there may be aging effects observed through plant-specific operating experience that may not be included in the GALL report. The GALL report was not revised to address this comment.
Taormina-2, CNS	190	It was our understanding that the GALL was really intended to describe how programs are adequate to manage aging effects for those particular systems and structures, not necessarily to describe which aging effects require management. We were just curious where the basis for those aging effects requiring management came from.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	GALL is a generic evaluation of aging management programs for specific materials in certain environments. The basis for the description of aging effects requiring management stems from the original GALL report (NUREG/CR-6490). This was a comprehensive catalog of aging effects based on an extensive review of operating experience and aging studies. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-1, NEI	31	Implicit in many of the topics addressed today is how the Regional inspection process or program will be applied. If not already targeted as being addressed today, can you place it on the agenda for today?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC anticipates that the inspection guidance documents contained in plant inspection procedures will evolve and be refined slightly as more applications are processed. Presently, inspection plans are developed from them for separate reviews of scoping and screening methodology and aging management programs, including TLAAs, during the license renewal process. Before the start of the extended period of operation, another inspection will be performed to verify the status of outstanding commitments or licensing actions identified by applicants during the license renewal process. The inspection plans could evolve to a much greater extent than the procedures since they focus on problem areas defined by prior experience or staff guidance. The inspections will focus on the supporting evidence for scoping methodology and aging management programs kept in an auditable form at the site. This will be pursued, along with other key areas under the guidance of NRC staff in headquarters. The NRC will entertain comments of a more specific nature on the inspection procedures for license renewal contained in both manual chapters 2515 and 2516. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-2, NEI	66	How is the distinction between structures/components (one column in the August 2000 draft version of GALL) and regions of interest (adjacent column in the August 2000 draft version of GALL) handled in the revised 1-page format where the region of interest column is eliminated?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The GALL report has been reformatted into a single-page format that retains the distinction between "structure & component" and "regions of interest" by having a single column where the heading is "structure and/or component." The immediate entry under that column for each line item is the structure and component of concern with subcategories on that same line item being the previous regions of interest. The GALL report was revised to address this comment as stated above.
Walters-3, NEI	67	*Has the NRC ever considered adding a column for function? (If the purpose of the rule is to manage aging to ensure functionality, it is not clear how programs can be evaluated without considering function.)*	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The NRC has not included a column for "intended function" in the GALL report for several reasons. First, an SSC can have several intended functions with the aging effect and mechanism being the same for each. Listing all those intended functions would unnecessarily increase the volume of the GALL report. Second, intended functions are plant specific, which, if included, would further detract from the generic nature of the GALL report. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-4, NEI	68	Has the NRC considered an approach that would start with the program first, specifically those where no further evaluation was required? The components would be defined for each program and then the GALL-type of format would be utilized for those programs that require further evaluation. This approach might be a more expedient way for the applicant to go through the process.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Generally, an applicant first must determine what SSCs are included within the licensing renewal rule. Once he determines that, then the GALL report presents an understandable format for determining the evaluations performed for a SSC and the results. Again, the applicant can follow the GALL format or present his own. In addition, the SRP summary tables for a grouping of plant systems provide, in a condensed format, the association between SSCs, aging effect/mechanism, programs, and plant type. Chapter XI of the GALL report also provides a compilation of aging management programs. The GALL report was not revised to address this comment.
Walters-5, NEI	70	At this date, has it been determined that the final version of GALL will be reformatted or are you considering this and looking for input?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Lockbaum-9 in this Table A. The GALL report was previously revised to address this issue but not specifically for this comment.
Walters-6, NEI	77	The SRP seems to describe a methodology of how to evaluate scoping and it really focuses on proving the negative. The licensee has to defend why something wasn't in the scope. Although separate from GALL, it seems to be a logical extension that the staff reviewer may ask why wasn't something in scope that was included in the GALL report?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Patel-5 in this Table A.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-7, NEI	81	By structural monitoring program, is it implied that an applicant can take credit for a similar program implemented under the maintenance rule?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	An applicant can take credit for a program meant for compliance with the maintenance rule if the applicant provides reasonable assurance in the LRA why it is also applicable to adequately manage aging effects for those SSCs without all ten elements present as required by SRP, Appendix A, for all programs. The staff would review this program to see if it meets the criteria for an aging management program. The GALL report was not revised to address this comment.
Walters-8, NEI	90	The issue seems to be that the Agency looked at the 50.55(a) rulemaking to endorse IWE and IWL for containment inservice inspections, specifically with an eye to license renewal. I believe the statements of consideration indicate that they did that, and that they found it acceptable for the period of extended operation. On this issue, we've just been in quandary why, if that's what the intent of the rulemaking was, is there now an exception to that to do something different?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The Statements of Consideration (SOC) (60 FR 22461; May 8, 1995) in support of 50.55a rulemaking endorse IWE and IWL for containment inservice inspections. The Commission amended Part 54, but did not limit aging management activities for containment for license renewal to just IWE and IWL. Aging management activities including IWE and IWL should adequately manage aging effects. If not, they should be augmented to accomplish that goal. The GALL report is consistent with the 50.55a rule and recommends aging management programs for areas that are not covered by 10 CFR 50.55a. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-9, NEI	116	If a one-time inspection is performed for an area, as agreed in GALL, is it possible that this inspection could be done at a more opportune time (such as during an outage) either before or during the preparation of an application? Would this still qualify as satisfying that particular need?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	A one-time inspection is a verification of the absence or presence of specific types of corrosion. It may be performed at anytime in accordance with the GALL report, Chapter XI, AMPM32, as long as it is before the expiration of the original operating period. Preferably, the inspection should be as near the end of the original licensing period as possible. The GALL report was not revised to address this comment.
Walters-10, NEI	132	Do we have, collectively, any operating experience that shows that inaccessible cables are being degraded? Do we have any experience that suggests that those cables, the buried cables, in particular, are degrading? I guess the question is how aggressive do we have to be in going to look for this aging? An issue with the original rule was we shouldn't have to speculate on what might occur. We ought to deal with what we know.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The concern is with non-EQ cables within the license renewal rule exposed to environmental effects (like temperature and water), that could compromise their safe operation after 40 years. Accessible cables can be monitored for hot spots, and there is recent operating experience with degradation with inaccessible cables. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-11, NEI	136	For EQ equipment, is there anything that precludes the staff from accepting an original analysis that shows that the equipment is good for 80 years or 100 years so that additional evaluation is not required every 20-year licensing renewal interval?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Environmental qualification per the license renewal rule is satisfied by a time-limited aging analysis (TLAA). There are three methods to verify that TLAAs are adequate under the license renewal rule in 10 CFR 54.21(c)(1). First, an applicant may show the original TLAA is valid for a time span exceeding the original 40 years and one or more renewal periods. Second, the original TLAA is modified to include at least one extended period of operation. Third, the applicant can show that the aging effects are adequately controlled during the extended period of operation. Proceeding from the first method to the last requires increasing levels of evaluation and assessment on the part of the staff and also the applicant. Equipment cannot be credited for more than one renewal period at a time, but an applicant can decrease his and the staff's review efforts by including as many renewal periods as feasible in the TLAA evaluation. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-12, NEI	143	As a follow-up to the question about looking at what is not in scope, does the NRC actually approve the methodology? Unless you're doing that review to somehow verify that I implemented an approved methodology satisfactorily, in which case I wonder why do you need to do that?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The rule requires the applicant to submit a scoping and screening methodology for NRC approval. The staff will review the methodology and its results to determine if all within scope SSCs have been included. On-site inspection will be used to verify, on a sampling basis, the implementation of the applicant's scoping methodology by primarily reviewing supporting documentation, which forms the basis for his compliance with the rule in regard to scoping. The GALL report was not revised to address this comment.
Walters-13, NEI	167	The staff's evaluation of an applicant's program based on the required ten elements appears rather robust. The content of the programs in the GALL report does not seem to agree with that of the actual programs in the field. How do we come to closure on this issue about increasing the agreement between these two program descriptions?	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See the NRC disposition of comment Bowman-5 in Table A. In addition, the NRC considered public comments on the composition of the aging management programs and revised the GALL report as appropriate. However, each aging management program in the GALL report was evaluated using the ten elements in the SRP, Appendix A. The GALL report was not revised to address this comment.
Walters-14, NEI	168	If the old program is okay and there is a new program that's okay, shouldn't we capture both in GALL, because there is a probability that a certain percentage of licensees will use the old program? Have you thought about that, to the extent that it provides	The basis for this comment is contained in and around the denoted transcript page (T-pg).	The staff focuses its review on the unique aspects in an application rather than generic efforts bounded by the GALL report. The NRC is open to increasing the generic aspects of the GALL report based on the staff's approval of an applicant's inspection and research

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-14, NEI (cont.)		sufficient credit? There's probably other situations like that, where there's a percentage of licensees who use a certain version or revision of a particular Reg. Guide or code. Older programs may be in place and may be just as acceptable as a newer program, and should we capture those in GALL?		activities and where the revision of a code or standard has an innocuous effect on an existing program. For the latter case, the GALL report could be expanded to include both the new and old programs supported by different code or standard revisions, as along as each adequately manages the postulated aging effects. Conformance, as well as exceptions to a Regulatory Guide, staff position, standard, or code in accordance with a plant's CLB or evaluated in an NRC document, should be noted in an application, but only the exceptions should be reviewed by the staff. The GALL report looks back and reflects on experience; future GALL updates (when issued) would address the most recent experience. The NRC's experience with its research programs, inspections, and industry insights will provide some guidance as to when and to what extent the GALL report needs to be expanded. The GALL report was previously revised to address this comment based on staff reviews of other similar comment but not directly as a result of this comment. Dispositions of other comments on programs are provided elsewhere.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-15, NEI	173	I think for the codes and standards that are not endorsed by 50.55(a), certainly you could evaluate those in GALL, and I believe that the applicant, certainly if they implement the version that was evaluated in GALL, has a straightforward job. If they've got a different revision that they're using, then perhaps what they need to do is evaluate the differences and provide that in the application.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Chang-6 in this Table A in regard to the incorporation of codes and standards in the GALL report or applications. The NRC has reviewed the 1995 ASME Code Edition through 1996 Addendum against the ten element evaluations for AMPS where the Code is utilized in Chapter XI of GALL. Where appropriate, the NRC has identified and included those items that are different in the 1995 Code Edition through the 1996 Addendum from the 1989 ASME Code Edition in Chapter XI.M1. Any future revisions of the ASME code will be evaluated in a similar manner as described above. If an applicant has a different version of a code and standard than the one referenced in the GALL report, the applicant should evaluate the differences and provide that information in the application. The GALL report was not revised to address this comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-16, NEI	178	There are two issues of concern. (1) If there are two acceptable existing programs, you ought to consider putting both of those in the 8/00 version of GALL. I'll tell you where I differ, and you're going to pass judgement on that and you're going to give me a renewed license. (2) What happens if the ACI standard is upgraded or there's a new ACI standard. I've got to go back and say have I changed anything between what the NRC approved for renewal and what this does, and I would probably argue that even on 50.55(a), the fact that you endorse it by regulation, I'm not sure I just go off and say I'm going to implement that version. Certainly if I took credit for it as an AMP, regardless of code edition, I don't believe I'm going to be able to use that unless I go through the process of evaluating that new edition against what you approved in my LR application. If we're aware of another program that's older, that's acceptable, we shouldn't impose or make GALL appear to impose something newer merely because that's what's in place at the time.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	See NRC disposition of comment Bowman-1 in this Table A to address the first issue in the comment. See NRC disposition of comment Lochbaum-13 in this Table A to address the second issue in the comment.

Table A: Disposition of Participant Comments from the License Renewal Public Workshop, September 25, 2000 (continued)

Commenter and Affiliation	T-pg	Comment	Basis for Comment	NRC Disposition
Walters-17, NEI	192	It's not clear why the process can't work by reviewing what the applicant describes as their methodology for scoping and then also for determining which aging effects require management. If the agency looks at that methodology and applies it however they think they would apply it and they think that a structure or component was omitted or an aging effect was omitted, then ask that question. For the applicant to be requested to provide information about everything that is not included, is very hard. The burden is on the applicant, but I always thought that the burden was to provide your process for how you come up with what's in the basket. If the agency thinks there is a problem with that, then the question ought to go back to the applicant with a basis for why the staff believes, based on their review of the methodology, a certain aging effect or a certain structure or component should have been included, I'm not sure that's the way that we're headed.	The basis for this comment is contained in and around the denoted transcript page (T-pg).	Industry is looking for ways to minimize the amount of information that they are required to put in the application. At the same time, the staff is looking for an optimum level of information that will make reliance on references and the evaluation basis clear. As a general rule, the NRC does not expect to challenge everything, but expects to limit challenges to specific areas based on knowledge, experience, and a rationale. At the same time, an applicant could reference GALL, and where there are differences, should provide basis regarding how the reference was incorporated. The NRC will continue to improve the efforts to explain the reasons behind questions in a clear manner. NRC guidance provides a guide on level of detail in applications in order for the NRC to review the applicable aging effects and assess the effectiveness of aging management programs. The GALL report was not revised to address this comment.

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APPENDIX B

DISPOSITION OF NEI COMMENTS

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B.1. INTRODUCTION

In response to the NRC Request for Public Comments on the Draft Guidance Documents for License Renewal (65 FR 53047, August 31, 2000), the Nuclear Energy Institute reviewed the documents and provided written comments on October 13, 2000 (see Section B.4, References) on the draft guidance documents and for the specific questions posed in the Federal Register notice. In addition, NEI provided additional comments on October 26, 2000 (see Section B.4, References) and November 08, 2000 (see Section B.4, References) on the same documents. Comments were made on the draft Standard Review Plan, the GALL report, and the draft Regulatory Guide. Changes were identified that were necessary to NEI 95-10, “Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule,” Revision 2. About 723 written comments were received from NEI.

B.2. EVALUATION AND DISPOSITION OF COMMENTS

The tables B.2.1 through B.2.16, at end of Appendix B, contain comments received from NEI in accordance with the references provided in Section B.4.

The column heading, "Comment Number," is primarily intended to provide the source of the comment, meaning the letter or meeting from which the comment was obtained (see Section B.4, References), and to indicate whether the comment was originally numbered when submitted. For example, NEI-1 indicates that the comment was made by NEI and the "1" distinguishes this comment from all other NEI comments; however, the "NEI" in front of the number indicates that this comment was not originally numbered when submitted by NEI. A comment number prefixed by either a "G" or "S" indicates that the comment is on the GALL report or Standard Review Plan for License Renewal (SRP-LR), respectively. For example:

- G-IVD1-6 indicates a comment on the GALL report, Chapter IV, Section D1.
- G-XI-M5-1 indicates a comment on the GALL report, Chapter XI, Aging Management Program M5.
- S3.4-2 indicates a comment on the SRP-LR, Section 3.4.
- SA.1-3 indicates a comment on the SRP-LR, Appendix A, Section A.1.
- NEI-1 indicates a comment for which NEI did not actually supply a comment number. NRC numbered the NEI comments consecutively. This applies to comments NEI-1 through NEI-19.
- A single number (1 through 7) indicates a NEI comment on NEI 95-10 for which NEI did supply a comment number, which is shown as the single digit.

The abbreviations used in this appendix are listed in the front matter of this NUREG. All comment numbers use original NEI comment numbers if provided. Traceability between the comments in this Appendix B and the references in Section B.4 is indicated in Section B.3 and is established for all comments. In Tables B.2.8, B.2.10, B.2.12-5, B.2.15, and B.2.16, under the column heading "Item Number," the numbers on the first line for a line item are those from Section B.3 to establish traceability since the origins at comments in these tables are less direct than those in other tables. For example B.3.2 would indicate that Section B.3, item 2, is the source of that comment, and B.3.2 would appear on the first line under the column heading "Item Number." The items on the second or subsequent lines for each line item under this column heading relate to the section of the document on which the listed comment was made. The references in Section B.4 provide the sources of all comments. For the tables B.2.1 through B.2.13, the comments are in alphanumerical order both for each appendix and for this overall appendix. However, Tables B.2.14 through B.2.16 are only in alphanumerical order within each appendix. This is based on the combination of letters and numbers of each comment number as you move from left to right.

B.3. ORIGIN OF NEI COMMENTS

1. All NEI Comments besides those described below

   See Section B.4, Reference 1, Enclosure 3

2. Comments NEI-1 through NEI-5 in Table B.2.15

   See Section B.4, Reference 1, Enclosure 2, pages 1 through 3

3. Comments NEI-6 through NEI-8 in Table B.2.15

   See Section B.4, Reference 1, Enclosure 1, pages 1 through 3

4. Comments NEI-9 in Table B.2.15

   See Section B.4, Reference 1, Enclosure 4, page 1

5. Comments NEI-10 through NEI-13 in Table B.2.15

   See Section B.4, Reference 1, Enclosure 5, page 1

6. Comments G X-1, G XM1-1, G X.S1-1, and G X.S1-2 in Table B.2.8

   See Section B.4, Reference 2

7. Comments S-1-1 through S-1-5; S-2-1 in Table B.2.10

   See Section B.4, Reference 1, Enclosure 3, SRP-LR Comments on Chapters 1 and 2, page 1

8. Comments S-3.5-1 through S-3.5-27 in Table B.2.12-5

   See Section B.4, Reference 1, Enclosure 3, SRP-LR Comments on Chapter 3, pages 20 through 27

9. Comments 1 through 7 in Table B.2.15

   See Section B.4, Reference 1, for Enclosure 5, pages 1 and 2)

10. Comments NEI-14 through NEI-19 in Table B.2.16

    See Section B.4, Reference 3

B.4. REFERENCES

Letter from Alex Marion, Director, Licensing and Programs, Nuclear Generation, Nuclear Energy Institute, to Annette Vietti-Cook, Secretary of the Commission, U.S. Nuclear Regulatory Commission, concerning NRC Request for Public Comments on the Draft Guidance Documents for License Renewal (65 FR 53047, August 31, 2000), October 13, 2000.

Letter from Alex Marion, Director, Licensing and Programs, Nuclear Generation, Nuclear Energy Institute, to Annette Vietti-Cook, Secretary of the Commission, U.S. Nuclear Regulatory Commission, concerning NRC Request for Public Comments on the Draft Guidance Documents for License Renewal (65 FR 53047, August 31, 2000), October 26, 2000.

Meeting between NRC staff and NEI representatives on industry's comments on Chapters 2, 4, and 11 of the GALL report based on the NRC Request for Public Comments on the Draft Guidance Documents for License Renewal (65 FR 53047, August 31, 2000), November 8, 2000.

APPENDIX B, TABLE B.2.1

DISPOSITION OF NEI COMMENTS ON CHAPTER II OF GALL REPORT

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Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA1-1	A1.1 Page II A1-5 Leaching of Calcium Hydroxide Page II A1-7 Aggressive Chemical Attack Page II A1-7 Corrosion of Embedded Steel A1.2 Page II A1-11 Corrosion	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(viii)(E) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	The GALL report is not equivalent to rulemaking. It defines a basis acceptable to the staff for aging management for license renewal. To clarify the GALL provisions for aging management of inaccessible areas, the staff has developed specific criteria that can be applied to address inaccessible areas as follows: For the "Aggressive Chemical Attack" and "Corrosion of Embedded Steel" aging mechanisms, aging management of below-grade exterior inaccessible areas is considered satisfied if the applicant establishes that the below-grade environment is not aggressive, in accordance with criteria presented in revised GALL Chapter II. For the "Leaching of Calcium Hydroxide" aging mechanism, aging management of below-grade exterior inaccessible areas is considered satisfied if the applicant establishes that this aging mechanism is not significant, in accordance with criteria presented in revised GALL Chapter II. For corrosion of inaccessible steel areas of containment, the staff's concern is that concrete containment steel liners or steel containment shells that are embedded in the concrete floor slab are potentially subject to

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA1-1 (cont.)				degradation from inside containment (i.e., water on the containment floor seeping through cracks in the concrete floor or past degraded joint sealants). Specific criteria were added based on a proposal submitted by NEI on 12/4/00 in GALL Chapter II to address inaccessible steel areas of containments. If any of these criteria cannot be satisfied, a plant-specific aging management program is recommended to address that aging mechanism for inaccessible areas. GALL Chapter II tables were revised to incorporate this additional guidance in all applicable locations. GALL, Chapter II was revised to address this comment.
G-IIA1-2	A1.1 Page II A1-5 Leaching of Calcium Hydroxide Page II A1-7 Aggressive Chemical Attack Page II A1-7 Corrosion of Embedded Steel	Apply the findings given in Section III.A.1 for the Class I concrete structures to the "Evaluation and Technical Basis" and "Further Evaluation" columns for concrete components identified.	The technical basis for the Class I concrete structures and the concrete containment (which also is a Class 1 structure) should be consistent.	This was previously captured in GALL XI.S2 in a "Note" under Attribute (6) - Acceptance Criteria. However, to improve clarity, the specific information in GALL IIIA has been added to GALL IIA and IIB. GALL Chapter II was revised to address this comment.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA1-3	A1.1 Page II A1-6 Corrosion of Embedded Steel	Add the reference EPRI TR-103842. Change the Environment column to "Exposure to Aggressive Environment" to be consistent with Item IIIA1.1 on page III A1-6.	A review of the applicable references (EPRI TR-103842, Section 4.1.5, NUREG/CP-0100, Page 85, NUREG-1611, Table 1, Items 04 and 013) concluded that the discussions on "Corrosion of Embedded Steel" refers to the environment within the concrete directly surrounding the rebar. In order to manage embedment corrosion, the surrounding environment must be managed. As long as the surrounding environment does not present an "Aggressive Chemical Attack" to the cover concrete, the concrete environment surrounding the embedment is maintained. The acceptance criteria for the Aggressive Chemical Attack by soil or groundwater (or atmospheric conditions) are: pH>5.5, Chlorides <500 ppm, Sulfates < 1,500 ppm (Reference TR-103842, Section 4.1.3.3). NUREG/CP-0100 also recommends Groundwater Tests for pH, chlorides and sulfates.	The first proposed change is no longer relevant because the reference column was removed from the GALL tables. The second proposed change was incorporated in GALL Chapter II to provide consistency with GALL Chapter III. The technical information included in the justification column proposes the use of acceptance criteria for the surrounding environment, in lieu of acceptance criteria for the internal concrete environment. The staff concurs with this proposal. The following sentence has been added to the Evaluation and Technical Basis for aging effects associated with corrosion of embedded steel: "Alternatively, If the environment surrounding the concrete is not aggressive (pH > 5.5, chlorides < 500 ppm, sulfates < 1,500 ppm), corrosion of embedded steel is not significant." GALL Chapter II was revised to address this comment.
G-IIA1-4	A1.1 Page IIA1-6 Reaction with Aggregates	Aging effect should be cracking	The aging effect is cracking. Expansion would lead to cracking.	The aging effect is more correctly identified as cracking. "Expansion and Cracking" has been changed to "Cracking." GALL Chapter II was revised to address this comment.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA1-5	A1.1 Page IIA1-8 Settlement	Region of interest is Dome, wall and basemat.	Provided as clarification.	To be consistent with other locations in the GALL report, the word "All" has been replaced by "Dome, Wall, Basemat, Ring Girder, Buttresses." GALL Chapter II was revised to address this comment.
G-IIA1-6	A1.1 Page II A1-8 Elevated Temperature	'10 CFR 50.55a ASME Sect. XI, Subsection IWL' should be deleted from Reference column.	The implementation of 10 CFR 50.55a ASME Sect. XI, Subsection IWL would not be able to identify the loss of strength and modulus due to elevated temperature. This has been rightfully stated in the next page.	The proposed change is no longer relevant because the Reference column was removed from the GALL report. GALL Chapter II was not revised to address this comment.
G-IIA1-7	A1.1 Page II A1-8 Elevated Temperature	The following sentence should be added at the end of the existing paragraph: "Higher temperatures than given above may be allowed in the concrete if tests and/or calculations are provided to evaluate the reduction in strength and this reduction is applied to the design allowables."	ASME Section III, Division 2 should be properly quoted. As because aging management of this issue is impractical, option of accepting the elevated temperature with calculation should be available to utilities.	The proposed addition follows the requirements of ASME Section III, Division 2, Subsection CC-3440 and has been incorporated in GALL Chapter II. Evaluation of load-bearing localized areas has also been added. GALL Chapter II was revised to address this comment.
G-IIA1-8	A1.1 Page IIA1-9 Elevated temp	Evaluation and technical basis: Change second sentence to read: Thus, for any portions of concrete containment that exceed specified temperature limits, as referenced in this section, further evaluations are warranted.	The addition of "as referenced in this section" clarifies that it is only the items mentioned in the region of interest column that are evaluated.	The phrase "as referenced in this section" is not considered necessary. It is understood that the evaluation applies only to the items listed. The proposed sentence may be confusing instead of clarifying. GALL Chapter II was not revised to address this comment.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA1-9	A1.2 Page II A1-10 Corrosion	Delete "Structural Steel" from the Region of Interest column.	Containment structural steel is not managed by IWE, rather it is managed by the Structures Monitoring Program per item A4.2 on page III A4-6.	Reference to structural steel is inappropriate. "Structural Steel" has been replaced with "Integral Attachments" in the GALL report. Integral attachments to the containment steel shell or liner are within the scope of IWE. GALL Chapter II was revised to address this comment.
G-IIA1-10	A1.2 Page II A1-10 Corrosion	The discussion of Appendix J and Coatings Programs should be deleted.	Subsection IWE is acceptable as a stand alone program. In the package which was generated in support of the final rulemaking to incorporate by reference into 10 CFR 50.55a ASME Section XI Subsection IWE, it was stated that the inspection criteria of IWE is incorporated to assure that the critical areas of containment are periodically inspected to detect and take corrective actions for defects that could compromise a containment's structural integrity.	The leak tightness is an intended function of containment [10 CFR 54.4(a)(1)(iii)] and is not included in the ISI requirements of IWE. Measurement of an unacceptable leak rate would require an assessment of the cause. The cause may be due to aging degradation from loss of material, cracking, and/or change in material properties. Consequently, this program supplements the ISI program for detecting aging effects. Although the 1992 and 1995 editions of IWE reference App. J leak rate testing for certain examinations, they are not as comprehensive as the requirements of 10 CFR Part 50, Appendix J. In addition, the 1998 and later editions of IWE no longer reference App. J leak rate testing. With respect to the Coatings Program, the GALL report (XI.S8) defines a technical basis acceptable to the staff for a coatings monitoring

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA1-10 (cont.)				and maintenance program. If a coatings program is credited for managing loss of material due to corrosion during the current licensing term, then the GALL report recommends that it should be continued during the period of extended operation. An example of this is a relief request from IWE inspections based on maintenance of protective coatings to control corrosion. The staff has clarified the Chapter II of the GALL report in all applicable locations with respect to the protective coatings program. GALL Chapter II was revised to address this comment.
G-IIA1-11	A1.2 Page II A1-12 Corrosion of Tendons	Delete reference NUREG-1522.	NUREG-1522 is not a mandated program and should be deleted from the Reference column.	The proposed change is no longer relevant because the reference column was removed from the GALL report. GALL Chapter II was not revised to address this comment.
G-IIA1-12	A1.2 Page II A1-12 Relaxation	Add reference ACI 318-95.	Other methods such as ACI-318-95 may be more accurate, appropriate or current.	The proposed change is no longer relevant because the reference column was removed from the GALL report. Also ACI 318-95 does not address TLAA for loss of tendon prestress. GALL Chapter II was not revised to address this comment.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA1-13	A1.3 Page IIA1-13 Corrosion of tendons	Delete the paragraph under evaluation and technical basis that discusses the tendon gallery.	The environment of the tendon gallery is similar to the external dome environment. Both environments subject the tendon anchorage to moisture, humidity, etc. Therefore, the tendon gallery environment is not unique and should not be singled out. In addition, the tendon anchorages are protected from the moist, humid environment by the tendon caps and grease which is within the cap. The tendon anchorages are evaluated by Subsection IWL regardless of where they are located. Tendon anchorage within the tendon gallery would be evaluated by Subsection IWL.	The discussion of the tendon access gallery was for information only, to indicate that managing the condition and environment in the tendon access gallery is a prudent way to manage degradation of tendon anchorage components located there. GALL did not impose any requirement for aging management of the tendon access gallery because the tendon access gallery does not serve an intended function, in accordance with the criteria of 10 CFR Part 54. Since the paragraph in question is not an essential part of GALL, it has been deleted from GALL Chapter II in all applicable locations. GALL Chapter II was revised to address this comment.
G-IIA2-1	A2.1 Page IIA2-5 Corrosion	Delete Appendix J and Coatings Program from AMP and evaluation and Technical Basis.	Subsection IWE is acceptable as a stand alone program. In the package which was generated in support of the final rulemaking to incorporate by reference into 10 CFR 50.55a ASME Section XI Subsection IWE, it was stated that the inspection criteria of IWE is incorporated to assure that the critical areas of containment are periodically inspected to detect and take corrective actions for defects that could compromise a containment's structural integrity.	See NRC Disposition of NEI Comment G-IIA1-10 in this Appendix B, Table B.2.1. .

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA2-3	A2.1 Page IIA2-5 Corrosion A2.2 Page IIA2-7 Leaching of Calcium Hydroxide Page IIA2-7 Aggressive Chemical Attack Page IIA2-9 Corrosion of Embedded Steel	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA2-4	A2.2 Pages II A2-6 & II A2-7 Freeze/Thaw, Leaching of Calcium Hydroxide, Aggressive Chemical Attack Pages II A2-8 & II A2-9 Reaction of Aggregate and Corrosion of Embedded Steel Pages IIA2-10 & IIA2-11 Elevated Temperature	In lieu of ASME XI, IWL, licensees should be able to credit the Maintenance Rule 10CFR50.65, Regulatory Guide 1.160 Rev.2, and NUMARC 93-01. Add these references to the reference column. Add "or Structures Monitoring Program" in the AMP column and add statement "See Chapter XI.S6" in the Evaluation & Technical Basis column.	In lieu of ASME XI, IWL, licensees should be able to credit the Maintenance Rule 10CFR50.65, Regulatory Guide 1.160 Rev.2, and NUMARC 93-01. BASIS: These programs are particularly effective for structures and supports, which are not currently under the scope of ASME XI-IWL. The structural monitoring programs developed under MR have been mandated since 1996 and therefore provide operating experience and effectiveness demonstration. NEI submitted a paper to the NRC dated 3/26/99, regarding structural monitoring programs, with a request to declare the structural monitoring program an effective aging management program for structures on a generic basis.	The first proposed change is no longer relevant because the reference column was removed from the GALL report. The second proposed change, to credit the Structures Monitoring Program (XI.S6) in lieu of IWL (XI.S2) is inappropriate. The Structures Monitoring Program is applicable to concrete not within the IWL scope. An applicant cannot substitute the Structures Monitoring Program for aging management of concrete that is within the IWL scope. GALL Chapter II was not revised to address this comment.
G-IIA2-5	A2.2 Page IIA2-11 Elevated temp	Evaluation and technical basis: Change second sentence to read: Thus, for any portions of concrete containment that exceed specified temperature limits, as referenced in this section, further evaluations are warranted.	The addition of "as referenced in this section" clarifies that it is only the items mentioned in the region of interest column that are evaluated.	See NRC Disposition of NEI Comment G-IIA1-8 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA3-1	A3.1 Page II A3-4 Corrosion	Delete the dissimilar metal welds from the Material column.	10 CFR 50.55a(b)(x)(C) states that the examination of these items is optional.	10 CFR 50.55a does not state that examination of dissimilar metal welds is optional. 10 CFR 50.55a states that IWE Examination Category E-F, which is a surface examination of dissimilar metal welds (e.g., liquid penetrant inspection), is optional. IWE Examination Categories E-A and E-C are also applicable to dissimilar metal welds and are required by 10 CFR 50.55a. Based on discussion with NEI at the 1/30/01 meeting, GALL Chapter II was revised at all appropriate locations to indicate that IWE Examination Category E-F is optional. GALL Chapter II was revised to address this comment.
G-IIA3-2	A3.1 Page IIA3-5 Penetration sleeves	Delete coatings program.	ASME Subsection IWE and Appendix J tests are adequate without the coatings program.	See NRC Disposition of NEI Comment G-IIA1-10 in this Appendix B, Table B.2.1. .
G-IIA3-3	A.3.1 Page II A3-6 Fatigue	Delete the dissimilar metal welds from the Material column.	10 CFR 50.55a(b)(x)(C) states that the examination of this item is optional.	Fatigue is a TLAA and is not addressed by 10 CFR 50.55a. GALL Chapter II was not revised to address this comment.
G-IIA3-4	A.3.1 Page II A3-6 & II A3-7 SCC, Cyclic Loading	Delete the dissimilar metal welds from the Material column and Evaluation and Technical Basis column.	10 CFR 50.55a(b)(x)(C) states that the examination of this item is optional.	See NRC Disposition of NEI Comment G-IIA3-1 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIA3-5	A.3.1 Page II A3-7 SCC, Cyclic Loading	Delete the comment "(one option may be to perform VT-1 visual inspections)" from attribute (4).	VT-1 is not an effective examination for fine cracks such as fatigue. Additionally, most of the metal surfaces are coated. A more effective method is the leak test of Appendix J for non-fatigue CLB plants.	Visual inspection VT-1 is not effective. The phrase "(one option may be to perform VT-1 visual inspections)" has been deleted throughout GALL Chapters II and III, as applicable. The applicant should describe a plant-specific approach to detection of fine cracks in its application. GALL Chapter II was revised to address this comment.
G-IIA3-6	A3.2 Page IIA3-9 Airlock	Delete coatings program.	ASME Subsection IWE and Appendix J tests are adequate without the coatings program.	See NRC Disposition of NEI Comment G-IIA1-10 in this Appendix B, Table B.2.1.
G-IIA3-7	A3.2 Page II A3-10 Mechanical Wear of Locks	Reword the Aging Mechanism column to read as follows: "Mechanical Wear of Locks, Hinges and Closure Mechanisms required to maintain the airlock/hatch in the closed position."	Should only evaluate the components required to maintain the hatch in the closed position to support the intended function (essentially leak tight barrier).	A passive intended function meeting the criteria of 10 CFR Part 54 exists for locks, hinges, and closure mechanisms on containment airlocks and hatches during normal operation. It is to maintain leak-tight integrity of airlocks and hatches when they are in the closed position. Consequently, the wording in GALL IIA.3 and IIB.4 was revised to be consistent with NEI's original comment. The staff maintains that these items are within the LR scope. The staff has revised GALL to specify that aging management is accomplished by existing Appendix J leak rate testing and plant-specific Technical Specifications. No augmentation or further evaluation is needed. GALL Chapter II was revised to address this comment.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIB1-1	B1.1.1 Page II B1-5 Corrosion	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.
G-IIB1-2	B1.1.1 Page II B1-5 Corrosion	The discussion of Appendix J and Coatings Programs should be deleted.	IWE is acceptable as a stand-alone program.	See NRC Disposition of NEI Comment G-IIA1-10 in this Appendix B, Table B.2.1.
G-IIB1-3	B.1.1 Page II B1-7 Steel Elements Cyclic Loading	Delete the comment "(one option may be to perform VT-1 visual inspections)" from attribute (4).	VT-1 is not an effective examination for fine cracks such as fatigue. Additionally, most of the metal surfaces are coated. A more effective method is the leak test of Appendix J for non-fatigue CLB plants.	See NRC Disposition of NEI Comment G-IIA3-5 in this Appendix B, Table B.2.1.
G-IIB2-1	B2.1.1 Page II B2-5 Corrosion	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIB2-2	B2.1.1 Page II B2-7 Steel Elements Cyclic Loads	Delete the comment "(one option may be to perform VT-1 visual inspections)" from attribute (4).	VT-1 is not an effective examination for tight cracks such as fatigue. Additionally, most of the metal surfaces are coated. A more effective method is the leak test of Appendix J for non-fatigue CLB plants.	See NRC Disposition of NEI Comment G-IIA3-5 in this Appendix B, Table B.2.1.
G-IIB2-3	B2.2.1 Page II B2-9 Concrete Elements Leaching	Delete the "Yes" and the description from the Further Evaluation column and replace with "No".	The leaching of Calcium Hydroxide requires the free flow of water across the concrete section (i.e. via through-wall cracks). If both sides of the concrete are not accessible, no flow can occur. If one side is accessible (exposed) then indication of degradation is evident and the concern does not apply.	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.
G-IIB2-4	B2.2.1 Page II B2-9 Leaching of Calcium Hydroxide Page II B2-9 Aggressive Chemical Attack Page II B2-11 Corrosion of Embedded Steel	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIB2-5	B2.2.1 Page II B2-9 Concrete Elements	In the "Evaluation and Technical Basis" and "Further Evaluation" columns for the Mark 2 and 3 concrete components for Leaching of Calcium Hydroxide, Aggressive Chemical Attack, Reaction with Aggregates and Corrosion of Embedded Steel aging mechanisms, apply the findings given in Section III.A.1 for the Class I concrete structures.	The technical basis for the Class I concrete structures and the concrete containment (which also is a Class 1 structure) should be consistent. This comment also applies to the PWR concrete containment, Section IIA for the same aging mechanisms.	See NRC Disposition of NEI Comment G-IIA1-2 in this Appendix B, Table B.2.1.
G-IIB2-6	B2.2.2 Page II B2-15 Corrosion	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.
G-IIB3-1	B3.1.1 Page II B3-5 Corrosion	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIB3-2	B3.1.2 Page II B3-7 Leaching of Calcium Hydroxide Page II B3-9 Aggressive Chemical Attack Page II B3-9 Corrosion of Embedded Steel	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.
G-IIB3-3	B3.2.1 Pages II B3-13 & II B3-15 Concrete Elements	In the "Evaluation and Technical Basis" and "Further Evaluation" columns for the Mark 2 and 3 concrete components for Leaching of Calcium Hydroxide, Aggressive Chemical Attack, Reaction with Aggregates and Corrosion of Embedded Steel aging mechanisms, apply the findings given in Section III.A.1 for the Class I concrete structures.	The technical basis for the Class I concrete structures and the concrete containment (which also is a Class 1 structure) should be consistent.	See NRC Disposition of NEI Comment G-IIA1-2 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIB3-4	B3.2.1 Page II B3-13 Leaching of Calcium Hydroxide Page II B3-13 Aggressive Chemical Attack Page II B3-15 Corrosion of Embedded Steel	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.
G-IIB3-5	B3.2.2 Page II B3-19 Corrosion	There are additional requirements for inspection of inaccessible areas when there are no indications of degradation for (adjacent, nearby) accessible areas. This requirement should be removed from Evaluation and Technical Basis and Further Evaluation.	Imposing such requirements is tantamount to additional rulemaking over and above 10 CFR 50.55a without adhering to the rulemaking process. Section (b)(2)(ix)(A) of 10 CFR 50.55a says "the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas."	See NRC Disposition of NEI Comment G-IIA1-1 in this Appendix B, Table B.2.1.
G-IIB4-1	B.4.1 Page II B4-4 Corrosion	Delete the dissimilar metal welds from the Material column.	10 CFR 50.55a(b)(x)(C) states that the examination of this item is optional.	See NRC Disposition of NEI Comment G-IIA3-1 in this Appendix B, Table B.2.1.
G-IIB4-2	B.4.1 Page II B4-6 Fatigue	Delete the dissimilar metal welds from the Material column.	10 CFR 50.55a(b)(x)(C) states that the examination of this item is optional.	See NRC Disposition of NEI Comment G-IIA3-3 in this Appendix B, Table B.2.1.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIB4-3	B4.1 Page II B4-6 Cyclic Loading	Cracking due to cyclic loading is a TLAA and should be addressed similar to Item B4.1 Fatigue.	Cyclic loading only applies to some penetrations and torus-attached piping, which are required to have a fatigue analysis under the Containment Loads Program.	If a CLB fatigue analysis exists, then this is covered under the “Fatigue” aging mechanism. The “Cyclic Loading” aging mechanism is intended to address cases where cyclic loading is applicable, but a CLB fatigue analysis does not exist. GALL IIB4 and IIA3 were revised to clarify this distinction. GALL Chapter II was revised to address this comment.

Table B.2.1: Disposition of NEI Comments on Chapter II of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIB4-4	B.4.1 Page II B4-7 SSC, Cyclic Loading	Delete reference to augmented VT-1 examinations of bellows and dissimilar metal welds.	Fatigue and SCC cracks cannot be detected by VT-1 or by any surface examination. The Type B local leak test per Appendix J is the most effective method, particularly for two-ply bellows, which are normally pressurized between the plies.	With respect to fatigue cracks, see NRC Disposition of NEI Comment G-IIA3-5 in this Appendix B, Table B.2.1. With respect to SCC cracks, the staff notes that problems regarding Type B local leak rate testing for 2-ply bellows have been described in NRC IN 92 20; this should be addressed in an applicant's Appendix J program. In the Evaluation and Technical Basis, Attribute (4), for SCC, "augmented VT-1 visual examination" has been deleted and the last sentence revised to read: "For the period of extended operation, Examination Categories E-B & E-F and additional appropriate examinations to detect SCC in bellows assemblies and dissimilar metal welds are warranted to address this issue." This revision has been implemented throughout GALL Chapter II, as applicable. GALL Chapter II was revised to address this comment.

APPENDIX B, TABLE B.2.2

DISPOSITION OF NEI COMMENTS ON CHAPTER III OF GALL REPORT

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Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIA1-1	III A1.1, aggressive chemical, page III A1-7	Evaluation and technical basis should include the information from the preceding item on the aggressive environment limits. Further evaluation should be changed to yes, if exceed aggressive chemical limits.	Limits have been previously documented and should be included here to be consistent.	The only concern for aging degradation of below-grade concrete is restricted to the presence of a below-grade aggressive environment, which may lead to chemical attack of the concrete and corrosion of embedded steel. Specific criteria that define an aggressive below-grade environment have been added to GALL IIIA. In the presence of an aggressive below-grade environment, a plant-specific aging management program is needed and must be described in the license renewal application. GALL IIIA was revised to address this comment.
G-IIIA1-2	IIIA1.1, Concrete degradation	There appears to be a mix-up in several table entries between Below Grade/Exterior and Above Grade/Interior. The criteria for aggressive chemical attack are for aggressive groundwater (below grade), not for above grade/interior surfaces.		See NRC disposition of NEI Comment G-IIIA1-1 in this Appendix B, Table B.2.2.
G-IIIA1-3	III A1.1, erosion of porous concrete, page IIIA1-8	Delete sections on porous concrete throughout the document. Including III A2.1, page IIIA2-8; IIIA3.1, page IIIA3-8; IIIA5.1, page IIIA5-8; IIIA6.1, page IIIA6-8; IIIA7.1, page IIIA7-8; IIIA8.1, page IIIa8-8.	This is not a generic aging effect. Erosion of porous concrete is a current licensing issue being handled on a site-specific basis and as such should not be included in this document.	Many entries in GALL address aging effects that do not generically apply to all NPPs. It is appropriate to include it, so that affected plants address it for the period of extended operation. GALL IIIA was not revised to address this comment.

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-III.A1-4	III A1.1, Erosion of Porous Conc, page III A1-8	If the previous comment is not incorporated, then change Material from "Reinforced Concrete" to "Porous Concrete".	Provides a more accurate description.	The concern is for loss of strength, cracking and differential settlement of the foundation, which is reinforced concrete. However, for completeness, GALL IIIA has been revised to add "subfoundation" and "porous concrete" in the structural component and material columns, respectively. GALL IIIA was revised to address this comment.
G-IIIA1-5	III A1.2, corrosion, page IIIA1-9	Delete the statement on protective coatings under evaluation and technical basis. Including IIIA4.2, page IIIA4-7 IIIA5.2, page IIIA5-9 IIIA6.2, page IIIA6-9 IIIA7.2, page IIIa7-9	The Structures Monitoring Program is adequate as a stand-alone program without the coatings program.	Clarified the applicability of a protective coatings program as follows: "If protective coatings are relied upon to manage the effects of aging, the structures monitoring program must include requirements to address protective coatings monitoring and maintenance. GALL IIIA was revised to address this comment.
G-IIIA1-6	III A1.2, corrosion, page IIIA1-9	Delete requirement on inaccessible areas. Including IIIA3.2, page IIIA3-9 IIA5.2, page IIIA5-9 IIIA7.2, page IIIA7-9 IIIA8.2, page IIIA8-9	Requirements on inaccessible areas are not required by the Code on containment. Therefore, group 1 structures should not be more restrictive than Code requirements for containment.	There is no generic concern relating to aging of inaccessible structural steel in Class 1 structures. The proposed deletions have been implemented. GALL IIIA was revised to address this comment.

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIA1-7	III.A1.3, page IIIA1-9 Masonry Walls	Revise the AMP column to "Structures Monitoring Program or Masonry Wall Program" and add referral to Chapter XI-S6 to Evaluation column.	Either program may be used.	Guidance on the applicability of XI.S6 "Structures Monitoring Program" for aging management of masonry walls was added to the 'Program Description' of XI.S5. The AMP for masonry walls can be either the XI.S6 "Structures Monitoring Program" or the XI.S5 "Masonry Wall Program." AMP XI.S5 was revised to address this comment.
G-IIIA2-1	III.A2.3, page IIIA2-9 Masonry Walls	Revise the AMP column to "Structures Monitoring Program or Masonry Wall Program" and add referral to Chapter XI-S6 to Evaluation column.	Either program may be used.	See NRC disposition of NEI Comment G-IIIA1-7 in this Appendix B, Table B.2.2.
G-IIIA3-1	III.A3.3, page IIIA3-9 Masonry Walls	Revise the AMP column to "Structures Monitoring Program or Masonry Wall Program" and add referral to Chapter XI-S6 to Evaluation column.	Either program may be used.	See NRC disposition of NEI Comment G-IIIA1-7 in this Appendix B, Table B.2.2.

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIA5-1	A5.2, liners, page IIIA5-9	On Page IIIA5-9, delete the discussion in the Evaluation and Technical Basis column and insert the Water Chemistry Program as the applicable AMP and add referral to ChapterXI-M11.	The water chemistry program precludes aging effects by maintaining the spent fuel pool parameters such that degradation would not occur.	The Water Chemistry Program (now XI.M2) has been identified as the applicable AMP. However, in addition to the Water Chemistry Program, the monitoring of the spent fuel pool water level is also necessary, because reliance solely on control of water chemistry does not manage potential degradation from the concrete side of the spent fuel pool liner. Such degradation has occurred at one plant. GALL IIIA was revised to address this comment.
G-IIIA5-2	III.A5.3, page IIIA5-9	Revise the AMP column to "Structures Monitoring Program or Masonry Wall Program" and add referral to Chapter XI-S6 to Evaluation column.	Either program may be used.	See NRC disposition of NEI Comment G-IIIA1-7 in this Appendix B, Table B.2.2.
G-IIIA6-1	III.A6.3, page IIIA6-9	Revise the AMP column to "Structures Monitoring Program or Masonry Wall Program" and add referral to Chapter XI-S6 to Evaluation column.	Either program may be used.	See NRC disposition of NEI Comment G-IIIA1-7 in this Appendix B, Table B.2.2.
G-IIIA8-1	III.A8.1, page IIIA8-7 Corrosion of Embedded Steel and Aggressive Chemical Attack	Evaluation and technical basis should provide the limits below which no aging management is required similar to those on page III A1-7.		See NRC disposition of NEI Comment G-IIIA1-1 in this Appendix B, Table B.2.2.

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIA8-2	IIIA8.2, stainless steel tank liners	Delete the item entirely.	Aging of the internal surfaces of steel tanks is addressed with the applicable mechanical system and does not belong in the structural section.	Stainless steel liners for tanks are appropriately addressed in GALL, as part of the structure. The aging effect addressed in GALL IIIA has not been duplicated in other sections of GALL. GALL IIIA was not revised to address this comment.
G-IIIB1-1	IIIB1.1 page IIIB1-4 to IIIB1-17	For section B1, change header at top of page from B1.3 to B1. Also, delete "MC" from the heading text.	Editorial Class MC is for containment vessels, not piping and component supports.	To improve clarity, the title of IIIB1 was changed to "Supports for ASME Piping and Components" and the title of IIIB1.3 was changed to "Supports for ASME Class MC Components." The supports covered by IIIB1.3 are for certain BWR containment components, such as downcomers, vent lines, and torus. GALL IIIB was revised to address this comment.
G-IIIB1-2	IIIB1.1.1, page IIIB1-4; IIIB1.1.3, page IIIB1-8 IIIB1.1.4, page IIIB1-8; IIIB1.2.1, page IIIB1-10; IIIB1.3.1, page IIIB1-14; IIIB1.3.3, page IIIB1-16; IIIB2.3, page IIIB2-6; IIIB3.2,	Vibration and cyclic induced cracking is not a license renewal aging effect and should be deleted.	Cracking due to vibratory loads and cyclic loading is not an aging effect requiring management for the period of extended operation. For components that may be subjected to vibratory or cyclic loading, proper design eliminates or compensates for vibration and cyclic loading. In addition, vibration characteristically leads to cracking in a short period of time, on the order of hours to days of operation. For example, a component with 1 Hertz vibratory load will be subject to 10^7	Cracks in steel elements of component supports caused by vibratory stresses above the material endurance limit would develop in a matter of hours or days. This time frame is not consistent with the requirements of the License Renewal Rule, which address slow aging processes affected by extended operation. The potential for cracking induced by other cyclic loads, such as thermal cycling of the supported system, is implicitly considered in

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIB1-2 (cont.)	page IIIB3-4; IIIB4.3, page IIIB4-6; IIIB5.2, page IIIB5-4		cycles in four months of service, so that failure, should it occur, is probable early in life for vibratory stresses above the endurance limit. Because this time period is short when compared to the overall plant operational life, any cracking will be identified and corrected to prevent recurrence long before the period of extended operation. This type of degradation is limited to a small set of components and is corrected as discovered with inspections of similar locations and configurations to ensure the event is location specific or a one-time event.	structural steel design through the specification of conservative design allowable stresses that account for a minimum of 10^5 load cycles. However, concrete located around expansion, undercut or embedded anchors for component supports is susceptible to cracking as a result of service-induced loads on the supports. This could result in reduced capacity of the support anchorage and consequential failure of the anchorage during a design-basis event (e.g., earthquake). Maintaining sound conditions in the concrete around support anchors is critical to the intended function of the support and requires aging management. GALL IIIB was revised to retain aging management of concrete surrounding expansion, undercut, and embedded anchors; the Structures Monitoring Program is identified as the applicable AMP. At the 1/30/01 meeting with NEI, the staff again reviewed operating experience and NRC-sponsored testing of concrete anchor capacities when cracking is present. It was concluded that concrete cracking is significant for expansion anchors and grouted anchors, but not for

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIB1-2 (cont.)				cast-in-place anchors and undercut anchors. GALL has been revised to reflect this conclusion. GALL IIIB was revised to address this comment..
G-IIIB1-3	IIIB1.1.2, Bolting, SCC, page III B1-6	Program should be Subsection IWF, not Bolting Integrity Program.	The components listed in "Class I Piping and Component Supports" are within the scope of IWF, which has been found to be acceptable for managing this aging effect in NUREG-1723.	Cracking due to SCC is not adequately managed by IWF, which only requires a VT-3 visual inspection of most support details. Cracking of bolts due to SCC can only be detected by examinations developed specifically for this purpose. Bolting Integrity Program (XI.M18) was revised to include consideration of stress corrosion cracking (SCC) for high strength bolting associated with NSSS supports. For additional discussion concerning special inspection of bolting, see NRC Disposition of NEI Comment G-V-E-7 in this Appendix B, Table B.2.4. GALL IIIB was not revised, but AMP XI.M18 was revised to address this comment.

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIB1-4	B1.1.2 SCC page III B1-6	Under the material column for stress corrosion cracking, change "tensile strength > 150ksi" to "yield strength > 150ksi."	Per NUREG-1339 and EPRI NP-5769, the 150ksi is related to yield strength when discussing whether SCC is an applicable aging effect.	"Yield strength" is the correct terminology not "tensile strength." As noted in NUREG-1339, the 150 ksi criterion is applied to "actual" yield strength, not "minimum specified" yield strength. GALL IIIB was revised to address this comment.
G-IIIB1-5	IIIB1.1.1, fatigue, page IIIB1-7	For fatigue throughout this section, evaluation and technical basis should be changed to "Fatigue may be a time-limited…." Further evaluation should say "Yes, TLAA if applicable." Including Sections B1.2.1, page IIIB1-13 and B1.3.1, page IIIB1-15	Editorial comment.	The three table entries cited are only applicable if a CLB fatigue analysis exists, which by definition is a TLAA. GALL IIIB was not revised to address this comment.

Table B.2.2: Disposition of NEI Comments on Chapter III of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IIIB1-6	III.B1.1.1, Cracking, page III B1-5 III.B1.2.1, Cracking, page III B1-11 III.B1.3.1, Cracking, page III B1-15	In this section and throughout the document, the adequacy of visual VT-3 examination is called into question for the detection of cracking. In particular, Section III.B1.1.1 determine that VT-3 is inadequate for detection of cracking in Class 1 piping and component supports, and Section III.B1.2.1 finds this to be true for Class 2 and 3 piping and component supports as well. VT-1 is recommended.	The conclusions reached in this section go beyond what is current in the code. Licensee should not have to go beyond Code requirements without justification. VT-3 should be found to be adequate for detection of "crack like indications" in at least three circumstances: When the structure or component can tolerate "mature cracks." This should be the case for Class 1, 2, and 3 component supports, where mature cracks are needed to jeopardize the load-carrying function of the component support. When pressure-containing component is subject to both visual examinations and pressure testing capable of detecting localized, small capacity leakage. This should be the case for bellows sleeves and penetration subjected to Appendix J Type B and C tests. Situations where proximity to the component or structure surface is not an issue, so that visual acuity, lighting and character recognition is essentially identical for VT-1 and VT-3.	See NRC Disposition of NEI Comment G-IIIB1-2 in this Appendix B, Table B.2.2.
G-IIIB2-1	IIIB2.1, cyclic loading, page IIIB2-6	Cyclic loading should be deleted for cable trays, etc.	Cyclic loading is not applicable to supports for cable trays, conduit, instruments, etc.	See NRC Disposition of NEI Comment G-IIIB1-2 in this Appendix B, Table B.2.2.
G-IIIB2-2	IIIB2.2, page IIIB2-6	Thermal cycling/ vibration should be deleted for cable trays, etc.	Cyclic loading is not applicable to supports for cable trays, conduit, instruments, etc.	See NRC Disposition of NEI Comment G-IIIB1-2 in this Appendix B, Table B.2.2.

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APPENDIX B, TABLE B.2.3

DISPOSITION OF NEI COMMENTS ON CHAPTER IV OF GALL REPORT

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Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-1a	General comments	(a) Further evaluation should not be required where existing programs manage applicable aging effects. The meaning of the "Further Evaluation Recommended" column is not clear.	What is meant by "Further Evaluation Recommended?" Every entry has a yes in this column implying that every item requires an evaluation. If the GALL report is to be a useful document, credit for existing programs that are found to be sufficient should be given without the requirement for further evaluation.	The column "Further Evaluation" identifies one or more of the 10 elements of the existing AMP that need augmentation and require further evaluation. If existing programs manage applicable aging effects and no further evaluation is required then a "no" is placed in the column. This comment was simply requesting clarification. The GALL report was not revised to address this comment.
G-IV-1b	General comments	(b)The table should be arranged by common RCS components as follows: reactor vessel (BWR & PWR), vessel internals (BWR & PWR), RCS piping and valves (BWR&PWR), RCS Pumps (BWR&PWR), and steam generators (PWR).		The arrangement proposed by NEI is generally followed in the GALL report. Making a separate section for pumps does not provide added value since the region of interest for the pumps is only the pressure boundary. There is no substantial advantage to be gained by the suggested reformatting. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-1c	General comments	(c) In addition, it is not clear that aging effects for which ISI is done today will be required for the period of extended operation. For example, cracking at vessel welds (e.g., pressurizer, RV, and primary side of OTSGs), nozzle welds, and piping welds is not addressed anywhere, thus implying that Examination Categories B-A, B-B, B-D, and B-J may be discontinued for license renewal. This conclusion is not consistent with the NRC's findings in BAW-2243A, BAW-2244A, BAW-2251A, and the Oconee License Renewal Application.		The GALL report describes the existing aging management programs (AMPs) that may be used to satisfy the requirements of 10 CFR 54. The requirements in 10 CFR 50.55a are for both the current and license renewal terms. The requirements of both 10 CFR 50.55a and 10 CFR 54 must be satisfied during the license renewal term. Cracking at vessel welds was not viewed to be a credible aging effect by NRC and thus is not included in the GALL report. The GALL report was not revised to address this comment.
G-IV-2	B2.1.1, B2.1.4, B2.1.7+ for W internals B3.1.1, B3.1.3+ for CE internals B4.1.1, B4.1.5+ for B&W internals No BWR items at this time	The GALL report states that "The reactor vessel internals receive a visual inspection (VT-3) according to Category B-N-3 of Subsection IWB, ASME Section XI. This inspection is not sufficient to detect the effects of changes in dimension due to void swelling." While the VT-3 examination is capable of detecting significant changes in dimension. At issue is the ability to visually detect loss in ductility. Therefore, the GALL and the SRP-LR should be revised to read "This inspection is capable of detecting significant changes in	The GALL and the SRP-LR should recognize the capability of visual examination to detect significant changes in dimension caused by void swelling, with significant defined to be a dimensional change of 5 % or more. The likely outcome of the industry programs will be to recommend examination of the most affected internals locations, such as baffle/former assemblies (Items B2.4.1 and B2.4.2) in Westinghouse plants. The GALL document would be greatly simplified, and the most affected locations would continue to	The NEI comment is too general and will not be incorporated until reactor vessel internals research programs resolve the void swelling issue. For additional modifications to GALL based on similar comments, see NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-2 (cont.)		dimension, but is not sufficient to detect loss of ductility directly." Too many components are called out in the GALL report. Only the most affected locations should be listed in the GALL report, such as baffle/former assemblies (Items B2.4.1 and B2.4.2) in Westinghouse plants.	be adequately covered by these changes.	
G-IV-3	C1.1.13 (BWR), C2.1.5 (PWR)	The GALL report should be changed so that, for PWR Class 1 small-bore piping, SCC and Unanticipated Thermal and Mechanical Loading are separated. The column labeled Aging Mechanism for one of these will be stress corrosion cracking (SCC) and the other will be Unanticipated Thermal and Mechanical Loading.	Separating these two aging mechanisms permits the industry to comment on two separate GALL entries. The industry considers that Unanticipated Thermal and Mechanical Loading is not a valid aging effect, but rather a design consideration. The industry does not agree that SCC of Class 1 small-bore piping is an issue that should be addressed for license renewal. The combination of material selection, reactor coolant chemistry control, ASME Code Section XI surface and visual examinations, and plant leak detection monitoring systems, are sufficient to address SCC for Class 1 small-bore piping. The report recommends that "A plant-specific destructive examination or a nondestructive examination (NDE) that permits inspection of the inside surfaces of	It is not necessary to separate stress corrosion cracking (SCC) and unanticipated thermal and mechanical loading because the effect can be synergistic. Operating experience demonstrates that small-bore piping has an aging effect that requires managing in the extended term. GALL recommends that a plant-specific destructive examination or a nondestructive examination (NDE) that permit inspection of the inside surfaces of the piping needs to be conducted. For Class 1 piping with a diameter smaller than nominal pipe size (NPS) 4 inch, GALL recommends the one-time inspection be performed to confirm whether crack initiation and growth due to stress corrosion cracking (SCC) or cyclic loading is occurring or not. This one-time inspection can also verify the effectiveness of the chemistry program.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-3 (cont.)			the piping" be performed "to ensure that cracking has not occurred and the component intended function will be maintained during the extended period." This should not be necessary when reactor coolant chemistry programs and plant detection systems are in place.	The GALL report was not revised to address this comment.
G-IV-4	A2.3.1, A2.3.3	The GALL report extends the concern for irradiation embrittlement to reactor vessel inlet and outlet nozzles, and to safety injection nozzles, for PWR plants. GALL should add the following sentences in the column labeled "Evaluation and Technical Basis:" (1) The applicant may choose to demonstrate that the materials in the inlet, outlet, and safety injection nozzles are not controlling for the TLAA evaluations. The applicant may choose to demonstrate that the materials in the inlet, outlet, and safety injection nozzles are not controlling, so that such materials need not be added to the material surveillance program for the license renewal term. (2) The GALL report also states that "Appendix H to 10 CFR Part 50 requires the reactor vessel materials surveillance program to meet the	License renewal applicants have been able to demonstrate that, while nozzle course materials may exceed the neutron fluence threshold of 10^{17} n/cm^2 (E>1 MeV), these materials are not controlling (i.e., traditional beltline base metal and weld materials control PTS limits, pressure-temperature limits, LUST limits, and material surveillance capsule requirements). Other license renewal applicants should have the same opportunity to provide the same type of demonstration.	This comment is similar to several other comments where NEI is suggesting that the threshold should be raised to 10E21. In order to address these type comments the following was modified in GALL. The threshold or trigger value should not be changed to 10E21 as NEI commented because of the lack of data to support this value as a threshold. The GALL recommendation is that the most susceptible locations should be monitored and inspected and it is not necessary to identify all locations exceeding 10E17. For the vessel, the threshold must stay at 10E17 to be consistent with 10 CFR 50 Appendix H. See NRC disposition of NEI comment GIVB3-17 in this Appendix B, Table B.2.3. The GALL was revised by recommending use of an enhanced visual inspection to

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-4 (cont.)		American Society for Testing and Materials (ASTM) E 185 Standard. However, the surveillance program in ASTM E 185 is based on plant operation during the current license term, and additional surveillance capsules may be needed for the period of extended operation."		detect tight cracks in non-bolted applications. Then, no further evaluation will be required for these components. This option is for SCC/IASCC and neutron embrittlement, and the response in "Further Evaluation" column was changed to "no." Specifically, a new program in GALL chapter XI was developed to articulate this approach. The program includes (a) augmentation of the inservice inspection (ISI) in accordance with the American Society of Mechanical Engineers (ASME) Code, Section XI, Subsection IWB, Table IWB 2500-1 (1995 edition through the 1996 addenda, or later edition as approved in 10 CFR 50.55a) for certain susceptible or limiting components or locations, and (b) monitoring and control of reactor coolant water chemistry in accordance with the EPRI guidelines in TR-105714 to ensure the long-term integrity and safe operation of pressurized water reactor (PWR) vessel internal components. Augmentation of the ASME Section XI ISI includes enhanced visual examinations of non-bolted components, and other demonstrated acceptable methods for bolted components. The

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-4 (cont.)				inspection methods for bolted components must be submitted for the NRC staff review beginning of the license renewal period. The program is focused on managing the effects of crack initiation and growth due to stress corrosion cracking (SCC) or irradiation assisted stress corrosion cracking (IASCC), and loss of fracture toughness due to neutron irradiation embrittlement or void swelling. The program contains preventive measures to mitigate SCC or IASCC; ISI to monitor the effects of cracking on the intended function of the components; and repair and/or replacement as needed to maintain the ability to perform the intended function. Loss of fracture toughness is of consequence only if cracks exist. Cracking is expected to initiate at the surface and should be detectable by augmented inspection. The program provides guidelines to assure safety function integrity of the subject safety-related reactor pressure vessel internal components, both non-bolted and bolted components. The program consists of the following elements: (a) identify the most susceptible or limiting items, (b) develop appropriate inspection techniques to permit detection and characterizing

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-4 (cont.)				of the feature (cracks) of interest and demonstrate the effectiveness of the proposed technique, and (c) implement the inspection during the license renewal term. For non-bolted components, this program recommends enhanced visual examinations. For bolted components, this program recommends other demonstrated acceptable inspection methods; these methods must be submitted for the NRC staff review beginning of the license renewal period. A comment was made at the January 25th meeting that we should only use the enhanced VT-1 as an example. GALL was verified to contain enhance VT-1 as an example. Specifically for this NEI comment, applicable for both PWR and BWR reactor vessel nozzles, was addressed. (a) The first sentence in (1) applies to TLAA situation on pg. IVA2-15, the first row (August 2000 version of GALL). In NUREG-1801, Vol. 2, the sentence “The applicant may choose to demonstrate that the materials in the inlet, outlet, and safety injection nozzles are not controlling for the TLAA evaluations” was incorporated into the AMPs for

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-4 (cont.)				line items A1.3-e (earlier designation A1.3.4) and A2.3-a (earlier designation A2.3.1-A2.3.3). (b) The second sentence in (1) applies to the second row on p. IV A2-15 (August 2000 version of GALL). In NUREG-1801, Vol. 2, AMP XI.M31 "Reactor Vessel Surveillance" the sentence "The applicant may choose to demonstrate that the materials in the inlet, outlet, and safety injection nozzles are not controlling, so that such materials need not be added to the material surveillance program for the license renewal term" was added as item #8 in the program description. The GALL report was revised to address this comment.
G-IV-5	A2.2.1, A2.7.1, A2.7.2, C2.5.6, C2.5.10	Chapter IV of the GALL report should be revised to eliminate the augmented program requirements for bottom head instrumentation tubes (Item A2.7.1), the vessel head vent pipe (Item A2.7.2), pressurizer instrument penetrations (Item C2.5.4), and pressurizer heater sheaths and sleeves (Item C2.5.6).	The justification for the adequacy of existing activity for Ni-Fe-Cr CRDM nozzles is based on the following information from the GALL report: The program includes inservice inspection (ISI) in accordance with ASME Subsection IWB, Table IWB 2500-1 or, for susceptible components and locations, implementation of an integrated, long-term inspection program based on the guidelines of NRC Generic Letter (GL) 97-01 to detect cracks or coolant leakage.	The AMP for Item A2.2.1 (Control Rod Drive Head Penetration) is sufficient for Items A2.7.2 and A2.7.3. For bottom head instrumentation tubes (Item A2.7.1), pressurizer instrument penetrations (Item C2.5.6) and pressurizer heater sheaths and sleeves (Item C2.5.10) credit is given for Inservice Inspection for Class 1 components and Water Chemistry and the applicant provides a plant-specific

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-5 (cont.)			Preventive measures are in accordance with EPRI guidelines in TR-105714 to mitigate primary water stress corrosion cracking (PWSCC). Control of halogens, sulfates, and oxygen in the primary water to less than 0.05, 0.05, and 0.005 ppm, respectively, during operation, and monitoring and control of water chemistry during shut down, mitigate potential of PWSCC. The applicant performs a susceptibility assessment in accordance with the most current industry susceptibility model and inspection results, to define the most susceptible components and locations to be included in a periodic inspection program. The susceptibility assessment is performed in accordance with the guidelines of GL 97-01, in order to determine the need for an augmented inspection program of nozzle welds, including a combination of surface and volumetric examination. However, several of these same justifications are apparently insufficient for bottom head instrumentation tubes (Item A2.7.1), the vessel head vent pipe (Item A2.7.2), pressurizer instrument penetrations (Item C2.5.4), and	AMP or participate**s** in industry programs to determine appropriate AMP for PWSCC of Inconel 182 welds. The GALL report was revised to address this comment by eliminating the need for an augmented program (plant specific program) for the vessel closure head penetrations such as vessel head vent pipe (Item A2.7.2) and other top head penetration (new Item A2.7.3 added) because they are covered by GL 97-01.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-5 (cont.)			pressurizer heater sheaths and sleeves (Item C2.5.6). This should not be the case. Insufficient credit is given for the reactor coolant water chemistry program and its combination with ASME Code Section XI Examination Category B-P visual (VT-2) inspections. It would appear that some form of susceptibility evaluation is required, along with the water chemistry program and an inservice inspection program, in order for adequacy to be demonstrated. Considering that the CRDM nozzles are lead indicators of potential PWSCC, and considering the lower level of risk associated with leakage from Ni-Fe-Cr components other than the CRDM nozzles, the combination of water chemistry control and Examination Category B-P inspections should be found to be adequate.	
G-IV-6	B2.1.3, B2.1.7, B2.4.2, B2.5.5, B2.5.7, W Plants B3.2.2, B3.4.2, B3.4.3, CE Plants	SRP-LR Section 3.1.2.2.9 states that loss of preload due to stress relaxation could occur in PWR reactor vessel internal bolts and screws of B&W design. The SRP-LR references the GALL report for recommendations for inservice inspection activities to manage loss of preload.	No justification is provided in the GALL report for determining that existing aging management activities for Items B3.4.2 and B3.4.3 for CE plants, and Item B4.3.4 for B&W plants require augmentation. The GALL report says that “However, VT–3 inspection may not be adequate to detect the loss of mechanical	The wording for AMP description for Item B2.1.3 and other similar items in Section B2 and B3 (related to stress relaxation and loss of preload) have been revised as follows: For items B2.1.7 and B2.5.7, an acceptable AMP requiring no further evaluation includes visual inspection

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-6 (cont.)	B4.3.4 B&W Plants Other items in B&W plants: B4.9.2, B4.5.2, B4.5.3, B4.5.5, B4.6.3, B4.6.7, B4.7.2	However, the GALL report is not consistent on the evaluation of aging management activities. Items B2.1.3, B2.1.7, B2.5.5, and B2.5.7 for W plants and Item B3.2.2 for CE plants are consistently evaluated. For the W plant items, the GALL report states that: "Visual inspection (VT–3) is performed according to Category B–N–3 of Subsection IWB, ASME Section XI to monitor the relevant conditions of degradation, and loose part monitoring and/or neutron noise monitoring (excore detectors) to detect core barrel motion." However, the GALL report should be changed so that the aging management activities for Items B3.4.2 and B3.4.3 for CE plants, and Item B4.3.4 for B&W plants require no further evaluation.	closure integrity in components. An augmented inspection program to determine critical locations and appropriate monitoring and inspection techniques may be necessary." This statement could also be made about Items B2.1.3, for example, but the finding by the NRC staff was that the existing activities were adequate. The GALL report also says, "Because VT–3 inspection can only detect degradation that occurs after the loss of preload, in some cases, enhanced inspection may be required." While this may be so, the NRC staff has made findings elsewhere that are not consistent with requiring enhanced inspection. Generally, the finding of adequacy in spite of detection of loss of preload is based on redundancy. Therefore, the enhanced inspection requirements for baffle/former bolts are understandable. Other enhanced inspection requirements are not justified.	performed according to Category B-N-3 of Subsection IWB, ASME Section XI, and either neutron noise monitoring or loose part monitoring to detect relevant conditions of degradation. For remaining items other than baffle bolts (items B2.42 and B4.5.5), an acceptable AMP requiring no further evaluation includes visual inspection performed according to Category B-N-3 of Subsection IWB, ASME Section XI, and loose part monitoring to detect relevant conditions of degradation. The GALL report was corrected for Items B3.4.2 and B3.4.3 (CE plants). For these two items, further evaluation is not needed. This was a misprint. Regarding Item B4.3.4 and other items in B&W plants (there was no item B4.9.2, this was an NEI misprint), ISI in accordance with Section XI, Subsection IWB alone needs to be augmented. This disposition is based on the following information from the Oconee SER (pp. 3-120, 3-121, NUREG-1723): Duke is participating in industry programs to investigate the effect of stress relaxation along with other aging mechanisms. Based on the results of these programs, Duke will be developing an inspection

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-6 (cont.)				program for the RVI. GALL report recommends ISI and loose part monitoring. The GALL report was revised to address this comment as stated above.
G-IV-7	A2.2.2, B2.1.2, B2.5.3, B2.5.4, W Plants B3.2.1, B3.5.4, CE Plants B4.3.2, B4.4.3, B4.4.4, B&W Plants B1.4.8, B1.5.1, C1.1.6 to C1.1.11, C1.2.1, C1.3.1, C1.3.2, BWR Plants C2.1.1 to C2.1.3, C2.2.7, C2.3.1, C2.4.1,	(a) Chapter IV and Chapter XI of the GALL report should be changed to find ASME Code Section XI periodic inservice inspection requirements (Examination Category B-N-3) for CASS internals components adequate for managing the effects of thermal aging embrittlement. (b) Chapter IV and XI should be revised to recognize that the limiting base metal for CASS piping thermal aging embrittlement effects may be the 0.5-inch of base metal on either side of welds inspected in accordance with the ASME Code Section XI Examination Category B-J. (c) The 25 % limit on delta ferrite for which the comparison of SAW crack growth resistance is comparable to thermally aged CASS should be reassessed. (d) The SRP-LR and the GALL report accept the industry screening criteria (i.e., casting method, Mo content, delta ferrite content) for susceptibility of CASS components	The existing ASME Code Section XI inservice inspection activities are adequate to manage the loss of fracture toughness in CASS components caused by thermal aging embrittlement. This adequacy determination applies not only to the Examination Category B-N-3 inspections for internals components, but also to the base metal for reactor coolant system piping components subject to Examination category B-J requirements. Almost all of the ASME Code Section XI inservice inspection activities have been found to be acceptable, with the exception of three items. First, the visual (VT-3) examinations for reactor internals have been found to be inadequate, and supplemental (e.g., VT-1 or enhanced VT-1) examinations are required. Second, the Examination Category B-J inspections for piping welds have been found to be inadequate, with supplemental volumetric inspections of limiting	(a) Examination Category B-N-3 inspections (VT-3 inspections) can not detect cracks in cast stainless steel components and, therefore, needs to be augmented to manage the effects of thermal aging embrittlement. (b) CASS piping thermal aging embrittlement effects are managed by AMP XI.M12, “Thermal Aging Embrittlement of Cast Austenitic Stainless Steel “ (NUREG-1802, Vol. 2). As mentioned in Element 4 “Detection of Aging Effects” the inspection must include base metal to a distance of one-pipe-wall thickness or 0.5 in., whichever is greater, on both sides of the weld. c) The data of EdF (France) on JR curves for CF-8M compositions with >25% ferrite clearly show that the fracture toughness J-R curves of thermally embrittled steels are below the J-R curve for SAW. The evaluation procedures and acceptance criteria of IWB 3640 are applicable to pipe and pipe fittings

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-7 (cont.)	C2.5.3, C2.5.4, PWR Plants	to thermal aging embrittlement, with one minor exception. The exception concerns the comparison of SAW/SMAW crack growth resistance curves with thermally aged CASS crack growth resistance curves.	base metal locations required. This item might be acceptable to the industry, since it is demonstrably likely that the limiting base metal locations can be shown to be within the 0.5-inch zone on either side the welds being examined under the current Examination category B-J procedures. Third, the acceptability of the existing Saw/SMAW flaw acceptance criteria for CAS components has been found to be limited to 25% delta ferrite. The industry finds that the available data, while sparse, shows good comparison out to delta ferrite of 40 %.	that are made of cast SS with ferrite level less than 20% or FN20. The GALL report extends that limit to 25% ferrite. The GALL report recommends that flaw evaluation for components with >25% ferrite is performed on a case-by-case basis by using fracture toughness data provided by the applicant. Extensive research data indicate that the lower-bound fracture toughness of thermally aged CASS material with up to 25% ferrite is similar to that for SAWs with up to 20% ferrite (Lee et al., Intl. J. Pres. Ves. & Piping, 72, 37-44, 1997). Fracture toughness data for CASS materials with 25-35% ferrite are available in the following papers: 1. Jayet-Gendrot, Ould, and Balladon, Fontevraud III, 90-97, 1994. 2. Jayet-Gendrot, Ould, and Meylogan, Nucl. Eng. & Des., 184, 3-11, 1998. 3. Jayet-Gendrot, Ould, and Meylogan, PVP Vol-304, 163-169, 1996. These results clearly show that the fracture toughness J-R curves for CASS materials with 25-35% ferrite are lower than that for SAW.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-7 (cont.)				NEI commented that Chapter IV and XI should be revised to recognize that the limiting base metal for CASS piping thermal aging embrittlement effects may be the 0.5-inch of base metal on either side of welds inspected in accordance with the ASME Code Section XI Examination Category B-J. The GALL report recommends the AMP described in the letter from Grimes to Walters, License Renewal Issue No. 98-0030, May 19, 2000. The AMP recommends inspection of the limiting base metal of CASS components. For thermal embrittlement of potentially susceptible piping, the AMP provides for volumetric examination of the base metal, with the scope of the inspection covering the portions determined to be limiting from the standpoint of applied stress, operating time, and environmental conditions. For thermal and neutron embrittlement of susceptible components, the AMP includes a supplemental inspection covering portions of the susceptible components determined to be limiting from the standpoint of thermal aging susceptibility (i.e., ferrite and molybdenum contents, casting process, and operating temperature), neutron fluence, and cracking susceptibility (i.e., applied

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-7 (cont.)				stress, operating temperature, and environmental conditions). The applicant has the option to demonstrate that the 0.5-inch of base metal on either side of the welds is limiting. d) See NRC disposition of NEI comment G-IV-7, Part (c) in this Appendix B, Table B.2.3. The GALL report was not revised to address this comment for any of the proposed changes.
G-IV-8	Fatigue TLAA	(a) SRP-LR Section 4.3.2.1 describes the TLAA options for Class 1 components. For example, 10 CFR 54.21(c)(1)(I) stipulates that the existing CUF calculations remain valid because the number of assumed transients would not be exceeded during the period of extended operation. 10 CFR 54.21(c)(1)(ii) stipulates that the CUF calculations be re-evaluated based on an increased number of assumed transients to bound the period of extended operation. The resulting CUF must remain less than unity as required by the Code during the period of extended operation. The discussion for 10 CFR 54.21(c)(1)(iii) refers to the GALL report, Chapter X, and implies that the NRC staff accepts only fatigue monitoring programs as the basis	There is no ASME Code requirement that a CUF less than 1.0 must be maintained throughout the operating life of a Class 1 component. The CUF< 1.0 requirement is a design requirement, intended to demonstrate confidence that a Class 1 component can be safely put into service. The requirements for continued service are contained in the ASME Code Section XI. These requirements include demonstration of continued serviceability through periodic inservice inspection and testing. Detection of indications or conditions exceeding acceptance requirements could lead to supplementary examinations, engineering evaluations, or repair/replacement. This Section XI	(a) Fatigue can be included in an inspection program if an applicant can justify it can manage its aging effects. Under the iii option, inspection can be proposed and will be reviewed on a case-by-case basis because there is no staff approved procedure. Appendix L is not referenced in the AMP because of outstanding technical issues against it that require resolution. Further staff review will be required if an applicant proposes use of Appendix L. b) Resolution of GSI 190 requires that GALL must address environmental effects. The NEI rationale is that environmental effects are not a TLAA. The staff does not agree with the NEI recommendation. Environmental

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-8 (cont.)		for managing fatigue effects. The SRP-LR states that "staff has evaluated a program that monitors and tracks the number of critical thermal and pressure transients for the selected reactor coolant system components. The staff has determined that it is an acceptable aging management program to address metal fatigue of the reactor coolant system components according to 10 CFR 54.21(c)(1)(iii)." (b) Finally, the TLAA discussion describes Generic Safety Issue 190, including a statement that "Based on the results of probabilistic analyses, along with the sensitivity studies performed, the interactions with the industry (NEI and EPRI), and different approaches available to the licensees to manage the effects of aging, it was concluded that no generic regulatory action is required, and that GSI-190 is resolved." The SRP-LR goes on to state that "However, the calculations supporting resolution of this issue, which included consideration of environmental effects, and the nature of age-related degradation indicate the potential for an increase in the frequency of pipe leaks as plants continue to operate. Thus,	activity should also be acceptable to the NRC staff. Other activities, such as the use of non-mandatory flaw tolerance methods combined with periodic inservice examination, should be acceptable to the NRC staff as the basis for managing the effects of fatigue. References to augmented TLAA evaluations that include reactor water environmental effects should be eliminated from the SRP-LR and the GALL report. The GALL report should recognize only that the two completed license renewal applications were required to address GSI 190, which was an open issue at the time, and that GSI 190 is now closed. It is the intent of the industry to provide a generic demonstration of the effects of reactor water environments on fatigue life. This generic demonstration has already been submitted, in large measure, to the NRC staff for review. The industry intends to complete this generic demonstration and submit the final set of reports to the NRC staff for review and acceptance, thus avoiding the need for individual license renewal applicant submittals	concerns relate to conservatism of the fatigue calculation that is a TLAA. The issues should not be separated. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IV-8 (cont.)		the staff concluded that licensees must address the effects of coolant environment on component fatigue life as aging management programs are formulated in support of license renewal."	in this regard.	
G-IV-9	GALL	Every place the "aging effect" is identified as "cumulative fatigue damage" should be revised to "cracking."	Fatigue damage will eventually manifest itself as a crack. That is the effect to be managed.	Usage is monitored to prevent cracking directly. The AMP does not directly monitor cracking but tracks the cumulative usage factor to prevent cracking. Cumulative fatigue damage is the appropriate aging effect and terminology. The GALL report was not revised to address this comment.
G-IVA1-1	IV-A1.1.1, A1.1.2, A1.2.7, A1.4.1, A1.4.5, A1.5.1 through A1.5.6	In every location where the GALL refers to BWRVIP-29 (TR-103515), replace the reference with "EPRI TR-103515, Rev. 2 (BWRVIP-79) or later approved version of TR103515.	The EPRI document referred to has been updated as of March 2000. The latest issue is TR-103515, Rev.2. NRC staff in EMCB has the document. This document is updated periodically to identify the latest enhancements to the water chemistry programs. As such, the GALL ought to recognize such.	EPRI TR-103515, Rev. 1 (BWRVIP-29) or later approved version is acceptable. BWRVIP-29 will not be replaced by BWRVIP-79 because generic review of BWRVIP 79 has not been requested and, therefore, it has not been reviewed. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA1-2	IV-A1.1.4	Under the AMP column and in the Evaluation and Technical Basis column, delete the reference to GE RICSIL 055.	While the RICSIL is a tool that can be used by an owner to manage cracking, it is not necessary. The Code examinations are adequate to manage aging effect of cracking.	The references to various RICSIL documents such as RICSIL 055, 455, 462, or 409 have been deleted. While the RICSIL is a tool that can be used by an owner to manage cracking, it is not required by GALL. The staff will revise the program description to delete reference to the RICSIL. The GALL report was revised to address this comment.
G-IVA1-3	IV-A1.2.4 and A1.2.6	In the first occurrence of this item the following changes should be made in the Evaluation and Technical Basis column. In the sentence that begins with " In accordance with approved BWRVIP-74", after the "a)" the words "and axial reactor vessel welds" need to be deleted. In the same sentence, delete item "d)" in its entirety.	Examination of RPV axial welds is already required by ASME Section XI. Therefore, there is no reason to evaluate the need for examining this group of welds. The CLB, in conjunction with the requirements of 10CFR50 Appendix G and H is more than adequate to manage the effects of neutron embrittlement. There is neither basis for requiring an owner to assess failure probability of these welds nor any other component to manage loss of fracture toughness.	(1) The words "and axial reactor vessel welds" were deleted from "a)." (2) The item d) is deleted. The approach specified in a staff letter dated May 7, 2000 was also referenced. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA1-4	IV-A1.3.2	Revise the last 3 lines of the AMP column to read: "NUREG-0619 and NRC Generic Letter 81-11 or alternative recommendation of GE NE-523-A71-0594.	The GE document is an approved alternative to NUREG-0619 and GL 81-11 not an additional requirement.	The appropriate AMPXI.M5 "BWR Feedwater Nozzle" (NUREG-1801, Vol. 2) includes inservice inspection (ISI) in conformance with the requirements of the American Society of Mechanical Engineers (ASME) Code, Section XI, Subsection IWB, Table IWB 2500-1 (1995 edition through the 1996 addenda, or later edition as approved in 10 CFR 50.55a), as revised by the provisions of NUREG-0619, the Nuclear Regulatory Commission (NRC) Generic Letter (GL) 81-11, and the alternative recommendation of General Electric (GE) NE-523-A71-0594. The GE document is an approved alternative to NUREG-0619 and GL 88-11. The GALL report was revised to address this comment.
G-IVA1-5	IV-A1.3.2 and A1.3.3	Change the "Further Evaluation" column to read "No, fatigue is managed through an inspection program." Also, change the aging effect to "cracking."	As noted for the same item where the effect to be managed is cracking due to cyclic loading (read fatigue), there is an acceptable inspection program to assure the aging effect is managed. This approved required program assumes the component is cracked and requires a conservative inspection program to assure a postulated flaw would not exceed code allowable limits. The approved alternative program assumes the component is cracked, calculates a	There are approved analyses of feedwater and CRDRL nozzles. However, design fatigue analyses for these nozzles are on record and need to be extrapolated to 60 years. Therefore (for unique identifier A1.3-d, items IV-A1.3.2 and A1.3.3), the fatigue evaluation for a nozzle is a TLAA and there is a "Yes" in the "Further Evaluation" column. NEI commented that every place the "aging effect" is identified as "cumulative fatigue damage," it

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA1-5 (cont.)			remaining life and then specifies an inspection frequency. All of this is done to manage the effect of cracking caused by fatigue. Every time the component is examined and confirmed to be crack free, the time to failure assumed in the evaluation is reset, thus this is not a TLAA. Since this program assumes cracking has occurred (i.e. fatigue has initiated a crack) and conservatively specifies an inspection frequency based on this assumption, it is obvious that the effects of fatigue are being managed by inspection and nothing else is required.	should be revised to "cracking." The staff believes that usage is monitored to prevent cracking directly. The AMP does not directly monitor cracking but tracks the cumulative usage factor to prevent cracking. Cumulative fatigue damage is the appropriate aging effect and terminology. GALL report was not revised to address this comment.
G-IVA1-6	IV-A1.4.1 and A1.4.5	Delete the reference to the BWRVIP-03 internals examination guidelines.	BWRVIP-03 is applicable to components inside the RPV, not to safe-ends outside the vessel.	The aging effects of nozzle safe ends are managed by AMPs XI.M7 "BWR Stress Corrosion Cracking" and XI.M2 "Water Chemistry" (NUREG-1801, Vol. 2). The AMP XI.M7 references the BWRVIP-03 internals examination guidelines. The GALL report was revised to address this comment by deleting the reference from AMP X1.M7 because safe-ends are not covered in the BWRVIP-03.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA1-7	IV-A1.4.3	a) Change the "Further Evaluation" column to read "No." b) Also, change the aging effect to "cracking."	This is not a generic issue. There are only 2 BWRs that have not cut and capped the CRDRL nozzle. Further, for those 2 plants, the aging effect of cracking due to fatigue is managed by NUREG-0619 inspections. Thus fatigue is managed via inspection.	a) The safe-end fatigue evaluation is a TLAA. NUREG-0619 only refers to ASME Section XI, Examination Category B-D, which includes full penetration welded nozzles in vessels and not the nozzle safe ends. (b) NEI commented that every place in GALL the "aging effect" is identified as "cumulative fatigue damage", it should be revised to "cracking." The staff believes that usage is monitored to prevent cracking directly. The AMP does not directly monitor cracking but tracks the cumulative usage factor to prevent cracking. Cumulative fatigue damage is the appropriate aging effect and terminology. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA1-8	IV-A1.5.1 through A1.5.6	Revise the last sentence in the "Preventive Action" statement to read: Also, hydrogen water chemistry may be used as a means to enhance IGSCC mitigation.	Use of HWC is an option an owner may want to use. However, control of water chemistry by implementing TR-103515 is sufficient and HWC is not required. The staff has approved the BWRVIP Program documents for license renewal use based on normal water chemistry that remains within the parameters of EPRI TR-103515.	The aging effects of BWR reactor vessel penetrations are managed by AMPs XI.M8 "BWR Bottom Head Penetrations" and XI.M2 "Water Chemistry" (NUREG-1801, Vol. 2). VIP-62 reference has been added to the GALL report for plants using hydrogen water chemistry. Both VIP-62 and VIP-75 were used as references. (VIP-75 refers to revised inspection program for piping.) The GALL report was revised to address this comment.
G-IVA2-1	A2.1.1	Add cracking at welded joints (growth of fabrication flaws) due to service loadings. See EPRI NP-1406-SR for justification.	Dome welds examined in accordance with Section XI, Examination Category B-A. If this not an aging effect then why are welds examined each inspection interval. If not in the GALL then assume examinations may be discontinued in the period of extended operation. See BAW-2251A and associated NRC SER. GALL is not consistent with approved B&WOG topical reports.	See NRC disposition of NEI Comment G-IV-1c in this Appendix B, Table B.2.3. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-2	A2.1.1, A2.1.3	Remove all references to ISI for managing Boric Acid Corrosion.	See justification for comment on item XI.M5.	The Boric Acid Corrosion program in the GALL report, which relies on implementation of NRC Generic Letter 88-05, provides a stand-alone program for inspection of carbon steel structures and components for evidence of boric acid leakage and corrosion. ASME-Code inservice inspections (ISI) that detect leakage during the performance of pressure and hydrostatic tests were deleted from BAC program since it is independent of the ISI inspections. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-3	A2.1.3	Remove references to RG 1.65 in program element (2).	Design requirements are not part of aging management program preventive actions.	The words "design requirements" were deleted from Element (2), Preventive Actions, of the Evaluation and Technical Basis discussion. The design requirements of Reg Guide 1.65 were removed from GALL because they are not considered an aging management program. RG 1.65 preventive-maintenance features are a CLB requirement and will continue into the extended period. RG 1.65 preventive measures such as the use of acceptable surface treatments and stable lubricants are presented in GALL. These mitigation measures are an effective option for reducing SCC or IGSCC, for the AMP to be effective. The GALL report was revised to address this comment.
G-IVA2-4	A2.1.3	For "wear" in closure head studs, include replacement along with repair in (7) Corrective Action.	Repair or replacement should be jointly used for corrective action descriptions, as in the item for SCC directly above.	Element (7) of the Evaluation and Technical Basis discussion was revised as suggested by the comment to include repair or replacement for corrective action. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-5	A2.1.4	Delete vessel flange leak detection line.	Line is considered as piping at B&W operating plants and was not shipped with the vessel.	This component is included in the vessel report (BAW-2251A). The vessel flange leak detection line has the LR function of pressure boundary in some plants and has been included in earlier LR applications. Even though this component may not be in scope at some plants, the GALL report should be generic and accommodate those plants that have this component in scope. The GALL report was not revised to address this comment.
G-IVA2-6	A2.1.4	Delete the leak detection line.	The line is piping and is not part of a vessel. In addition, for some plants, the line is not subject to aging management review.	See NRC disposition of NEI comment G-IVA2-5 in this Appendix B, Table B.2.3.
G-IVA2-7	A2.2	Add flange bolting.	Missing items. See BAW-2251A description of flange bolting and nut ring.	New item A2.2.3, “Flange Bolting,” was added to the GALL report. (The item is described in BAW-2251A.) The aging effects for this item are loss of preload caused by stress relaxation, cracking caused by SCC (BAW-2251 does not state the mechanism for cracking), and loss of material because of wear. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-8	A2.2.1	CRDM nozzles are SB-167 at B&W-designed plants.	The CRDM nozzle material is SB-167 as described in BAW-2251A.	SB-167 was added along with SB-166 to the "Materials" column. (These are both alloy 600, but just different product form with different susceptibilities to cracking.) The GALL report was revised to address this comment.
G-IVA2-9	A2.2.1	Remove reference in program element (10) to SS.	This requirement has been removed from the latest revision of SRP-LR Chapter 4.2 and does not apply.	Removed reference to SS in AMP element 10. The GALL report, Chapter XI was revised to address this comment.
G-IVA2-10	A2.2.1	Change name of Structure and Component to CRD Head Penetration.	The CRD part of concern is the piece which penetrates the upper head.	Replaced the word "mechanism" with "Head Penetration" in the "Structures and Component column." The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G–IVA2-11	A2.2.1	Modify the wording under "Aging Management Program" to The program includes inservice inspection in accordance with ASME Subsection IWB, Table IWB 2500-1 or for susceptible components and locations an industry wide, integrated, long-term inspection program based on the industry responses to NRC Generic Letter (GL) 97-01 contained in NEI letter Dec, 11, 1998, Dave Modeen to Gus Lainas, "Response to NRC RAIs on GL 97-01" and individual plant responses. Primary water chemistry is monitored and maintained in accordance with EPRI guidelines in TR-105414 (Rev. 3 or later revisions or update) to minimize the potential of crack initiation or growth.	"Integrated" has always been intended to mean "industry wide," yet here it could be construed to be confined to the individual unit and mean something else, like "covering ALL head penetrations," or something else. It is difficult to say that NRC GL97-01 contains "guidelines" of any sort. The appropriate inspection for a given unit may be NEVER, depending on conditions.	The description of the AMP was revised as recommended by the comment. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-12	A2.2.1	Modify the (1) Scope of Program to: The program includes inservice inspection (ISI) in accordance with ASME Subsection IWB, Table IWB 2500-1, or for susceptible components and locations an industry wide, integrated, long-term inspection program based on the industry responses to NRC Generic (GL) 97-01 contained in NEI letter Dec, 11, 1998, Dave Modeen to Gus Lainas, "Response to NRC RAIs on GL 97-01" and individual plant responses. Preventive measures are in accordance with EPRI guidelines in TR-105714 to mitigate primary water stress corrosion cracking (PWSCC). An integrated cracking susceptibility assessment in accordance with industry susceptibility models and inspection results was performed in response to GL 97-01, to define the most susceptible plants and rank them in accordance with their susceptibility. This information is used by each plant to determine the proper timing of vessel head penetration examinations, either during the current license period or the period of license renewal, if necessary. Significant changes in the industry models as future plants inspect may require reassessment.	The assessment referred to was performed in response to GL 97-01 and subsequent RAIs, and would not be expected to significantly change (other than accumulation of time-at-temperature) unless inspection results from lead plants indicate significant deficiencies in the models used by the industry to perform the assessments and plant rankings. The models were used to define the most susceptible "plants," not necessarily the most susceptible "components." The requirements for any "periodic inspections has yet to be established.	The Evaluation and Technical Basis discussion was revised as recommended by the comment. A change in wording was made as NEI recommended. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-13	A2.2.1	Modify (3) Parameters Monitored / Inspected to: The AMP monitors the effects of PWSCC on the intended function of the CRD head penetrations by detection and sizing of cracks and coolant leakage by ISI. Susceptibility assessment was performed in response to GL 97-01 utilizing the most current industry susceptibility models that were based on material and operating parameters and inspection results to date, to rank plants in accordance with their susceptibility. This information is used to develop a plant-specific long-term inspection program, including schedule, scope and determination whether an augmented inspection program of nozzle penetrations, including a combination of surface and volumetric examination, is necessary. Significant changes in industry models may require re-assessment.	The assessment is not performed in response to license renewal. Do not refer to the “mechanism.”	The Evaluation and Technical Basis discussion in the GALL report was revised to address this comment. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-14	A2.2.1	Clarification to (4) (4) Detection of Aging Effects: Aging degradation of the CRD head penetration cannot occur without crack initiation and growth. Based on GL 97-01, the applicant should review the scope and schedule of inspection, including leakage detection system, to assure detection of cracks before the loss of intended function of the components.	Should not refer to “mechanism.”	The word “mechanism” has been deleted from the evaluation and technical basis discussion. The GALL report was revised to address this comment.
G-IVA2-15	A2.2.1	Typo in (5) Monitoring and Trending: change “provides” to “provide.”	Typo.	Typo was corrected in program element (5) Monitoring and Trending. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-16	A2.2.1	Modify wording in (6) Acceptance Criteria: Any SCC degradation is evaluated in accordance with IWB-3000 by comparing ISI results with the acceptance standards of IWB-3400 and IWB-3500. However, if there have been significant changes since the applicants response to GL 97-01 and the RAIs to it, then the applicant should either provide updated information on crack initiation and crack growth models and the data used to validate these models (or references to appropriate industry model revisions) to verify adequacy of the inspection program and acceptance criteria.	The information requested was provided in the responses to GL-97091 and the RAI responses, primarily through references. Applicants should not have to provide it again unless something changes significantly.	The Evaluation and Technical Basis discussion was revised as recommended, the following sentence has been added to element 6: To verify the adequacy of the long-term inspection program and acceptance criteria, if there have been significant changes since the applicants response to GL 97-01 and the RAIs to it, the applicant should either provide references to appropriate industry model revisions or provide updated information on crack initiation and crack growth data and models. The GALL report was revised to address this comment.
G-IVA2-17	A2.3.1 to A2.3.3	Assessment of fracture toughness changes due to neutron irradiation in accordance with 10CFR50, Appendix G for the reactor vessel inlet and outlet nozzles can not be accomplished. Note that Generic Letter 92-01, Revision 1, Supplement 1 did not address the nozzle materials. It appears that GALL intends to backfit these vessel beltline requirements to the nozzles.	Assessment of fracture toughness changes due to neutron irradiation in accordance with 10CFR50, Appendix H for the reactor vessel inlet and outlet nozzles can not be accomplished because the surveillance program adopted for the beltline materials is already in place and can not be changed to include specimens from the nozzles. It does not need to be accomplished for the nozzles because empirical and analytical tools are available to perform the Appendix G analysis.	The Evaluation and Technical Basis discussion was revised to incorporate the NRC disposition of NEI Comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-18	A2.3.1, A2.3.3	Delete fluence threshold of 1.0E17 n/cm2.	Nozzles are not limiting materials in accordance with BAW-2251A. Reduction of fracture toughness is not an applicable aging effect. 10 CFR 50.60 and 50.61 calculations apply to beltline items. Nozzles not in beltline for period of extended operation.	See NRC disposition of NEI Comment G-IV-4 in this Appendix B, Table B.2.3. The magnitude of the fluence threshold was not changed. The GALL report was revised to address this comment.
G-IVA2-19	A2.3.1, A2.3.3	See Comment 31 regarding cracking. Examination Category B-D manages cracking at welded joints at cracking at nozzle IR.	NRC SER of BAW-2251A.	See NRC disposition of NEI Comment G-IV-1c in this Appendix B, Table B.2.3. Note the following error in the comment: Comment 31 should be NEI comment G-IVA2-1 in this Appendix B, Table B.2.3. The GALL report was not revised to address this comment.
G-IVA2-20	A2.3.1, A2.3.3, A2.5.1, A2.5.2	Remove last sentence of Evaluation and Technical Basis, “Applicants are to determine...etc.”	This requirement has been removed from the latest revision of SRP-LR Chapter 4.2 and does not apply.	The last sentence of Evaluation and Technical Basis was removed so that the GALL report is consistent with SRP-LR. The GALL report was revised to address this comment.
G-IVA2-21	A2.4.1, A2.4.3	Remove “Cyclic Loading” from Aging Mechanism entry.	SCC is adequate to describe Mechanism. Cyclic Loading is duplicative of Fatigue entry. Growth of SCC cracks can result from loading other than cyclic.	Cyclic loading was removed from “Aging Mechanism” column of the bottom row on page IV A2-14. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-22	A2.4.1, A2.4.3	For Nozzle Safe Ends, Crack Initiation and Growth is attributed to SCC and Cyclic Loading. Cyclic loading is generally associated with fatigue and is classified as a TLAA. Explain the relation between the identified program elements and cyclic loading.	New application for existing program requires justification.	Cyclic loading was removed from "Aging Mechanism" column of the bottom row on page IV A2-14. The GALL report was revised to address this comment.
G-IVA2-23	A2.5	Add bottom head.	Missing items.	Bottom head was added as an additional component to A 2.5, Shell. Fatigue was identified as an aging mechanism and cumulative fatigue as an aging effect (TLAA). There is no other aging effect for this component. ASME Section XI inservice inspection of this component was continued during license renewal period as required by 10 CFR 50.55a. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-24	A2.5.1, A2.5.2	Vessel Shell—missing cracking at welded joints and intergranular separations of SA 508 Class 2 forgings clad using a high heat input welding process. Exam. Cat. B-A requires volumetric inspections of vessel welds.	NRC SER of BAW-2251A.	Earlier comment (Comment G-IV-1c) on cracking as not being aging mechanism also applies to cracking at weld joint. Intergranular separations of SA 508 Class 2 forging clad using a high heat input welding process was addressed in the GALL report. A line item was added in the GALL report for SA 508 Class 2 forging. Aging mechanism is cyclic loading and aging effect is crack growth. This is a TLAA. TLAA discussion in SRP-LR (p. 4.1-7) was revised. A line item for crack growth was added. The GALL report was revised to address this comment.
G-IVA2-25	A2.5.3	The topic is Loss of Material due to Wear on the Vessel Flange. The Evaluation and Technical Basis discussion is for Core Support Pads. Revise to made the discussion applicable to the Vessel Flange.	Discussion should be applicable to the component being discussed.	The Evaluation and Technical Basis discussion was revised to refer to appropriate component as suggested. Movement of the description of programs to chapter XI minimizes these types of errors in the GALL report. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-26	A2.6	Add parenthetical (interior attachments).	Core guide lugs for B&W plants.	In he "Structure and Component" column, "core support pad" was retained and "core guide lugs" was added. The GALL report was revised to address this comment.
G-IVA2-27	A2.6	Aging mechanism should be PWSCC. Appropriate AMP is ASME Section XI, Examination Category B-N-2.	NRC SER of BAW-2251A.	PWSCC is an aging mechanism for PWR alloy 600 components exposed to reactor coolant. The corresponding aging management program is plant-specific (as recommended by NEI comment G-IVA2-28 in this Appendix B, Table B.2.3) because there is no generic alloy-600 program approved by NRC except for reactor vessel head penetrations. The NEI recommendation for the appropriate AMP to be ASME Section XI, Examination Category B-N-2 is inconsistent with NEI comment G-IVA2-28 which proposed a plant-specific AMP. The GALL report was revised to partially address this comment by identifying PWSCC as the aging mechanism as stated above.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-28	A2.6	For Core Support Lugs, crack initiation and growth, a plant-specific program is to be evaluated. Change the "further evaluation" text from "Yes, No AMP" to "Yes, Plant-Specific AMP."	Consistency with previous format.	See NRC disposition of NEI Comment G-IVA2-27 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment by requiring the AMP to be plant specific.
G-IVA2-29	A2.6	The topic is Loss of Material due to Wear on the Core Support Lugs. The (2) Preventive Actions refers to "attrition" due to wear. Make the words consistent as "loss of material."	Descriptive wording should be consistent throughout.	Word "Attrition" was changed to "loss of material." This change was made throughout GALL. The GALL report was revised to address this comment.
G-IVA2-30	A2.7	Change parenthetical to (bottom head and/or closure head).	Missing instrumentation penetrations in closure heat at 2 B&W operating plants.	Instrument tube penetrations for closure head (top head) were added as separate components (Item A2.7.3). They are not combined with instrument tube penetrations for bottom head because the aging management programs are different. AMP based on GL 97-01 is specified for top head penetrations whereas plant-specific AMP is specified for bottom head penetrations. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVA2-31	A2.7.1, A2.7.2	Change the "further evaluation" text from "Yes, No AMP" to "Yes, Plant-specific AMP."	Consistency with previous format.	For A2.7.1, the response in "Further Evaluation" column was changed to "Yes, Plant-specific." For A2.7.2, the AMP was the same as the one for PWSCC of control rod drive head penetration (Item A2.2.1). The GALL report was revised to address this comment.
G-IVA2-32	A2.5.3	Remove "Design requirements" from element (2) of the Wear/Loss of material Evaluation and Technical Basis.	Design requirements are not an aging management activity.	The words "design requirements" were removed from GALL.. Additional changes were made as mentioned in the NRC disposition of NEI Comment G-IVA2-25 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVA2-33	A2.6	Remove entry for Wear/Loss of Material.	There is insufficient relative motion between the pad and adjacent parts to generate degradation. The entry provides no reference or operating experience to justify this mechanism.	There is insufficient relative motion between the core support pad and adjacent parts to generate degradation. Wear/loss of material for this component is unlikely. The GALL report was revised to address this comment by removing the aging effect "wear/loss of material" for the core support pad.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB1-1	IV-B.1.1.1, B1.1.2, B1.1.3, B1.1.4, B1.1.5, B1.1.6, B1.1.7, B1.2, B1.3.1 through B1.3.4, B1.4.1 through B1.4.8, B1.5.2, B1.6.1 through B1.6.3	Delete the second and third sentence of the "Preventive Action " statement. If the NRC staff insists on retaining a statement related to hydrogen water chemistry it should be revised to read: It is also possible to use hydrogen additions to enhance the inhibition of IGSCC. Hydrogen addition is very effective in reducing the electrochemical potential in recirculation system piping and to a lesser degree, in the core region. Noble metal additions through a catalytic action increase the effectiveness of hydrogen additions in the core region.	Use of HWC is an option an owner may want to use. However, control of water chemistry by implementing TR-103515 is sufficient and HWC is not required. The staff has approved the BWRVIP Program documents for license renewal use based on normal water chemistry that remains within the parameters of EPRI TR-103515.	See NRC disposition of NEI comment G-IV-A1-8 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment by acknowledging hydrogen water chemistry may be used as a means to enhance IGSCC mitigation. .
G-IVB1-2	IV-B.1.1.1, B1.1.2, B1.1.3, B1.1.4, B1.1.5, B1.1.6, B1.1.7, B1.2, B1.3.1 through B1.3.4, B1.4.1 through B1.4.8, B1.5.2, B1.6.1 through B1.6.3	In every location where the GALL refers to BWRVIP-29 (TR-103515), replace the reference with "EPRI TR-103515, Rev. 2 (BWRVIP-79) or later approved version of TR103515.	The EPRI document referred to has been updated as of March 2000. The latest issue is TR-103515, Rev.2. NRC staff in EMCB has the document. This document is updated periodically to identify the latest enhancements to the water chemistry programs. As such, the GALL ought to recognize such.	EPRI TR-103515, Rev. 1 (BWRVIP-29) or later approved version is acceptable. BWRVIP-29 will not be replaced by BWRVIP-79 because BWRVIP 79 has not been generically reviewed. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB1-3	IV-B1.1.2, IV-B1.3.1 through B1.3.4, B1.4.1 through B1.4.8, B1.5.1	For the aging effect of cumulative fatigue damage, change the "Further Evaluation" column to read "No."		For fatigue of vessel internal components, the GALL report was revised to state that for components for which a fatigue analysis has been performed for the 40-year period, fatigue is a time-limited aging analysis (TLAA) to be evaluated for the period of extended operation. This statement will also be added for PWR vessel internals. The GALL report was revised to address this comment.
G-IVB1-4	IVB-B1.1.2 and B1.1.3	Delete the reference to VT-3 and ASME Section XI. Reword first sentence of "AMP" column to read: Visual and ultrasonic examinations are performed in accordance with the guidelines of BWRVIP-03 for reactor pressure vessel internals.	This component is not a "welded core support structure" and is thus not subject to the requirements of ASME Section XI. The BWRVIP requirements are sufficient to manage aging effects.	Inspections are performed according to BWRVIP-25, which is an expanded ISI. Reference to VT-3 and ASME Section XI was deleted. The GALL report was revised to address this comment.
G-IVB1-5	IV-B1.1.5	Add an asterisk to the statement in the "Further Evaluation" column. Add a footnote at the bottom of the table that reads: "The staff is currently reviewing this program. If the program is approved, no further evaluation will be required."	This is similar to B1.1.1. The BWRVIP program, once approved by the staff will be adequate to manage aging effects.	The BWR VIP is now approved and no further evaluation is recommended. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB1-6	IV-B1.1.6	Delete this item.	The NRC approved BWRVIP documents show that the standby liquid control (SLC) line inside the reactor vessel is not necessary and as such no inspections are necessary to manage aging. BWRVIP-27 does have inspection provisions for the SLC lines outside the reactor vessel. Those inspection should be in another section of the GALL and not in the internals portion.	Item B1.1.6 was deleted, because the SLC line inside the vessel has no license renewal intended function. However, the line outside of the vessel is within scope and is covered in item C1.1.11. The program XI.M9 "BWR Vessel Internals" was added which includes BWRVIP-27 to item C1.1.11. The GALL report was revised to address this comment.
G-IVB1-7	IV-B1.2	Delete the reference to VT-3 and ASME Section XI. Reword first sentence of "AMP" column to read: Visual and ultrasonic examinations are performed in accordance with the guidelines of BWRVIP-03 for reactor pressure vessel internals.	This component is not a "welded core support structure" and is thus not subject to the requirements of ASME Section XI. The BWRVIP requirements are sufficient to manage aging effects.	Inspections are performed according to BWRVIP-26 guidelines. Reference to VT-3 and ASME Section XI was deleted. The GALL report was revised to address this comment.
G-IVB1-8	IV-B1.5.1	Delete this item from the GALL.	The approved BWRVIP documents show that management of aging effects is not required for the orificed fuel support casting (BWRVIP-06, etc.).	This line item was deleted because SCC of OFS was considered insignificant in NUREG 1557. The GALL report was revised to address this comment.
G-IVB1-9	IV-B1.6.1 through B1.6.3	Delete this item from the GALL.	The instrument penetrations are addressed in BWRVIP-49 and should be discussed in the RPV section. The housing inside the vessel is not safety related and does not require an aging management program.	This item was mislabeled in the GALL report. These are instrumentation dry tubes; "housing" has been deleted from the heading. The existing AMP is BWR vessel internals program XI.M9 for lower plenum. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB1-10	IV-B1.7	Delete this item from the GALL.	This item is not safety related and not subject to an aging management program.	The correct name for this component is steam dryer support bracket attachment (BWRVIP 15). The susceptible location is the attachment weld for these brackets to the vessel wall. These welds are safety related. This item is covered in the GALL report under Item A1.2.7, "Attachment Welds." The GALL report was not revised to address this comment.
G-IVB2-1	All	Delete void swelling from all items except B2.4.1. For the Evaluation and Technical Basis entry for void swelling, delete "The applicant should address loss of ductility associated with swelling." (STH/FPL)	Wording under the Aging Management Program column appears to be acceptable. The Westinghouse position on this issue is that void swelling is only applicable to the baffle/former plates. Additionally, the change in material properties, if any, will not affect the ability of the baffle/former plates to perform their intended functions (core support and flow distribution).	From Calvert Cliffs SER – the issue of concern is the impact of change of dimension due to void swelling on the ability of the RVI to perform their function. Industry programs may decide whether void swelling is a significant issue. The statement, "The applicant should address loss of ductility associated with swelling," has been deleted, and the following statement has been added in the AMP column for change in dimensions due to void swelling. "The applicant provides a plant-specific AMP or participates in industry programs to investigate aging effects and determine appropriate AMP. Otherwise, the applicant provides the basis for concluding that void swelling is not an issue for the component." The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-2	All	SCC and IASCC have been combined in the latest revision. The only internals parts subject to IASCC per Westinghouse topical are Item Numbers B2.3.1, B2.3.4, B2.4.1, B2.4.2, B2.5.1, B2.5.2, B2.5.4, and B2.5.5. SCC and IASCC should be segregated again and IASCC indicated for the above item numbers only. (STH/FPL)	The Westinghouse position is that only internals parts subject to fluences greater than 1×10^{21} have the potential for IASCC.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB2-3	All	The only internals parts subject to irradiation embrittlement are Item Numbers B2.3.1, B2.3.4, B2.4.1, B2.4.2, B2.5.1, B2.5.2, B2.5.4, and B2.5.5. It should be indicated as a mechanism for these item numbers only. (STH/FPL)	The Westinghouse position is that only internals parts subject to fluences greater than 1×10^{21} have the potential for irradiation embrittlement.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB2-4	All	Reference to ASME Section XI should be deleted from the References, Existing AMP, and Evaluation and Technical Basis columns for all SCC entries. (STH/FPL)	The effects of SCC on PWR austenitic stainless steel are precluded by material selection (e.g., Reg. Guide 1.43) and control of chemistry (oxygen and other debilitating constituents) in the reactor coolant.	Material selection and control of water chemistry do not preclude SCC. See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-5	B2.1.1, B2.1.4, B2.1.7	For SCC/IASCC in the RV upper internals, item (10) Operating Experience refers to cracking in SS baffle former bolts and states that the mechanism of this particular cracking has not yet been resolved. Delete this reference to bolts in (10).	The location and geometry of the bolts is not consistent with the upper internals components being described. The fact that the cracking mechanism has not been identified makes this an inappropriate piece of information.	GALL was reformatted to move all AMPs to a central location in Chapter XI of the GALL report, and new AMP XI.M16 appropriately reflects the concern of this comment in its element (10) Operating Experience. The GALL report was revised to address this comment.
G-IVB2-6	B2.1.1, B2.1.4, B2.1.7	For the aging effect of "changes in dimension due to void swelling" the AMP column identifies the fact that the RV Internals receive a visual inspection per ASME Section XI, implying that this inspection is intended to manage void swelling. This is not correct since void swelling is not recognized as a mechanism, which requires management. An "acceptable" alternate AMP is described in this column. Move the description of an acceptable program to the Technical Basis column. The requirement to address loss of ductility associated with void swelling is included in the Technical Basis. It should be deleted.	Current programs are not intended to detect the effects of void swelling. Since the Technical Basis column identifies what is required of an applicant, it should also describe what is acceptable.If loss of ductility is a valid effect of swelling, then it should be included explicitly in the aging effects column.	In line items on loss of fracture toughness, void swelling was added as a mechanism in addition to neutron irradiation embrittlement. No other change was made in the AMP column for void swelling. Similar changes were made throughout GALL, especially in Sections IV B2, B3, and B4. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-7	B2.1.1, B2.1.4, B2.1.7 B2.1.2 B2.1.3, B2.1.5, B2.1.6 B2.2.1, B2.2.2, B2.2.3, B2.3.1, B2.3.4, B2.4.1, B2.4.2, B2.5.2, B2.5.6 to end	Program cited is Section XI and (4) Detection of Aging Effects describes inspections that are not part of Section XI – the description of detection in addition to B-N-3 should be modified to reflect ongoing industry initiatives and not recommend specific inspections. A statement such as "participation in industry programs to investigate aging effects and determine appropriate inspections, with reports to the NRC on a periodic basis." This applies to void swelling, IASCC, SCC, reduction in fracture toughness due to irradiation embrittlement and thermal embrittlement, and loss of closure integrity due to stress relaxation.	NUREG 1733, Safety Evaluation Report Related to the License Renewal of Oconee Nuclear Station, Units 1,2 and 3. There are significant industry efforts under way to determine appropriate inspections for RV internals as referenced on ONS SER.	The response to this comment is as follows: (a) Void swelling: see NRC dispositions to NEI comments G-IVB2-1 & G-IVB2-6 in this Appendix B, Table B.2.3. (b) IASCC/SCC and loss of fracture toughness: a program based on augmentation of ASME Section XI, Subsection IWB to include enhanced visual inspection for non-bolting components and other demonstrated acceptable inspection methods for bolting, were included. Response in "Further Evaluation" column was changed from a "Yes" to a "No." Similar changes were made in Sections IV B2, B3, and B4. The GALL report was revised to address this comment.
G-IVB2-8	B2.1.2	For "Loss of Fracture Toughness due to Thermal Aging and Neutron Irradiation Embrittlement" the environment includes a Neutron Fluence of greater than 10E17 n/cm2 (E > 1 MeV). Identify the basis for this threshold value for irradiation embrittlement in CASS.	The 10E17 fluence value for irradiation embrittlement is valid for low alloy steels such as the reactor pressure vessel. There is no basis for also assigning it to stainless steel material. –W- expects the threshold to be at least 10E21 n/cm2 (E > 1 MeV).	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-9	B2.1.2	Delete reference to CASS and associated thermal embrittlement for this item.	Per previous comment, Westinghouse plants do not have CASS in the upper support columns. Some plants do have mixing vane devices made of CASS, however these do not perform any intended function.	The comment suggests that some plants do have mixing vane devices made of cast austenitic stainless steel (CASS), and the staff believes a mixing vane has an LR intended function. Section 2.6.8 of proposed Rev. 1 of WCAP-14577 cites service history of vane separation from the RCCA spiders, with free RCCA travel inhibited in some instances. Although these vanes do not in of themselves perform any intended function within Part 50, their ability to prevent satisfactory accomplishment of a safety-function by another system, structure or component places them within the context of license renewal in accordance with 10 CFR 54.4(a)(2), and hence aging management must be provided for these components. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-10	B2.1.7	Loose parts monitoring and neutron noise monitoring (excore detectors were added to the Aging Management Program column. These entries should be deleted.	Visual inspections of the reactor vessel internals performed in accordance ASME Section XI provide an adequate aging management program for portions of the internals outside the fuel assembly region. SRP-LR Appendix A.1.2.3.10 states that operating experience should provide objective evidence to support that the effects of aging will be adequately managed so that the structure and component intended function(s) will be maintained during the period of extended operation. In fact the operating experience provided indicates that there is no need for loose parts monitoring or neutron noise monitoring to manage aging effects associated with the reactor vessel internals.	For items B2.1.7 and B2.5.7, the AMP column was revised to clarify that the AMP recommends loose part monitoring or neutron noise monitoring in addition to ASME Section XI inspections. WCAP 14577 provides justification for keeping both neutron noise monitoring and ISI. The WCAP states (4th paragraph on p. 4-3), "The use of neutron noise monitoring (excore detectors) in combination with ISI is a valuable tool to track/observe core barrel vibrations. A continuation of the above monitoring and ISI would prevent relaxation of the holddown spring and clevis insert bolts from becoming a significant license renewal issue." The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-11	B2.1.7	Delete this item completely.	For the –W- design, the hold-down spring does not perform any intended function, and does not require an aging management review	The hold-down spring does support the functions (1), (2), and (4) cited in Section 2.2 of proposed Rev. 1 of WCAP-14577, specifically to support and orient the reactor core; support, orient, guide and protect control rod assemblies; and, provide a passageway for support, guidance and protection for incore instrumentation. In addition, Section 2.6.5 of the topical report cites two instances in which detection of degradation of this component occurred early enough to prevent development of a safety issue, indicative that failure of this component could lead to a safety issue. The GALL report was not revised to address this comment.
G-IVB2-12	B2.2.1, B2.3.2	Delete wear as an aging effect for these items.	Measurements have shown this effect to be not significant, or insignificant relative motion to result in wear.	The wear of the RCCA guide tubes is not significant and this was confirmed in WCAP 14577. The line item for wear of the guide tubes in GALL will be removed based on this comment. The GALL report was revised to address this comment.
G-IVB2-13	B2.3.1 thru B2.3.4	GALL now has a fluence threshold specified in the Environment column and examination category B-N-2/B-N-3 was added. However, the effect should only be listed for item B2.3.1, the core barrel.	The core barrel is the only item that is exposed to neutron fluences in excess of the embrittlement threshold.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-14	B2.4.1	Category B-N-2 needs to be added with each entry of B-N-3.	Use of the B-N-2 / B-N-3 pairing is not consistently applied to components in this section.	GALL sections IV B2, B3, and B4 were revised according to the following reasoning. For PWRs, Category B-N-2 should only apply to interior attachments to the RPV, and Category B-N-3 should apply to "removable core support structures," gerally all other internal components. For GALL Sections IV-B2, B3 and B4, Category B-N-3 should be the cited reference in all cases. The GALL report was revised to address this comment.
G-IVB2-15	B2.5.1, B2.5.6, B2.5.7	Of this grouping, IASCC should only apply to item number B2.5.1 (Lower Core Plate).	The lower core plate is the only item that is exposed to neutron fluences in excess of the embrittlement threshold.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. This line item provides the AMP for crack initiation and growth that may be caused by SCC and for some components IASCC. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-16	B2.5.2, B2.5.5, B2.5.7	Of this grouping, IASCC should only apply to item number B2.5.2 (Fuel Pins).	The fuel alignment pin is the only item that is exposed to neutron fluences in excess of the embrittlement threshold.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. This line item provides the AMP for crack initiation and growth that may be caused by SCC and for some components IASCC. The GALL report was revised to address this comment.
G-IVB2-17	B2.5.2, B2.5.5	Of this grouping, reduction in fracture toughness due to irradiation embrittlement should only apply to item number B2.5.2 (Fuel Pins).	The fuel pin is the only item that is exposed to neutron fluences in excess of the embrittlement threshold.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB2-18	B2.5.3, B2.5.4	IASCC should not apply to these items.	Neither of these is expected to be exposed to neutron fluences in excess of the embrittlement threshold.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB2-19	B2.5.3, B2.5.4	Reduction in fracture toughness due to irradiation embrittlement should not apply to these items.	Neither of these is expected to be exposed to neutron fluences in excess of the embrittlement threshold.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-20	B2.6.2	For wear, the Reference column should include I&E Bulletin 88-09, existing program material should be replaced with "utility response to Bulletin 88-09", and Technical Basis column should reflect Bulletin 88-09 requirements.	B 88-09 is the basis for the current programs.	NRC BL 88-09 requirements were included in the GALL report. The utility response to the Bulletin was cited in the AMP column, generally in accordance with the NEI comment. In addition, ASME Section XI inspection requirements were included in the AMP column. The GALL report was revised to address this comment.
G-IVB2-21	B2.2.1, B2.4.2	References to the Code were deleted for items B2.2.1 (wear) and B2.4.2 (stress relaxation), and references to the Tech Specs were deleted for item B2.4.2 (SCC/IASCC).	Need to confirm if this is an issue.	NEI confirmed at the December 21, 2000, meeting that this was not an issue. The GALL report was not revised to address this comment.
G-IVB2-22	B2.2.1	Delete rod drop time testing to detect wear of the guide tube cards.	Rod drop time testing will not detect wear of the RCA Guide tube during operation. This test is done prior to startup and if the rods do not meet the rod drop time specified; action must be taken prior to startup.	The wear would be insignificant. This was confirmed in WCAP 14577. The GALL report was revised to address this comment.
G-IVB2-23	Page IVB2-25	The rows on page IVB2-25 are not aligned with their corresponding items on Page IVB2-24. It appears that the last row should be at the top of the page. Correct the alignment.	Editorial.	Alignment of rows and items was corrected. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB2-24	B2.6.2	Loss of Material due to Wear on the Flux Thimbles is described as "same as" wear on the upper core plate alignment pins. Delete this and replace with reference to I&E Bulletin 88-09. Program should be "utility response to Bulletin 88-09." Technical basis should reflect 88-09 requirements.	The type of wearing action is substantially different between the flux thimble and the core plate alignment pins. Utility action was required in response to 88-09.	NRC GL 88-09 requirements were included in GALL report. See NRC disposition of NEI Comment G-IVB2-20 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB3-1	B3.1.1, B3.1.3	Delete IASCC as a contributing mechanism.	IASCC is not a likely aging mechanism because of the very low oxygen environment and the relatively low neutron fluence. SCC is the only likely mechanism. The likelihood of cracking such as was observed in stainless steel baffle bolts has no relevance to Combustion Engineering upper internals assemblies.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-2	B3.1.1, B3.1.3	Delete Void Swelling as a contributing mechanism.	Void swelling is not a likely aging mechanism for the upper internals assembly because of the very low neutron fluence. The likelihood of embrittlement due to swelling is even more remote because irradiation hardening is associated with over 10% swelling in Fast Breeder Reactor cladding. No swelling is expected, therefore, embrittlement due to 10% swelling is not possible. Industry programs to address the occurrence and significance of void swelling will be used as part of the Core Shroud Assembly aging management activity to establish the need for an inspection program.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB3-3	B3.2.1, B3.2.2	Delete IASCC as a contributing mechanism.	IASCC is not a likely aging mechanism because of the very low oxygen environment and the relatively low neutron fluence. SCC is the only likely mechanism. The likelihood of cracking such as was observed in stainless steel baffle bolts has no relevance to Combustion Engineering CEA shroud assemblies and bolts.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-4	B3.2.1, B3.2.2	Delete Void Swelling as a contributing mechanism.	Void swelling is not a likely aging mechanism for the CEA shroud assemblies and bolts because of the very low neutron fluence. The likelihood of embrittlement due to swelling is even more remote because irradiation hardening is associated with over 10% swelling in Fast Breeder Reactor cladding. No swelling is expected, therefore, embrittlement due to 10% swelling is not possible. Industry programs to address the occurrence and significance of void swelling will be used as part of the Core Shroud Assembly aging management activity to establish the need for an inspection program.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB3-5	B3.3.1, B3.3.2	Delete IASCC as a contributing mechanism.	IASCC is not a likely aging mechanism because of the very low oxygen environment and the relatively low neutron fluence. SCC is the only likely mechanism. The likelihood of cracking such as was observed in stainless steel baffle bolts has no relevance to Combustion Engineering Core Support Barrels.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-6	B3.3.1, B3.3.2	Delete Void Swelling as a contributing mechanism.	Void swelling is not a likely aging mechanism for the Core Support Barrel (CSB) because of the very low neutron fluence and the low irradiation temperature. (The CSB is in direct contact with reactor coolant inlet water that is nominally 550F.) The likelihood of embrittlement due to swelling is even less remote because irradiation hardening is associated with over 10% swelling in Fast Breeder Reactor cladding. No swelling is expected, therefore, embrittlement due to 10% swelling is not possible. Industry programs to address the occurrence and significance of void swelling will be used as part of the Core Shroud Assembly aging management activity to establish the need for an inspection program.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-7	B3.3.1, B3.3.2	Modify the threshold value for loss of fracture toughness, or delete as a contributing mechanism.	Loss of fracture toughness due to neutron irradiation embrittlement in Combustion Engineering Core Support Barrels is not a credible aging degradation mechanism because the austenitic stainless steel used to construct the CSB will retain significant amounts of ductility through its service life. The fluence threshold of $1x10^{17}$ n/cm^2 is at least four orders of magnitude too low for loss of significant fracture toughness in austenitic stainless steel. There currently are industry programs underway to address the occurrence and significance of changes in strength and ductility due to neutron irradiation that can be used to determine the need to monitor loss of fracture toughness due to neutron irradiation embrittlement in CSBs.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB3-8	B3.4.1, B3.4.3	Delete Void Swelling as a contributing mechanism.	Void swelling in the Core Shroud Assembly will be addressed through an industry program on the occurrence and significance of void swelling. The likelihood of embrittlement due to swelling is remote because irradiation hardening is associated with over 10% swelling in Fast Breeder Reactor cladding. Swelling as great as 10% is not expected, therefore, embrittlement due to 10% swelling is not likely.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-9	B3.4.1, B3.4.3	Modify the threshold value for loss of fracture toughness, or delete as a contributing mechanism.	Loss of fracture toughness due to neutron irradiation embrittlement in Combustion Engineering Core Shroud Assemblies is not a credible aging degradation mechanism because the austenitic stainless steel used to construct the CSB will retain significant amounts of ductility through its service life. The fluence threshold of $1x10^{17}$ n/cm^2 is at least four orders of magnitude too low for loss of significant fracture toughness in austenitic stainless steel. There currently are industry programs underway to address the occurrence and significance of changes in strength and ductility due to neutron irradiation that can be used to determine the need to monitor loss of fracture toughness due to neutron irradiation embrittlement in Core Shroud Assemblies.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB3-10	B3.4.2	Delete IASCC as a contributing mechanism.	IASCC is not a likely aging mechanism because of the very low oxygen environment and the relatively low neutron fluence. SCC is the only likely mechanism. The likelihood of cracking such as was observed in stainless steel baffle bolts has no relevance to Combustion Engineering lower internals assemblies.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-11	B3.5.1 through B3.5.6	Delete IASCC as a contributing mechanism.	IASCC is not a likely aging mechanism because of the very low oxygen environment and the relatively low neutron fluence. SCC is the only likely mechanism. The likelihood of cracking such as was observed in stainless steel baffle bolts has no relevance to Combustion Engineering Core Shroud Assembly Bolts.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.
G-IVB3-12	B3.5.1 through B3.5.6	Delete Void Swelling as a contributing mechanism.	Void swelling is not a likely aging mechanism for the lower internals assembly because of the very low neutron fluence. The likelihood of embrittlement due to swelling is even less remote because irradiation hardening is associated with over 10% swelling in Fast Breeder Reactor cladding. No swelling is expected, therefore, embrittlement due to 10% swelling is not possible. Industry programs to address the occurrence and significance of void swelling will be used as part of the Core Shroud Assembly aging management activity to establish the need for an inspection program.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-13	B3.5.1 through B3.5.6	Modify the threshold value for loss of fracture toughness, or delete as a contributing mechanism.	Loss of fracture toughness due to neutron irradiation embrittlement in Combustion Engineering lower internals assemblies is not a credible aging degradation mechanism because the austenitic stainless steel used to construct the components will retain significant amounts of ductility through its service life. The fluence threshold of $1x10^{17}$ n/cm^2 is at least four orders of magnitude too low for loss of significant fracture toughness in austenitic stainless steel. There currently are industry programs underway to address the occurrence and significance of changes in strength and ductility due to neutron irradiation that can be used to determine the need to monitor loss of fracture toughness due to neutron irradiation embrittlement in lower internals assemblies.	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-14	IV.B3.1.1- IV.B3.1.3, IV.B3.2.1, IV.B3.2.2, IV.B3.3.1, IV.B3.3.2, IV.B3.4.1, IV.B3.4.2, IV.B3.4.3, IV.B3.5.1, IV.B3.5.1, IV.B3.5.3, IV.B3.5.4, IV.B3.5.5, IV.B3.5.6	Remove entry for IASCC.	IASCC is listed as an Aging Mechanism for the Upper Internals Assembly, CEA Shroud Assembly, Core Shroud Bolts, Core Support Barrel, Core Shroud/Tie Rod, and Lower Internals Assembly. The low levels of dissolved oxygen in a PWR environment and the low applied strain of the RV Internals components cause IASCC to be an unlikely Aging Mechanism for this device type. This position was accepted in NUREG-1705. This entry does not present conclusive evidence that this mechanism is plausible. This mechanism has been observed in BWRs where oxygen levels are considerably higher than in PWRs. A similar Aging Mechanism has also been observed in PWR CEDM tips where very high strain is applied at very low strain rate in a high fluence field. However, there is not conclusive evidence of IASCC for device types with the temperature, oxygen and radiation levels present for the RV Internals either in operating plants or in laboratory tests. Since there is not clear agreement on this Aging Existing AMP. Prior to year 40, if it is determined that IASCC is a significant issue in the renewal term, they would agree to develop a sufficient inspection program	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-14 (cont.)			(including the basis, methods, locations to be examined, timing frequency and acceptance criteria) for management of the issue based upon the results of the industry information. This agreement would not constitute consideration of this Aging Mechanism as requiring management and the agreement would not constitute a “credited program” at this time.	

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-15	IV.B3.1.1- IV.B3.1.3, IV.B3.2.1, IV.B3.2.2, IV.B3.3.1, IV.B3.3.2, IV.B3.4.1, IV.B3.4.2, IV.B3.4.3, IV.B3.5.1, IV.B3.5.2, IV.B3.5.3, IV.B3.5.4, IV.B3.5.5, IV.B3.5.6	Remove references to ISI in entry for SCC.	SCC is listed as an Aging Mechanism for the Upper Internals Assembly, CEA Shroud Assembly, Core Shroud Bolts, Core Support Barrel, Core Shroud/Tie Rods, and Lower Internals Assembly. SCC/IGSCC is not plausible for this device type due to non-susceptible material (Alloy Steel, Stainless Steel and/or Nickel Base Stainless Steel), lack of high tensile stresses and control of water chemistry. SCC is not a concern for SS components in treated borated water where chemistry controls maintain halides < 150 ppb or sulfates < 100 ppb (BAW-2270). Chemistry controls in accordance with industry guidelines assure this requirement is met. Therefore, for SCC, chemistry programs in accordance with industry guidelines alone should be credited. A similar position was accepted in NUREG-1705. This entry does not present conclusive evidence that this mechanism is plausible. The References, Existing AMP, Evaluation and Technical Basis, and Further Evaluation entries should be rewritten to correspond to the provided example.	The NEI comment is consistent with NUREG-1705; but this change is not consequential since “crack initiation and growth” due to IASCC remains as an aging effect that must be managed by applicants. There is also the need to have confirmation of the effectiveness of chemistry control with ISI. See NRC disposition of NEI comment G-IV-4 in this Appendix B, Section B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-16	IV.B3.2.2, IV.B3.4.2, IV.B3.4.3	Remove references to loose parts monitoring in entry for Stress Relaxation.	Loose parts monitoring will not discover degradation resulting from stress relaxation until after the intended function has failed. ISI is adequate for aging management; loose parts monitoring adds no value for aging management.	See NRC disposition to NEI comment G-IVB2-10 in this Appendix B. Section B.2.3. According to WCAP, it should be ISI and Neutron Noise or Loose Parts Monitoring. Loose parts monitoring could detect stress relaxation during power operation before the loss of the intended function. Since the bolts are redundant, loose parts monitoring might pick up degradation upon the first bolts degradation or failure. The inspection is required by ISI only once every 10 years during the shutdown period. This is similar to those identified in Westinghouse WCAP 14577 recommendations (from this point of view, Westinghouse is typical). GALL does not recommend any additional programs, other than existing requirements, for this aging effect. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB3-17	IV.B3.3.1, IV.B3.3.2, IV.B3.4.1, IV.B3.4.2, IV.B3.4.3, IV.B3.5.1, IV.B3.5.2, IV.B3.5.3, IV.B3.5.4, IV.B3.5.5, IV.B3.5.6	For Neutron Irradiation Embrittlement, include enhanced VT-1, with no further evaluation, as an option for aging management.	This program combination was accepted in NUREG-1705.	Recommend the use of enhanced VT-1 to detect tight cracks in non-bolted applications. No further evaluation is required for these components. This option was given for SCC/IASCC and neutron embrittlement and further evaluation was changed to “no.” For license renewal of Calvert Cliffs, enhanced VT-1 examination was accepted for management of IASCC and neutron embrittlement of the most susceptible RVI components. For non-bolted applications, this is an acceptable program. For bolted applications, this is not an acceptable AMP because the area(s) of interest are not accessible for visual examination. An UT examination is recommended for the bolting. A new program was developed in chapter XI to articulate this approach. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB4-1	B4.	Incore guide tube assembly items are missing. See BAW-2248A.	Missing internals items.	The pertinent component is the "incore guide tube spider castings," which are subject to loss of fracture toughness due to thermal aging embrittlement. The GALL report was revised to include these components as Item B4.6.11. The GALL report was revised to address this comment.
G-IVB4-2	All Items	Fatigue TLAA is applicable to replacement bolts (core barrel and thermal shield) only. TLAA not applicable to the majority of internals items. See BAW-2248A.	B&W internals designed prior to Section III rules for design of RV internals.	To account for plants built prior to Section III rules, the fatigue statement was revised as follows: For components for which a fatigue analysis has been performed for the 40 y period, fatigue is a time-limited aging analysis (TLAA) to be performed for the period of license renewal, and for Class 1 components, environmental effects on fatigue are to be addressed. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB4-3	B4.1.1-B4.1.3 Plenum cover and plenum cylinder and CSS B4.4.1-B4.4.5 and flow distributor and lower internals	SCC and IASCC are unlikely mechanisms for these items due to water chemistry and fluence. The B&WOG and NRC did not agree on thresholds; however, the NRC did agree that augmented inspections at limiting locations would be appropriate and bound other locations that may be susceptible to these mechanisms. AMP—the program description does not include provisions to identify limiting items and perform augmented inspections. The limiting items may not be associated with the plenum assembly and are most likely part of the core barrel assembly (e.g., baffle bolts).	See BAW-2248A—Applicant Action Items.	The following was added as a new item under "Aging Management Program" for these items: "An acceptable AMP consists of the following elements: identify the most susceptible or limiting items, develop appropriate inspection techniques to permit detection and characterizing of the features (cracks) of interest and demonstrate the effectiveness of the proposed techniques, and implement the inspections during the license renewal term." This statement was added for B4.1.1-B4.1.3, B4.4.1, B4.4.3, and B4.4.4 and items other than boltings in B4.6, B4.7, and B4.8. The GALL report was revised to address this comment.
G-IVB4-4	B4.1.1-B4.1.5, page IV B4-10 and all items	Void Swelling—See comment number 14 above. Void swelling of the plenum cover and plenum cylinder unlikely owing to low fluence.	BAW-2248A	See NRC disposition of NEI comment G-IV-4 in this Appendix B, Table B.2.3. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVB4-5	B4.2.1-B4.2.5, page IV B4-12	Loss of Fracture Toughness—AMP should include provisions to ID limiting items and perform augmented inspections at those locations.	BAW-2248A	The following statement was added in "Aging Management Program" column for these items: "An acceptable AMP consists of the following elements: identify the most susceptible or limiting items, develop appropriate inspection techniques to permit detection and characterizing of the features (cracks) of interest and demonstrate the effectiveness of the proposed techniques, and implement the inspections during the license renewal term." This statement was added to B4.4.2, B4.4.4-B 4.4.8. The GALL report was revised to address this comment.
G-IVB4-6	B4.3.2, page IV B4-16 and all subsequent items where loss of fracture toughness is listed	Delete fluence threshold of 1.0E17.	No justification is provided for the fluence threshold and calculation of fluence at the spacer castings is very difficult (i.e., large uncertainties).	A statement was added to Chapter X1.M2, "Thermal Aging and Neutron Embrittlement of Cast Austenitic Stainless Steel (CASS)," about participation in industry program to determine fluence threshold for irradiation embrittlement of CASS components. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVC1-1	IV-C1.1.5 through C1.11, C1.1.13	Delete the last sentence under the "Preventive Action" statement. If the staff insists on retaining a statement, revise the last sentence to read: "Also, hydrogen addition may be used to enhance the inhibition of IGSCC."	Use of HWC is an option an owner may want to use. However, control of water chemistry by implementing TR-103515 is sufficient.	The GALL report was revised appropriately. VIP-62 reference has been added to the GALL report for plants using hydrogen water chemistry. Both VIP-62 and VIP-75 were added as references. (VIP-75 refers to revised inspection program for piping.) The GALL report was revised to address this comment.
G-IVC1-2	IV-C1.1.5 through C1.11	Revise the "Parameters Monitored/Inspected" to read: "Inspection and flaw evaluation are to be performed in accordance with GL 88-01 or the referenced BWRVIP guideline as approved by the NRC staff."	The GL 88-01 reference is appropriate.	The BWRVIP guideline was included in GALL as suggested by the comment. The GALL report was revised to address this comment.
G-IVC1-3	IV-C1.1.5 through C1.11, C1.1.13, C1.2.1, C1.3.1, C1.3.2, C1.4.1 through C1.4.4	In every location where the GALL refers to BWRVIP-29 (TR-103515), replace the reference with "EPRI TR-103515, Rev. 2 (BWRVIP-79) or later approved version of TR103515.	The EPRI document referred to has been updated as of March 2000. The latest issue is TR-103515, Rev.2. NRC staff in EMCB has the document. This document is updated periodically to identify the latest enhancements to the water chemistry programs. As such, the GALL ought to recognize such.	See NRC disposition of NEI comment G-IVA1-1 in this Appendix B, Table B.2.3. The GALL report was not revised to address this comment.
G-IVC2-1	Page IVC2-11 through IVC2-19	Multiple entries with "same as…" are not in italics. Convert all "same as…" to italics.	Need to be consistent with general format.	The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVC2-2	C2.1.1-C2.1.4, page IV C2-4	Add crack growth due to service (cyclic) loadings as a mechanism. SCC of carbon steel pipe is unlikely. The AMP discusses Exam. Category B-J but is silent with regard to risk-informed ISI.	EPRI- NP-1406-SR discusses the mechanism.	SCC was removed as an aging mechanism for carbon steel pipe. The GALL report was revised to address this comment.
G-IVC2-3	C2.1.5	Unanticipated thermal and mechanical loading is not a valid aging mechanism - Delete.	If a mechanism is not anticipated, then it cannot be managed in anticipation. This is not an aging mechanism, it is a design issue.	A global change was made deleting the words “not anticipated” or “unanticipated” as related to thermal and mechanical loading. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVC2-4	C2.1.5	Program parameters monitored should be modified to allow the use of industry experience as inspections of small bore piping are done instead of requiring a plant-specific inspection.	As experience is gained with these inspections, if the same material / environment combination exists, a plant-specific inspection may not be necessary.	Operating experience demonstrates that small-bore piping has an aging effect that requires managing in the extended term. GALL recommends that a plant-specific destructive examination or a nondestructive examination (NDE) that permit inspection of the inside surfaces of the piping needs to be conducted. For Class 1 piping with a diameter smaller than nominal pipe size (NPS) 4 inch, GALL recommends the one-time inspection be performed to confirm whether crack initiation and growth due to stress corrosion cracking (SCC) or cyclic loading is occurring or not. This one-time inspection can also verify the effectiveness of the chemistry program. The GALL report was not revised to address this comment.
G-IVC2-5	C2.1.5	Small-bore piping is either stainless steel, Alloy 600, or stainless steel clad carbon steel. In addition, loose or displaced thermal sleeves in HPI (2 ½-inch NPS) connections are not addressed. AMP requires augmented inspection of thermal sleeves per GL 85-20.	There is no small bore CS.	Carbon steel was deleted as a material for small-bore piping. The GALL report was revised to address this comment

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVC2-6	C2.3.1	RCP Casing – Thermal Embrittlement. The AMP and Technical Basis text refer to thermal aging for valve body. Change to RCP casing.	Correct topic is RCP casing.	The AMP and Technical basis text correctly refers to thermal aging of RCP casing. The GALL report was not revised to address this comment.
G-IVC2-7	C2.4.3	Valve closure bolting is either HSLAS or SS. Aging effect is loss of closure integrity by cracking and loss of preload.	BAW-2243A	Add SS to “Materials” column and cracking and loss of preload to “Aging Mechanism” column. The GALL report was revised to address this comment.
G-IVC2-8	C2.5.8	Manway and Flange—aging effect of loss of material on external surface of the manway was omitted.	BAW-2244A	Add aging effect of loss of material on external surface of the manway. The GALL report was revised to address this comment.
G-IVC2-9	C2.5.12	Cracking at weld that connects the pressurizer support plate to the shell was omitted.	BAW-2244A	Add cracking at weld that connects the pressurizer support plate to the shell. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVD1-1	D.1.1.3, D1.1.4	Evaluation of Technical Basis – Discussion of NRC IN 90-04 should be deleted regarding general corrosion and pitting of the SG shell. The conclusion that additional inspection may be required that are associated with the IN discussion should also be deleted.	IN 90-04 Cracking of Upper shell to Transition Girth Welds does not discuss cracking of SG shell remote from welds. The problems discussed in this IN were in –W- model 44 and 51 SGs and were discovered during ISI weld inspections.	NRC IN 90-04 does refer to general corrosion and pitting of inside surface of SG shell girth weld. IN 90-04 states: “However, if general corrosion pitting of the SG shell is known to exist, the requirements of Section XI of the ASME Code may not be sufficient to differentiate isolated cracks from inherent geometric conditions” (see IN 90-04, 3rd page, 2nd paragraph). Pitting has been reported at the PWR steam generator girth welds (NUREG/CR 4868). ASME Section XI requires only volumetric inspections of the girth welds to detect cracks. But additional examinations (i.e., visual and surface examinations) are required to detect pitting and general corrosion. IN 90-04 also states: “The flaw indications can be detected with enhanced UT procedures that are performed by experienced nondestructive examination personnel. The upper shell-to-transition cone weld is located at a gross structural discontinuity. The weld is relatively wide and typically has an irregular crown. These inherent geometric features commonly result in innocuous reflectors. In addition, subsurface flaw indications are known to exist near the inside diameter surface of SGs at several

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVD1-1 (cont.)				plant sites. In order to distinguish innocuous reflectors from cracks, the following processes may be necessary: scanning at a high gain, the use of multiple transducers with optimum angles, careful plotting of reflector locations, and examination by experienced personnel." The rules of Section XI of the ASME Code require a volumetric examination of one upper shell-to-transition cone weld during each 10-year inspection interval. The required examinations may be limited to one SG or may be distributed among all the SGs. However, if general corrosion pitting of the SG shell is known to exist, the requirements of Section XI of the ASME Code may not be sufficient to differentiate isolated cracks from inherent geometric conditions. In lieu of volumetric examinations, visual and MT examinations of the interior circumference of the girth weld were used by the licensee of Indian Point Unit 2 to detect the surface-connected flaws. The GALL report was not revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVD1-2	D1.1.9	Evaluation of technical basis – delete discussion about potential cracking in cladding remote from welds.	There is no justification provided to show that existing ASME inspections are not sufficient. The operation experience cited deal primarily with alloy 600 issues (IN 90-10 and 90-30). In 84-18 provides general information on SCC with a focus on systems, which generally are in standby or where contaminants have been introduced into the system.	D1.1.9 was made consistent with Items A2.4.1 to A2.4.3 and required the following changes: Deleting discussion about potential cracking in cladding remote from welds and (2) Changing Further Evaluation column from “yes” to “no.” The GALL report was revised to address this comment.
G-IVD1-3	D1.2.1	Fatigue of SG tubes is treated “same as” fatigue of top head, steam nozzle and safe end. Add the following. “For plants where analyses were completed in response to Bulletin 88-02, “Rapidly Propagating Cracks in SG Tubes,” the results of those analyses have to reconfirmed for the period of life extension.	The type of fatigue analysis is different for certain tube locations.	The analysis for 88-02 was made a part of the denting AMP; fatigue was left alone. Environmental effects were also considered. The GALL report was revised to address this comment.
G-IVD1-4	D1.2.1	SG Tubes – Fretting and Wear – under Technical Basis (2) The program provides no guidance or recommendations…. Change to “NEI 97-06 includes foreign material exclusion as a means to inhibit fretting and wear degradation.	Incorporate available guidance from existing program.	The revised AMP “Steam Generator Tube Integrity” (XI.M19) was revised to incorporate the gist of the NEI comment and to reference NEI 97-06 as suggested. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVD1-5	D1.2.1	Technical Basis (5), change the referenced inspection interval for PWSCC to be consistent with the recommendation under Secondary Side visual inspection in NEI 97-06.	Incorporate available guidance from existing program.	The revised AMP "Steam Generator Tube Integrity" (XI.M19) was revised to incorporate the gist of the NEI comment and to reference NEI 97-06 as suggested. The GALL report was revised to address this comment.
G-IVD1-5 (cont.)		Technical Basis (6) incorrectly discusses PWSCC. Replace with "Loose parts or foreign objects that are found should be removed from the steam generators unless it can be shown by evaluation that these objects do not cause unacceptable tube damage. The evaluation will define an acceptable operating interval."	Incorporate available guidance from existing program.	The revised AMP "Steam Generator Tube Integrity" (XI.M19) was revised to incorporate the gist of the NEI comment and to reference NEI 97-06 as suggested. The GALL report was revised to address this comment.
G-IVD1-6	D1.2.1	For Aging Mechanism = General Pitting and Corrosion, under Technical Basis (6), add the performance criteria identified in NEI 97-06.	Incorporate available guidance from existing program.	The revised AMP "Steam Generator Tube Integrity" (XI.M19) was revised to incorporate the gist of the NEI comment and to reference NEI 97-06 as suggested. The GALL report was revised to address this comment.
G-IVD1-7	D1.2.1	For "denting due to corrosion of tube support plates" change aging mechanism to specify carbon steel tube support plates.	Denting has not been experienced with stainless steel support plates.	Add "corrosion of carbon steel tube support" in "Aging Mechanism" column. This was also UCS report review finding. The GALL report was revised to address this comment.

Table B.2.3: Disposition of NEI Comments on Chapter IV of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-IVD1-8	D1.2.1	Tube support lattice bars / FAC… Consider adding Carbon Steel Tube Support Plates as separate item. Effect = ligament cracking, mechanism = corrosion. AMP = Program in accordance with NEI 97-06.	Corrosion of carbon steel support plates has a detrimental effect on SG tubes where they pass through the support plate. Denting of tubes is a secondary effect.	Add additional item to address corrosion of carbon steel tube support plate (Item D1.2.4). Aging effect is ligament cracking. The AMP was in accordance with NEI 97-06. The GALL report was revised to address this comment.
G-IVD2-1	D2.1.3	Primary OTSG inlet and outlet nozzles do not have SS safe ends. Loss of material due to boric acid corrosion on external nozzles was omitted.	NUREG-1723	Delete SS safe ends and add loss of material due to boric acid corrosion on external surface of nozzles. The GALL report was revised to address this comment.
G-IVD2-2	D21.8, page D2-12	Secondary side nozzles are susceptible to SCC and not PWSCC.		Secondary side nozzles are susceptible to SCC and not PWSCC. The GALL report was revised to address this comment.

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APPENDIX B, TABLE B.2.4

DISPOSITION OF NEI COMMENTS ON CHAPTER V OF GALL REPORT

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Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-V-1	System Interface	Include a reference to Section V E (Carbon Steel Components) for the external surfaces of piping in each specific section's System Interface paragraph.	The external surfaces of piping etc. is included in the scope of Carbon Steel Components (V E). The link between Carbon Steel Components and the individual sections is not clearly established in the System Interface sections of the individual sections.	The links between the carbon steel components evaluated in Sections A through D2 of Chapter V and Section E of Chapter V were necessary because the external surfaces of those components are only addressed in Section E. The GALL report was revised to address this comment by adding the following sentence under "System, Structures and Components" in Sections A through D2 of Chapter V, "Aging management programs for degradation of external surfaces of carbon steel components are included in Section E of Chapter V," and by modifying the reference link to other sections under "System, Structures, and Components" in Section E of Chapter V.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VA-1	A.1.1-1.3, A.1.5, A.3.1, A.4.1	Regulatory Guide 1.44 does not manage cracking of stainless steel. This guide provides information to limit the sensitization of stainless steel during welding. However, sensitization of stainless steel during welding cannot be eliminated and it must be assumed that cracking will occur if the other parameters necessary for cracking (i.e., halogens) are present. Therefore, other programs (ex- chemistry) are necessary to manage cracking. Relative to SSC, the references, AMP and Evaluation and Technical Basis should include design and material controls consistent with Reg. Guide 1.43.	Comment transmitted for previous draft was not incorporated.	Certain stainless steel components of the PWR Containment Spray System such as piping and fittings, pumps, and valves are susceptible to stress corrosion cracking. The referenced AMP is XI.M2, “Water Chemistry” (NUREG-1801, Vol. 2). The main objective of the “Water Chemistry” AMP is to mitigate damage caused by general, pitting, and crevice corrosion, and SCC. The GALL report was revised to address this comment by deleting RG 1.44 from AMP XI.M2 because it does not provide any guidelines for preventing SCC of SS that is already sensitized during welding. RG1.43 was not added as a reference to the “Water Chemistry” AMP because it does not have information related to design and material control of SS welds. RG 1.43 contains information related to underclad cracking in Grade 508 Cl-2 material.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VA-2	A.1.4, A.3.2, A.4.2, A.5.2, A.6.5	Delete Closure Bolting from this section of the GALL and revise E1.1 to clarify inclusion of bolting.	Bolting is not a component. It is a piece part of components such as pipe, valves, and pumps. The bolt does not perform a component intended function. See comment G-V E-1.	Bolting is an integral part of pipings, fittings and miscellaneous related items, pumps, valves, and heat exchangers in the PWR containment spray system. Bolting is considered to be a system component for each individual engineered safety features system because it can be uniquely identified and also because it is a small component whose review could be missed if categorized under a broader category. Section E of Chapter V of the GALL report for CS Components includes AMPs for degradation of all CS structures and components, including closure bolting. In addition, ASME Section XI treats individual bolting as a component and requires inspection of individual bolting. Boric acid corrosion of closure bolting is included in both Sections A and E of Chapter V of the GALL report. In Section A, the borated coolant is leaking from an integral bolted connection in the piping, whereas in Section E, it is leaking from adjacent piping onto the bolted connection. The GALL report was not revised to address this comment.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VA-3	A.1.1-A.1.3, A.1.5, A.3.1, A.4.1	Remove entry for SCC.	Plausibility of mechanism seems based on design temperature of 400ºF. This system is maintained in standby at ambient temperature; the temperature preconditions for SCC (>150ºF) do not exist.	Stress corrosion cracking (SCC) of stainless steel (SS) components exposed to borated water is possible at temperatures below 200ºF if contaminants are present in the water. This is supported by operating experience at PWR plants (IN 79-19, IE Bulletin 79-17). However, the staff believes that that degradation does not occur if water chemistry is maintained since normal practices within the water chemistry program either preclude the introduction of or filter out contaminants, such as sulfides and chlorides, that are required for transgranular stress corrosion cracking. Any significant departures from that program which would allow the introduction of contaminants would be reviewed for the root cause and corrective measures undertaken at that time in accordance with the QA requirements of Appendix B to 10 CFR Part 50. The GALL report was revised to address this comment by indicating water chemistry as the aging management program, and the operating temperature as less than 200ºF in the “Environment” column for line items A.1-a, A.1-c, A.3-a, and A.4-a.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VA-4	A.2.1-A.2.4, A.5.1	Remove references to Pitting and Crevice Corrosion.	General Corrosion, Pitting, and Crevice Corrosion are listed as Aging Mechanisms for Carbon Steel in the Header and Spray Nozzles System. Carbon Steel exposed to Air will at most be susceptible to General Corrosion; Crevice Corrosion and Pitting require an aqueous environment.	Carbon steel is subject to only general corrosion in an air environment. The GALL Report was revised to address this comment by removing pitting and crevice corrosion as aging mechanisms since they are only operative in an aqueous environment.
G-VB-1	B.2.1	Remove entry for Stainless Steel or materials should be separated into two groups with Stainless Steel having a specific reference to high temperature operating conditions and/or a salt air environment. The data in the other columns can remain the same, including the plant specific AMP.	The material for the Filter Housing and Supports is listed as Carbon and Stainless Steel. Stainless steel is not subject to pitting or crevice corrosion unless exposed to salt-laden air or normal temperatures in excess of 200°F. Stainless steel is not normally subject to general corrosion unless exposed to repeated wet-dry cycling of salt-laden air.	The BWR standby gas treatment systems filter housing and supports fabricated from CS, but not SS, are susceptible to loss of material due to general corrosion for the stated conditions. The GALL report was revised to address this comment by removing SS from the “Material” column.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VB-2	B.2.2	Delete entry for Charcoal Absorber.	The charcoal filter medium is active, short-lived, and as such is not subject to an aging management review. The filter medium performs its intended function by undergoing a change of state, and will be eventually replaced on a periodic basis or due to its condition.	The charcoal absorber filter in the BWR Standby Gas Treatment Systems will be replaced at least once during a 40-year plant life, and therefore will not be subject to an aging management review. The SRP will be used to provide guidance and govern the consideration of this component as stated in Table 2.1-3, "Specific Staff Guidance for Screening," for consumables that fall within category (d) such as system filters, fire extinguishers, fire hoses, and air packs. The GALL report was revised to address this comment by deleting the charcoal absorber filter as a line item and inserting a statement in Section B of Chapter V under "System, Structures, and Components" invoking the table in the SRP, referred to above, for the filter.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VC-1	C.1.1	Delete entry for Valve Disc Seal.	Valve internals are active and as such is not subject to an aging management review. See NUREG-1705 for NRC position on valve internals.	Valve internals, such as valve disc seals, are considered active and short-lived and are not subject to an aging management review. The SRP will be used to provide guidance and govern the consideration of this component. As stated in Table 2.1-3, "Specific Staff Guidance for Screening," consumables that fall within category (a) for gaskets, component seals, etc. The GALL report was revised to address this comment by deleting the valve disc seal as a line item.
G-VC-2	C.2.1, C.2.1	Delete entry for Biofouling.	Component intended function is pressure boundary only. Biofouling does not prevent this intended function.	BWR and PWR isolation barriers are exposed to raw water and there exists the possibility of biological activity resulting in the buildup of deposits. For this application, biofouling only impacts active intended functions. The GALL report was revised to address this comment by deleting this line item with buildup of deposit as the aging effect and biofouling as the aging mechanism.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VC-3	C.2.1, C.2.2	CS should not be included with low-alloy steel and SS. A separate line item should be made for CS.	CS has different applicable aging effects than low-alloy or SS.	CS and low-alloy steel, but not SS, are grouped together for BWR and PWR isolation barriers because they have similar susceptibility to general, pitting, and crevice corrosion and microbiologically influenced corrosion (MIC). The GALL report was revised to address this comment by including separate line items for (1) CS and low-alloy steel subject to general, pitting, and crevice corrosion, and also the combination of MIC and biofouling; and (2) SS subject to pitting and crevice corrosion, and also the combination of MIC and biofouling. For both line items, gaseous waste is no longer listed as part of the environment.
G-VC-4	C.2.1, C.2.2	The environments in this item are quite varied. Consideration should be given to addressing each environment separately, as the aging effects can be different.	SS and low-alloy materials are generally not subject to detrimental aging effects unless they are exposed to high temperatures (>200°F) under normal (long-term) operating conditions or salt-laden fluids.	See NRC disposition of NEI Comment G-VC-3 in Appendix B, Table B.2.4.
G-VC-5	C.1.1	Typos in the Evaluation and Technical Basis Section.	Editorial comment.	See NRC disposition of Comment G-VC-1 in Appendix B,Table B.2.4, which deleted the line item for the valve disc seal, which contained the typos referred to in this comment. The GALL report was not revised to address this comment.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD1-1	D1.1-1.6, D1.2.1, D1.4.1, D1.7.3, D1.8.1-8.3	Regulatory Guide 1.44 does not manage cracking of stainless steel. This guide provides information to limit the sensitization of stainless steel during welding. However, sensitization of stainless steel during welding cannot be eliminated and it must be assumed that cracking will occur if the other parameters necessary for cracking (i.e., halogens) are present. Therefore, other programs (ex- chemistry) are necessary to manage cracking. Relative to SSC, the references, AMP and Evaluation and Technical Basis should include design and material controls consistent with Reg. Guide 1.43.	Comment transmitted for previous draft was not incorporated.	Certain stainless steel components of the PWR Containment Spray System such as piping and fittings, pumps, and valves are susceptible to stress corrosion cracking. The referenced AMP is XI.M2, “Water Chemistry” (NUREG-1801, Vol. 2). The main objective of the “Water Chemistry” AMP is to mitigate damage caused by general, pitting, and crevice corrosion, and SCC. The GALL report was revised to address this comment by deleting RG 1.44 from AMP XI.M2 because it does not provide any guidelines for preventing SCC of SS that is already sensitized during welding. RG1.43 was not added as a reference to the “Water Chemistry” AMP because it does not have information related to design and material control of SS welds. RG 1.43 contains information related to underclad cracking in Grade 508 Cl-2 material.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD1-2	D1.1.7, D1.2.2, D1.3.1, D1.4.1-4.2, D1.5.3-5.5, D1.6.3-6.4, D1.8.4	Delete Closure Bolting from this section of the GALL and revise E1.1 to clarify inclusion of bolting.	Bolting is not a component. It is a piece part of components such as pipe, valves, and pumps. The bolt does not perform a component intended function. See comment G-V E-1.	Bolting is an integral part of pipings, fittings and miscellaneous related items, pumps, valves, and heat exchangers in the PWR containment spray system. Bolting is considered to be a system component for each individual engineered safety features system because it can be uniquely identified and also because it is a small component whose review could be missed if categorized under a broader category. Section E of Chapter V of the GALL report for CS Components includes AMPs for degradation of all CS structures and components, including closure bolting. In addition, ASME Section XI treats individual bolting as a component and requires inspection of individual bolting. Boric acid corrosion at closure bolting is included in both Section D1 and E of chapter V of the GALL report. In Section A, the borated coolant is leaking from an integral bolted connection in the piping whereas in Section E, it is leaking from adjacent piping on to the bolted connections. The GALL report was not revised to address this comment.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD1-3	D1.1.1- D1.1.6	Remove "Lines to Emergency Sump" from entry for SCC.	Plausibility of mechanism seems based on design temperature of up to 644ºF. This portion of system is maintained in standby at ambient temperature; the temperature preconditions for SCC (>150ºF) do not exist.	Stress corrosion cracking (SCC) of stainless steel (SS) components exposed to borated water is possible at temperatures below 200ºF if contaminants are present in the water. This is supported by operating experience at PWR plants for spent fuel pool cooling lines (IN 79-19, IE Bulletin 79-17), for safety injection lines (IN 97-19 and IN 84-18), for charging pump casings (IN 80-18), and instrumentation line nozzles for safety injection tanks (IN91-05). However, the staff believes that that degradation does not occur if water chemistry is maintained since normal practices within the water chemistry program either preclude the introduction or filter out contaminants such as sulfides and chlorides that are required for transgranular stress corrosion cracking. Any significant departures from that program which would allow the introduction of contaminants would be reviewed for the root cause and corrective measures undertaken at that time in accordance with the QA requirements of Appendix B to 10 CFR Part 50. The GALL report was revised to address this comment by indicating water chemistry as the aging

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD1-3 (cont.)				management program with no further evaluation required and the operating temperature as less than 200°F in the "Environment" column for line items D1.1-a, D1.2-a, D1.4-b, D1.7-b, and D1.8-a.
G-VD1-4	D1.2.1	Delete entry for SCC.	Plausibility of mechanism seems based on design temperature of up to 644°F. This portion of system is maintained in standby at ambient temperature; the temperature preconditions for SCC (>150°F) do not exist.	See NRC disposition of NEI comment G-VD1-3 in Appendix B, Table B.2.4.
G-VD1-5	D1.8.1-D1.8.3	Delete entry for SCC.	This portion of system is maintained in standby at ambient temperature; the temperature preconditions for SCC (>150°F) do not exist. (This mechanism was considered Plausible for CCNPP but the root cause appeared to be contaminants not removed during initial fabrication. This is a plant-specific event and will not apply to other prospective applicants.)	See NRC disposition of NEI comment G-VD1-3 in Appendix B, Table B.2.4.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD2-1	All items where the AMP is Plant Chemistry Controls	Change Further Evaluation Column to "NO" wherever the AMP is the Plant Chemistry Controls, and the applicant has demonstrated their effectiveness through operating experience.	Per prior discussions with NRC, Plants can show through their operating experience that the Chemistry Controls they are using are adequate for the purpose of preventing and mitigating aging effects.	A one-time inspection is needed to verify the effectiveness of water chemistry control (AMP XI.M2) and confirm either the absence of an aging effect or the slow progression of an innocuous aging effect for BWR plants only. If an aging effect is detected, the results are evaluated to determine the appropriate corrective actions. The GALL report was not revised to address this comment.
G-VD2-2	D2.1.1-D2.1.7	Change lower limit for temperature to 93ºC (200°F).	SCC is not an applicable aging effect for these components due to the high quality of the water and the low normal operating temperature. Most RHR lines and most of the line connected to the SC will normally operate below 200°F. SCC can occur in SS components that utilize salt water for the cooling, but no commercial US reactors do.	Pipings and fittings and associated components for BWR ECCS are exposed to a demineralized water environment ranging in temperature from 25-288°C (77-550°F). The temperature range listed in the 'Environment' column indicates variation in operating conditions; it is not a threshold temperature for any aging mechanism. The GALL report was not revised to address this comment.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD2-3	D2.1.1-D2.1.7	This item should be revised to be restricted to components that Section XI and Appendix B require to be included in the applicant's ISI program.	The systems listed will have components that are not in the ISI plan for the applicant. As such, the inspections listed will not occur. The separate line item for the non-ISI components should be prepared with comment G-V D2-1, above, in mind.	Pipings and fittings and valves for BWR ECCS fabricated of stainless steel can be susceptible to SCC and intergranular SCC. The inspections of pipings and fittings required for aging management program XI.M7 will be limited to those required in GL 88-01 and BWRVIP-75. The GALL report, Chapter XI, program M7 was revised to address this comment. by making it more specific on limiting scope of program to the intent of GL 88-01 and BWRVIP-75.
G-VD2-4	D2.1.8	This item should be separated by material into two items.	The aging effects for SS are different than for CS in this case. It is extremely unlikely that the SS components will be subject to the aging effects listed due to the low temperatures of the air and due to the lack of electrolytes in the atmosphere.	Pipings and fittings for the BWR ECCS automatic depressurization system are fabricated of CS or SS which, when subjected to a moist containment atmosphere, steam, or demineralized water, are susceptible to loss of material due to crevice and pitting corrosion. The GALL report was revised to address this comment by denoting under "Aging Effect/Mechanism" that carbon steel under such conditions is also susceptible to general corrosion in addition to pitting and crevice corrosion.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD2-5	D2.3.1	Change lower limit for temperature to 93ºC (200°F).	SCC is not an applicable aging effect for these components due to the high quality of the water and the low normal operating temperature. Most RHR lines and most of the line connected to the SC will normally operate below 200°F. SCC can occur in SS components that utilize salt water for the cooling, but no commercial US reactors do.	Valves for BWR ECCS are exposed to a demineralized water environment ranging in temperature from 25-288°C (77-550°F). The temperature range listed in the "Environment" column is intended to indicate variation in operating conditions; it is not a threshold temperature for any aging mechanism. The GALL report was not revised to address this comment.
G-VD2-6	D2.5.1-D2.5.4	This item should be separated by material into two items or delete entry for General Corrosion, Pitting, and Crevice Corrosion.	The aging effects for SS are different than for CS in this case. It is extremely unlikely that the SS components will be subject to the aging effects listed due to the low temperatures of the air and due to the lack of electrolytes in the atmosphere. Stainless Steel exposed to Air will not be affected by these Aging Mechanisms. Also, Carbon Steel exposed to Air will at most be susceptible to General Corrosion; Crevice Corrosion and Pitting require an aqueous environment.	Pipings and fittings, the flow orifice, headers, and spray nozzles for the BWR ECCS drywell and suppression chamber spray system fabricated of CS and exposed to an air environment are susceptible to only general corrosion because other aging mechanisms require an aqueous environment. The resultant aging effects are either loss of material or plugging of nozzles and spray sparger holes. The GALL report was revised to address this comment by deleting stainless steel from the "Material" column and pitting and crevice corrosion from the "Aging Effect/Mechanism" column.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VD2-7	D2.5.1-D2.5.4	Why is plugging of the nozzles and spray sparger holes not considered an applicable aging effect? (Flow Blockage)	Corrosion build-up inside CS spargers could lead to plugging of the sparger hole. Plugged holes could cause spray dispersal patterns that do not agree with the design basis analysis leading to inadequate SC cooling.	Pipings and fittings, the flow orifice, headers, and spray nozzles for the BWR ECCS drywell and suppression chamber spray system fabricated of CS and exposed to an air environment are susceptible to general corrosion. Because of corrosion products buildup, plugging of the CS flow orifice and spray nozzles was added as an applicable aging effect. The GALL report was revised to address this comment by adding this new line item.
G-VE-1	E.1.1	Revise Structure and Component "Carbon Steel Components (PWR's)" to read "Carbon Steel Components and Closure Bolting (PWR's)"	Bolting is not a component; as such it should not be called out separately in other sections in chapter V. Chapter XI.M5, "Boric Acid Corrosion" applies. There is no need to distinguish bolting from other pressure boundary external surfaces relative to boric acid corrosion.	GALL V, Section E on carbon steel components includes AMPs for degradation of all carbon steel structures and components, including closure bolting. ASME Section XI treats individual bolting as a component and requires inspection of individual bolting. This line item for BAC of external surfaces refers to those PWR carbon steel components that do not contain borated coolant. The components containing borated coolant are addressed in other sections of Chapter V. The GALL report was not revised to address this comment.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VE-2	E.1.1	Delete second section related to atmospheric corrosion. Revise SRP Tables 3.2-1 (page 3.2-13) and 3.2-2 (page 3.2-15) accordingly.	Very few components of the ECCS systems are constructed of carbon steel. Reference to Chapter XI.S8 has the effect of back-fitting RG 1.54, Rev. 1. As a minimum, replace with a requirement for "plant specific" in lieu of S8.	The external surfaces of BWR and PWR CS components subjected to air, moisture, and humidity at temperatures lower than 212°F are susceptible to general corrosion causing loss of material. The GALL report was revised to address this comment by replacing the term "atmospheric corrosion" with "general corrosion" and deleting the reference to Chapter XI.S8 "Protective Coating Monitoring and Maintenance Program."
G-VE-3	E.1.1	Delete reference to ASME section XI in program description for BAC.	Implementation of the Boric Acid Corrosion Program at the sites has nothing to do with ASME Section XI. This program is performed independent of Section XI for the identification of boric acid corrosion. Most utilities perform this inspection at the start of the outage to identify problems so that they may be repaired while off-line. Leakage identified during the performance of pressure tests and hydrostatic tests are handled per the ASME Code requirements.	The Boric Acid Corrosion Program is deemed to be a stand alone program and sufficient by itself to detect leaks so as to prevent Boric Acid Corrosion on the external surfaces of CS components exclusive of the ASME Section XI inspections. Since the ASME Section XI inservice inspections are already performed prior to startup, it was not necessary to include them as part of this aging management program. The GALL report was revised to address this comment by deleting requirements to perform inservice inspections in the Boric Acid Corrosion program XI.M10 in accordance with ASME Chapter XI.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VE-4	E.1.1	Atmospheric corrosion is only applicable to carbon steel components associated with portions of systems operating below 212°F.	Since moisture is necessary for general, pitting and any other forms of atmospheric corrosion, the external surfaces of carbon steel components, which operate above 212°F, are not susceptible to loss of material due to corrosion.	Several CS components in the Engineered Safety Features are exposed to temperatures lower than 212°F and are therefore susceptible to general corrosion. The GALL report was revised to address this comment by replacing the term “atmospheric corrosion” with “general corrosion.”
G-VE-5	E.1.1	Delete reference to XI.S8, “Coating Program” under Aging Management Program Column for atmospheric corrosion. Plant specific review should be performed.	The use of coatings is a preventive measure to minimize or preclude the loss of material due to corrosion. Loss or degradation of coatings does not result in loss of material, and thus is not considered an aging effect. Programs credited for monitoring loss of material typically constitute periodic visual inspections of component external surfaces for signs of corrosion or loss of material. Since programs credited vary between plant sites, a plant specific review should be performed.	The external surfaces of BWR and PWR CS components subjected to air, moisture, and humidity at temperatures lower than 212°F are susceptible to general corrosion causing loss of material. The GALL report was revised to address this comment by replacing the term “atmospheric corrosion” with “general corrosion” and deleting the reference to Chapter XI.S8 “Protective Coating Monitoring and Maintenance Program.”

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VE-6	E.2.1	(1) Delete "Air, Moisture, Humidity and Leaking Fluid" under Environment Column for Closure Bolting. Replace with "Air, Leaking Chemically treated Borated Water." (2) Delete "Atmospheric Corrosion" under Aging Mechanism column and replace with "Boric Acid Corrosion". Replace information in References column, Aging Management Program column and Evaluation and Technical Basis column with that provided in E.1.1 for Boric Acid Corrosion.	Most carbon or low alloy steel bolting is in a dry environment and coated with a lubricant, thus general corrosion of bolting has not been a major concern in the industry. Corrosion of fasteners has only been a concern where leakage of a joint occurs, specifically, when exposed to aggressive chemical attack such as that resulting from borated water leaks. Aging effect requiring management should be loss of mechanical closure integrity due to aggressive chemical attack (boric acid corrosion).	The purpose of line item E.2-a in Chapter V of GALL report is to address carbon steel and low alloy steel closure bolting exposed to ambient environment (i.e., humid air). Boric acid corrosion of closure bolting is not addressed here because it is addressed by line item E.1-a in Chapter V of the GALL report and also in the respective sections of that same chapter. In addition, the GALL report was revised to address this comment by replacing "atmospheric corrosion" with "general corrosion" for this line item and removing leaking fluid from the "Environment" column.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VE-7	E.2.1	Delete Aging Effect/Mechanism "Loss of Pre-load due to Stress Relaxation." (Note: Reference column and AMP Column incorrect list Item H.2.1 instead of E.2.1.)	Loss of pre-load of mechanical closures can occur due to settling of mating surfaces, relaxation after cyclic loading, gasket creep, and loss of gasket compression due to differential thermal expansion. The effects of these mechanisms are the same as that of a degraded gasket; that is, the potential for leakage of internal fluid at the mechanical joint. Since the ASME code does not consider gaskets, packing, seals, and O-rings to perform a pressure retaining function, these components are typically not considered to support an intended function and not within the scope of license renewal. Thus, with the exception of Class 1 components and those cases where a gasket or seal is utilized to provide a radiological barrier, the aging mechanisms associated with loss of pre-load, described above are not considered to require management. Class 1 components credit the ISI Inspection Program to address loss of pre-load due to stress relaxation.	See NRC disposition of NEI comment for G-VII-1-6 in this Appendix B, Table B.2.6.

Table B.2.4: Disposition of NEI Comments on Chapter V of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VE-8	E.2.1	Delete Aging Effect/Mechanism "Crack Initiation/Growth" due to Cyclic loading, Stress Corrosion Cracking. (Note: Reference column and AMP Column incorrect list Item H.2.1 instead of E.2.1.)	Although there have been a few instances of cracking of bolting in the industry due to SCC, these have been attributed to high yield stress materials and contaminants, such as the use of lubricants containing MoS_2. For quenched and tempered low alloy steels (e.g., SA193 Grade B7) used for closure bolting material, susceptibility to SCC is controlled by yield strength. Additionally, operating experience and existing data indicate that SCC failure should not be a significant issue for the bolting materials of SA193 Grade B7.	See disposition of NEI comment G-VII I-7 in Appendix B, Table B.2.6.

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APPENDIX B, TABLE B.2.5

DISPOSITION OF NEI COMMENTS ON CHAPTER VI OF GALL REPORT

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Table B.2.5: Disposition of NEI Comments on Chapter VI of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G VI – 1	Table 6	Delete "BWR/" from the Type column for the "Non-EQ electrical connectors exposed to borated water leakage."	The program for Non-EQ electrical connectors exposed to borated water leakage is based on NRC GL 88-05, *Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants*, and is only applicable to PWR plants.	Borated water is not used in BWR plants, and the program based on NRC GL 88-05 is specifically for PWR plants. Therefore, the proposed change is acceptable and has been incorporated. The GALL report, Volume 1, Table 6 was revised to address this comment.
G VI– 2	VI A-3 Paragraph 1	Delete the phrase, "*are not normally used at nuclear power plants,*" from paragraph 1, sentence 3.	Section VI A-3, Paragraph 1, sentence 3 states: *"High-voltage (>15kV) power cables and connections are not normally used at nuclear power plants, have unique, specialized constructions and must be evaluated on an application-specific basis."* The switchyards at nuclear plants normally do contain high-voltage power cables (transmission lines) and connections. The rest of the statement is accurate.	High-voltage power cables and connections are used in plant switchyards. Therefore, the proposed change is acceptable and has been incorporated. The GALL report, Chapter VI, was revised to address this comment.
G VI– 3	VI A-3 Paragraph 2	Revise the first sentence of paragraph 2 to read: "Electrical cables and their required terminations (i.e., connections) are typically reviewed as a single commodity."	Section VI A-3, Paragraph 2, sentence 1 states: *"Electrical cables and their required terminations (i.e., connections) are reviewed as a single commodity."* This will be true for most plants but is an acceptable option to review cables and connections separately. Suggest adding the word "typically" to clarify this.	Reviewing cables and their required terminations separately, and not as a commodity, is an option allowed under 10 CFR 54. Therefore, the proposed change is acceptable and has been incorporated. The GALL report, Chapter VI, was revised to address this comment.

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APPENDIX B, TABLE B.2.6

DISPOSITION OF NEI COMMENTS ON CHAPTER VII OF GALL REPORT

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Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII-1	General comment on System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping in each specific section's System Interface paragraph.	The external surfaces of piping etc. is included in the scope of Carbon Steel Components (VII I). The link between Carbon Steel Components and the individual sections is not clearly established in the System Interface sections of the individual sections.	The external surfaces of piping are included in the scope of carbon steel structures and components in Section I of Chapter VII. The links between CS components and the individual sections were made by revising the GALL report to include the following sentence in "Systems, Structures and Components" in Sections A1 to H2 of Chapter VII: "Aging management programs for degradation of external surface of carbon steel components are included in Section VII.I." The GALL report was revised to address this comment.
G-VIIA-1	A1.1.1 (p. A1-4)	Remove reference to "Coating Degradation."	"Coating Degradation" is not a mechanism, the other items listed are. The condition of the coating does not directly affect the intended function, only indirectly through the other listed mechanisms.	The carbon steel (CS) new fuel rack assembly is susceptible to general, pitting, and crevice corrosion. Because the condition of the coating does not directly affect the intended function, coating degradation was deleted as an aging mechanism of concern for auxiliary systems. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA1-1	VII.A1.1.1, page VIIA1-5	Aging Management Program should list Structures Monitoring program.	Additional information is superfluous.	The carbon steel (CS) new fuel rack assembly is susceptible to general, pitting, and crevice corrosion. The appropriate Aging Management Program (AMP) is "Structural Monitoring" (XI.S6, NUREG-1801, Vol. 2). The GALL report was revised to address this comment.
G-VIIA2-1	VII A2-4 (item A2.1.1)	Provide a separate line for each of the neutron absorbing materials (Boraflex, Boral, Boron Steel).	The AMP described in VII A2-5 is based on NRC guidance and industry experience of Boraflex aging mechanisms and aging effects. There is no specific NRC guidance or known industry issues with Boral and Boron Steel. Aging management effects for Boral and Boron should remain plant specific.	The Boraflex neutron absorbing sheets in spent fuel storage racks can degrade with a subsequent reduction of neutron-absorbing capacity. The appropriate AMP is "Boraflex Monitoring" (XI.M22, NUREG-1801, Vol. 2). Since little NRC guidance or industry experience is available for the degradation of Boral and Boron Steel neutron absorbing sheets in spent fuel storage racks, a plant-specific AMP needs to be evaluated. The GALL report was revised to create separate line items to distinguish between the AMPs for Boraflex and Boral/Boron Steel.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA2-2	VII A2-4 (item A2.1.1)	Add Storage Racks under "Region of interest" column, Stainless Steel under "Material" column. If AMP is required, reference a generic AMP or state plant specific.	Stainless Steel storage racks are listed in page VII A2-3 as included in Section A2.	Stainless steel spent fuel storage racks are exposed to chemically treated oxygenated water (in BWRs) or borated water (in PWRs). The AMP for this new line item is water chemistry (XI.M2 in NUREG-1801, Vol. 2) to manage crack initiation and growth due to stress corrosion cracking. The GALL report was revised to address this comment.
G-VIIA2-3	VIIA2, page VIIA2-5	Aging Management Program column should only identify the Boraflex Monitoring Program and the program should be evaluated in Chapter XI of GALL.	Additional information in AMP column is superfluous and should be included in the evaluation if it is to stay.	The Boraflex neutron absorbing sheets in spent fuel storage racks can degrade with a subsequent reduction of neutron-absorbing capacity. The appropriate AMP is "Boraflex Monitoring" (XI.M22, NUREG-1801, Vol. 2). Redundant information was deleted. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA2-4	VII A2-5	Eliminate the requirement for both visual inspection of the coupons and the BADGER device inspection.	Either of the two methods in addition to RACKLIFE provides reasonable assurance that aging of boraflex is adequately managed.	The visual inspection of the Boraflex coupons is not needed if the measurement of boron areal density and predictive modeling is in place. Boron areal density (BADGER) in conjunction with a predictive model (RACKLIFE) and periodic verification is an acceptable and conservative method of determining the amount of Boraflex remaining in the spent fuel pool racks. The GALL report was revised to address this comment.
G-VIIA2-5	VII A2-5	Delete the sentence “corrective action may consist of providing additional neutron absorbing capacity.”	This is one option only. There are other corrective measures that could be taken such that the 5% subcriticality margin is maintained.	The AMP “Boraflex Monitoring” (XI.M22, NUREG-1801, Vol. 2) states that corrective actions are initiated if the test results find that the 5% subcriticality margin cannot be maintained because of the current or projected future degradation. Corrective actions consist of providing additional neutron absorbing capacity by Boral or boron steel inserts or other options that are available to maintain a 5% subcriticality margin. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA2-6	VII A2-5	Recommend changing "BADGER" to Areal Density measurements.	The term is more generic and permits the use of new equipment and technologies.	The AMP "Boraflex Monitoring" (XI.M22, NUREG-1801, Vol. 2) includes: (1) performing neutron attenuation testing, (2) sampling and analysis for silica levels in the spent fuel pool water and trending the results using the EPRI RACKLIFE code or its equivalent and, (3) measuring boron areal density by a device such as BADGER. The GALL report was revised to address this comment.
G-VIIA2-7	VII A2-7	Provide operating experience that justifies the effectiveness of the program.	Section A.1.2.3.10, page A.1-6 of draft SRP states "This information should provide objective evidence to support that the effects of aging will be adequately managed so that the structure and component intended function(s) will be maintained during the period of extended operation."	The description of operating experience has been expanded in the AMP "Boraflex Monitoring" (XI.M22, NUREG-1801, Vol. 2) to provide objective evidence that the program is effective by stating that the AMP will ensure that the boral sheets will maintain their integrity and will be effective in performing their intended function. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA3-1	A3.1.1, A3.5.1	Delete reference to ASME Section XI as a technique for detecting boric acid corrosion.	Refer to comments in Chapter XI.M5 for justification	NRC GL 88-05 provides a stand-alone program for inspection of carbon steel structures and components for evidence of boric acid leakage and corrosion. Inservice inspection that detects leakage identified during the performance of pressure tests and hydrostatic tests are required by the ASME Code and are performed independent of the AMP "Boric Acid Corrosion" (XI.M10, NUREG-1801, Vol. 2) and were removed. The GALL report was revised to address this comment.
G-VIIA3-2	A3.2.1, A3.3.1, A3.5.1, A3.5.2	The material column refers to "carbon steel (CS) with lining." It is not clear what type of lining material is intended by this description. If the lining material is stainless steel, then pitting and crevice corrosion should be deleted from this table.	The introduction of system operation (Page VII A3-3) states that stainless steel components are not subject to significant aging degradation in borated water and are not considered further. In addition, further evaluation is not warranted.	Pitting and crevice corrosion are aging mechanisms of concern only following degradation of the lining protecting the CS. Additional line items were added to represent the degradation of elastomer linings for filter housings and for ion exchangers. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA3-3	A3.3.1	The material column refers to "carbon steel (CS) with stainless steel (SS) cladding." Stainless steel is not subjected to significant aging degradation in a borated water environment and should be deleted from this table.	The introduction of system operation (Page VII A3-3) states that stainless steel components are not subject to significant aging degradation in borated water and are not considered further. Also, further evaluation is not warranted.	Stainless steel is subject to SCC in the presence of impurities. There have been instances of failures in spent fuel pool cleanup system. Instances of cracking in PWR piping have included piping from borated water storage tank to RHR suction, spent fuel cooling piping, etc. (NUREG–0691, 1980). Additionally, IGSCC was observed in PWR safety injection accumulator nozzles (NRC IN 91-05). SS can be subject to SSC in a borated water environment. The GALL Report was not revised to address this comment.
G-VIIA3-4	A3.4.1, A3.4.2	Delete reference to ASME OM Standards and Guides, Part 2 from this table. Add "If the adequacy of the chemistry control programs cannot be confirmed over the total operating history of the plant or if any unexplained downward trend in heat exchanger performance is identified that cannot be remedied by maintenance of an open-cycle system, it may be necessary to selectively perform functional testing of the affected heat exchangers."	Refer to comments in Chapter XI.M4 for justification.	See NRC disposition of NEI comment G-VIII E-5 in this Appendix B, Table B.2.7. The AMP "Closed-Cycle Cooling Water" (XI.M21, NUREG-1801, Vol. 2), element 5 "Monitoring and Trending" provides for the performance and functional test intervals to be adjusted by the applicant. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA3-5	A3.5.1-A.3.5.3	Add external surfaces to the Region of Interest column.	Consistent with other item numbers that are exposed to air and leaking chemically treated borated water.	The external surfaces of the shell and nozzles in the demineralizer ion exchanger are exposed to air and leaking chemically treated borated water. The component is identified as external surface only. The GALL report was revised to address this comment.
G-VIIA3-6	A3.1.1-A3.2.1, A3.2.2, A3.3.1-A3.3.2, A3.4.1-A3.4.3, A3.5.1-A3.5.3, A3.6.1	Delete line items.	All carbon steel external surfaces, including closure bolting exposed to atmospheric air and chemically treated borated water are evaluated under Chapter VII I – Carbon Steel Components.	The components in the spent fuel pool cooling and cleanup (PWR) contain chemically treated borated water, which may leak out of them. The components in the carbon steel components section have chemically treated borated water leaking onto them. The GALL report was revised to address this comment to clarify that the carbon steel components considered do not contain borated water, by adding a phrase both in the system structure and component description as well as in the table itself of the carbon steel components section.
G-VIIA3-7	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping in each specific section's System Interface paragraph.	The external surfaces of piping etc. is included in the scope of Carbon Steel Components (VII I). The link between Carbon Steel Components and the individual sections is not clearly established in the System Interface sections of the individual sections.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIA3-8	A3.4.1, A3.4.2	Remove reference to MIC.	Treated Closed Cycle Cooling Water is not susceptible to MIC.	Carbon steel components exposed to chemically treated closed-cycle cooling water are not susceptible to microbiologically influenced corrosion because treated CCCW is not amenable to biological growth. The GALL report was revised to address this comment by deleting this aging mechanism for CS components in the PWR spent fuel pool cooling and cleanup system.
G-VIIA4-1	A4.1.1, A4.2.1, A4.3.1, A4.4.2-A4.4.4, A4.5.1, A4.5.2, A4.6.1	See comments on AMP for "Water Chemistry" in Chapter XI.M.11.	See comments on AMP for "Water Chemistry" in Chapter XI.M.11.	The section on one-time inspection in Element 4, Detection of Aging Effects, in the AMP "Water Chemistry" (XI.M2, NUREG-1801, Vol. 2), was clarified. One time inspection is needed to verify the effectiveness of water chemistry control and confirm the absence of an aging effect. If an aging effect is detected, the results are evaluated to determine the appropriate corrective actions. The reference to the "appendix to this report" was made clearer and the GALL Report was revised to address this comment.
G-VIIA4-2	A4.4.1-A4.4.3	See comments on AMP for "Closed cycle cooling water system" in Chapter XI.M.4.	See comments on AMP for "Closed cycle cooling water system" in Chapter XI.M.4.	See NRC disposition of NEI comment G-VIII E-5 in this Appendix B, Table B.2.7.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIB-1	B.1.1	Remove reference to "Coating Degradation."	"Coating Degradation" is not a mechanism, but General Corrosion is. The condition of the coating does not directly affect the intended function, only indirectly through the other listed mechanism.	The structural girders for cranes including bridge and trolley are subject to general corrosion. Because the condition of the coating does not directly affect the intended function, coating degradation was deleted as an aging mechanism of concern for auxiliary systems. Coatings are covered under the maintenance rule. The GALL report was revised to address this comment.
G-VIIB1-2	VIIB1, page VIIB-3	The text under system interfaces should be changed to the following: Physical interfaces exist with the supporting structure. The direct interface is at the connection to the structure.	Editorial clarification.	The text following the system interfaces caption on the introductory page was revised to include the following sentence: "Physical interfaces exist with the supporting structure. The direct interface is at the connection to the structure." The GALL report was revised to address this comment.
G-VIIB1-3	VIIB1.1, page VIIB-4	Structure and component should be listed as Cranes.	Bridge and trolley are subcomponents of the larger component, which is a crane.	The structural girders for cranes including bridge and trolley are subject to general corrosion. The structure and component are now listed as Crane, denoting that bridge and trolley are the subcomponents. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIB1-4	VIIB1.1, page VIIB-4	Delete ASME Section XI under reference for general corrosion.	The structural girders are not inspected in accordance with ASME.	The AMP "Inspection of Overhead, Heavy Load and Light Load Handling Systems" (XI.M23, NUREG-1801, Vol. 2) was revised so that references to ASME Section XI and ANSI N14.6 were deleted because ASME Section XI does not apply to crane structures and ANSI N14.6 applies to lifting devices rather than the cranes themselves. The GALL report was revised to address this comment.
G-VIIB1-5	VIIB1.1, page VIIB-5	(1) Aging Management Program should reflect CMAA Specifications #67 or #70. (2) Additional information such as cycles and CUF needs to be moved under evaluation and technical basis. (3) Further evaluation should say, "Yes, TLAA if applicable."	ASME NOG-1 is not a utility applied reference. Editorial clarification.	(1) The AMP "Inspection of Overhead, Heavy Load and Light Load Handling Systems" (XI.M23, NUREG-1801, Vol. 2) was revised to add the following CMAA documents (specification applicable at the time the crane was manufactured should be used). The Electric Overhead Crane Institute, Inc., EOCI Specification No. 61, Specifications for Electric Overhead Traveling Cranes (note that this is CMAA#61; CMAA#67 was a typo). Crane Manufactures Association of America, Inc., CMAA Specification No. 70, Specifications for Electric Overhead Traveling Cranes. Crane Manufactures Association of America, Inc., CMAA Specification

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIB1-5 (cont.)				No. 74, Specifications for Top Running and Under Running Single (contd) Girder Electric Overhead Traveling Cranes. (2) The AMP "Inspection of Overhead, Heavy Load and Light Load Handling Systems" (XI.M23, NUREG-1801, Vol. 2) was revised to include only aging management of aging effects due to general corrosion and wear. (3) Fatigue is a TLAA to be evaluated for the period of extended operation in accordance with 10 CFR 54.21 requirements. The license renewal applicant only has to demonstrate compliance with the original licensing basis design criteria for 60-years. If the criteria did not include a fatigue evaluation, the applicant does not have to perform one. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIB1-6	VIIB1.1, page VIIB-5	Aging Management Program, delete information on ASME code Section XI for VT-3.	The structural girders are not inspected in accordance with ASME Section XI.	The AMP "Inspection of Overhead, Heavy Load and Light Load Handling Systems" (XI.M23, NUREG-1801, Vol. 2) was revised. References to ASME Section XI, and ANSI N14.6 were deleted because ASME Section XI does not apply to crane structures and ANSI N14.6 applies to lifting devices rather than the cranes themselves. The GALL report was revised to address this comment.
G-VIIB1-7	VIIB1.1, page VIIB-5	Delete information on coating degradation under AMP column.	ASME Section XI and Coating inspections are not credited for managing the aging of cranes. Only the crane inspection or Maintenance Rule inspections are credited with managing aging of cranes.	The structural girders for cranes including bridge and trolley are subject to general corrosion. Because the condition of the coating does not directly affect the intended function, coating degradation was deleted as an aging mechanism of concern for auxiliary systems. Coatings are covered under the Maintenance Rule. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIB1-8	VIIB1.1, page VIIB-5	Revise Attributes 1 – 6 as follows: **(1) Scope of Program:** The program is focused on managing the effects of general corrosion on the girders. **(2) Preventive Actions:** No preventive actions are identified. The Crane inspection is a monitoring program.) **(3) Parameters Monitored/Inspected:** OK as is. **(4) Detection of Aging Effects:** Rails and girders are visually inspected on a routine basis for degradation. Functional tests are also performed to assure their integrity. **(5) Monitoring and Trending:** Monitoring and trending are not required as part of the crane inspection program. **(6) Acceptance Criteria:** The acceptance criteria are no unacceptable visual indication of loss of material due to corrosion or wear.	The attributes are changed to more correctly reflect the program. This statement matches how other preventive actions are addressed when it is a monitoring program. Changes are recommended because girders are not inspected in accordance with ASME. This matches how cranes are addressed in NUREGs 1705 and 1723. The statement in the GALL does not contain any acceptance criteria. These are the criteria that were accepted in NUREG 1723 for managing this aging effect.	The AMP "Inspection of Overhead, Heavy Load and Light Load Handling Systems" (XI.M23, NUREG-1801, Vol. 2) was significantly revised. In Element (1), the words "cyclic loading" and "structural reliability" were deleted because it is not in scope. Element (2) "preventive actions" was revised because it is an inspection program. Element (4) "Detection of Aging Effects" was revised because ASME Section XI does not apply to cranes. Element (5) "Monitoring and Trending" was not revised to address this comment because it is not in scope. Element (6) "Acceptance Criteria" was revised with the addition of the phrase at the end "according to applicable industry standards and good industry practice." The GALL report was revised to address this comment as stated above.
G-VIIB1-9	VIIB1.1, page VIIB-4, and VIIB.2.1, page VIIB-6	Environment should be changed to 100% relative humidity and 49°C.	Many locations within the plant are exposed to relative humidity as high as 100%.	Many locations within the plant are exposed to relative humidity as high as 100%. The GALL report was revised to address this comment, by changing the listed environment to 100% relative humidity and 49°C (120°F).

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIB1-10	VIIB.2.1, page VIIB-6 and VIIB-7	Delete "and coating degradation" under references, AMP and evaluation and technical basis.	Coating degradation does not in and of itself result in loss of material of the rail system. Corrosion results in loss of material.	The condition of the coating does not directly affect the intended function. Coatings are covered under the Maintenance Rule. The GALL report was revised to address this comment by deleting coating degradation as an aging mechanism for auxiliary systems.
G-VIIC1-1	System Description	Revise sentence addressing Regulatory Guide 1.26 as follows: Based on the Nuclear Regulatory commission Regulatory guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing components of Nuclear Power Plants", all components in the open cycle cooling water system are classified as Group "C" quality Standards, with the exception of those forming part of the containment penetration boundary which are Group "B."	Since scope of Section VII C2 now also includes containment isolation portion of system, Quality Group classification requires clarification.	The Quality Group classification was clarified by using the following sentence: "Based on Regulatory Guide 1.26, Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants," all components in the open-cycle cooling water system are classified as Group "C" Quality Standards, with the exception of those forming part of the containment penetration boundary which are Group "B." The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC1-2	System Interfaces Section	Change wording to indicate …systems that "may" interface with the open cooling water system…	Many plants have a closed cooling water system that interfaces with the system listed.	The system interfaces paragraph in the introductory section for open-cycle cooling water system (service water system) was rewritten to indicate the systems that "may" interface with the open-cycle cooling water system (service water system). Many plants have an OCCW system that interfaces with the systems listed. The GALL report was revised to address this comment.
G-VIIC1-3	C1.1.1	Add stainless steel, as applicable material for open cycle cooling water systems (aboveground). The aging effects remain consistent with those items listed.	Stainless steel is used in many open-cycle cooling water systems in an effort to minimize the adverse effect of MIC.	Stainless steel is used in many OCCW systems to minimize the adverse effect of MIC. The GALL report was revised to address this comment by adding SS to the list of applicable materials for OCCW system (aboveground).
G-VIIC1-4	C1.1.1	Add galvanic corrosion to aging mechanism column.	The GALL Report identifies galvanic corrosion as being applicable only to piping exposed to a soil environment. This mechanism is also applicable to dissimilar metals in a raw water environment.	Galvanic corrosion is applicable to dissimilar metals in a raw water environment as well as to piping exposed to a soil environment. The GALL report was revised to address this comment by adding this aging mechanism for OCCW system (aboveground).

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC1-5	C1.1.1, C1.2.1, C1.3.1 through C1.3.5	Add the following to the aging mechanism column "General (For CS **without internal lining or coating**)…"	General corrosion of lined carbon steel is listed as an aging mechanism. Lined carbon steel pipe may be susceptible to localized corrosion in areas of lining degradation but will not be susceptible to gross wastage. This position was accepted in the CCNPP SER. In addition, this proposed change would ensure consistency with GALL Section VII C3, Item C3.1.1.	General corrosion is applicable for CS without an internal lining or coating or for CS with a degraded internal lining or coating. Lined carbon steel pipe may be susceptible to localized corrosion in areas of lining degradation. The GALL report was revised to address this comment.
G-VIIC1-6	C1.1.2	Add cast iron to material column and de-alloying as specific aging mechanism for only cast iron.	Cast iron piping is a probable material type for underground piping.	Cast iron was added as a material of concern for underground piping and fittings (external surface, with or without organic coating or wrapping) and aluminum-bronze was added for piping and fittings in OCCW systems (service water system) and selective leaching was identified as the specific aging mechanism. This term is used throughout GALL because it is the standard terminology for the process (and includes dealloying as a subset of selective leaching). The AMP "Selective Leaching of Materials" (XI.M33, NUREG-1801, Vol. 2) was created and inserted. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC1-7	C1.1.2	Delete reference to the AMA titled "Outer Surface of Buried Piping and Components."	Refer to Chapter XI.M8 comments.	The AMP "Buried Piping and Tanks Surveillance" (XI.M28, NUREG-1801, Vol. 2) manages the aging of buried carbon steel piping. Although the Buried Piping and Tanks Surveillance AMP (based on NACE standards) is not an existing nuclear industry standard practice, it is one acceptable method. An alternative to the AMP "Buried Piping and Tanks Surveillance" (XI.M28, NUREG-1801, Vol. 2) is found in the AMP "Buried Piping and Tanks Inspection (XI.M34, NUREG-1801, Vol. 2) which inspects based on the frequency for the need to dig up piping considering plant operating experience that would allow for crediting the inspection when a pipe is dug up for any reason. The frequency and plant operating experience could be subject to a plant specific review. The GALL report was revised to address this comment.
G-VIIC1-8	C1.1.1, C1.2.1, C1.4.1, C1.5.1, C1.6.1	Eliminate Buildup of deposit/Flow Blockage as an aging effect and Biofouling as an Aging mechanism for all components except heat exchanger tubes.	Buildup of deposit due to biofouling is an aging effect which impacts heat transfer intended function, and is thus documented only for heat exchanger tubes. Buildup of deposit does not affect pressure boundary, except for MIC, which is addressed under loss of material.	Biofouling affects both system flow performance and pressure boundary integrity. Flow performance is considered an active function covered under the current licensing basis and should not be included within the scope of license renewal. However, biofouling causes loss of material, which affects the pressure boundary and this passive function

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC1-8 (cont.)				requires aging management. This position does not contradict License Renewal Issue No. 98-105, which states that the heat transfer function for heat exchangers is within the scope of license renewal. Therefore, biofouling of heat exchanger tubes requires aging management. The GALL report was revised as follows to address this comment: 1. Delete all heat exchanger components except the tubes from the material column for buildup of deposits due to biofouling. 2. For all piping and components other than heat exchangers, deleted all line items for buildup of deposits due to biofouling. 3. For all piping and components including heat exchangers, loss of material due to biofouling was included as an aging mechanism for pressure boundary components. 4. The aging management program XI.M20 “Open-Cycle Cooling Water System” was revised to remove reference to flow blockage.
G-VIIC1-9	C.1.3.1 through C.1.3.5	Add: Aluminum Brass material for heat exchanger tubes. All other columns remain the same.	Some plants utilize aluminum brass heat exchanger tubes.	Since aluminum brass is used in heat exchanger tubes in some plants, the material was added. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC1-10	C1.4.1	Remove references to General Corrosion.	General Corrosion is listed as an Aging Mechanism for Stainless Steel Flow Orifices. Stainless Steel is not susceptible to General Corrosion, so this Aging Mechanism should not be considered.	Flow orifice bodies serviced by OCCW system are SS. Stainless steel is not susceptible to general corrosion. The GALL report was revised to address this comment by clarifying that the aging mechanisms of concern are pitting, crevice, and microbiologically influenced corrosion and biofouling.
G-VIIC1-11	C1.5.1	Add cast steel to the Material column.	To be consistent with the same item under different aging effect.	The pump casing in an OCCW system can be fabricated from cast steel or carbon steel. The GALL report was revised to address this comment by making GALL consistent with the same item specified under different aging effect.
G-VIIC1-12	C1.5.1	Remove “low flow cavitation” as an aging mechanism.	Cavitation Erosion is localized material erosion caused by formation and collapse of vapor bubbles in close proximity to material surface. Fluid (liquid) flow and pressure variations, which temporarily drop the liquid pressure below the corresponding vapor pressure, are required for this mechanism. Cavitation Erosion does not occur in liquid systems that have low flow and steady pressure, such as open cycle cooling water systems, because there are not significant flow and pressure variations.	The pump casing in an OCCW system can be fabricated from cast steel or carbon steel and can experience loss of material due to general, selective leaching, pitting, crevice, and microbiologically influenced corrosion and biofouling. Because there is no significant flow and pressure variations in OCCW systems, low flow cavitation is not a viable aging mechanism. The GALL report was revised to address this comment by deleting this aging mechanism for the OCCW in Auxiliary Systems.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC1-13	C1.6.1	Apply general corrosion only to the carbon steel material as an applicable aging mechanism.	Stainless steel is not susceptible to general corrosion.	Basket strainer bodies serviced by open-cycle cooling water are fabricated from either CS or SS. Because the SS component is not susceptible to general corrosion. The GALL report was revised to address this comment by clarifying that only CS components are subject to this aging mechanism and that both SS and CS components are susceptible to pitting, crevice and microbiologically influenced corrosion and biofouling.
G-VIIC1-14	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping in each specific section's System Interface paragraph.	The external surfaces of piping etc. is included in the scope of Carbon Steel Components (VII I). The link between Carbon Steel Components and the individual sections is not clearly established in the System Interface sections of the individual sections.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC2-1	System Description	Revise sentence addressing Regulatory Guide 1.26 as follows: "Based on the Nuclear Regulatory commission Regulatory guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing components of Nuclear Power Plants," all components in the closed cycle cooling water system are classified as Group "C" quality Standards, with the exception of those forming part of the containment penetration boundary which are Group "B."	Since scope of Section VII C2 now also includes containment isolation portion of system, Quality Group classification requires clarification.	The Quality Group classification was clarified by using the following sentence: "Based on Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants," all components in the closed-cycle cooling water system are classified as Group "C" Quality Standards, with the exception of those forming part of the containment penetration boundary which are Group "B". The GALL report was revised to address this comment.
G-VIIC2-2	C2.1.1	Delete reference to ASME OM Part 2. Add: "If the adequacy of the chemistry control programs cannot be confirmed over the total operating history of the plant or if any unexplained downward trend in heat exchanger performance is identified that cannot be remedied by maintenance of an open-cycle system, it may be necessary to selectively perform functional testing of the affected heat exchangers.	Refer to comments in Chapter XI.M4 for justification.	See NRC disposition of NEI comment G-VIIA3-4 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC2-3	C.2.2.1	(1) Need to add Stainless material for valves. (2) Revise Aging Mechanism Column by adding "(carbon steel only)" after General corrosion.	Some plants also utilize stainless steel valves in their closed cooling water systems. The Closed Cooling Chemistry Program addresses the aging effects of stainless steel.	(1) It is correct that some plants also use SS valves in CCCW systems. (2) The SS valve body and bonnet are not susceptible to general corrosion. The GALL report was revised to address this comment by adding SS as a material of consideration for valves and clarifying that only CS components are subject to this aging mechanism.
G-VIIC2-4	C.2.3.1	Need to add Cast Iron material for Pump Casing. Also add "Dealloying (Cast iron only)" to Aging Mechanism Column. No other changes are required to remaining columns.	Some plants also utilize cast iron material for pumps in their closed cooling water systems. The Closed Cooling Chemistry Program addresses the aging effects of cast iron.	Some plants use cast iron pumps in CCCW systems. Selective leaching is an aging mechanism of concern for cast iron and is addressed by the AMP "Selective Leaching of Materials" (XI.M34, NUREG-1801, Vol. 2). The GALL report was revised to address this comment by adding cast iron as a material of consideration for pump casings.
G-VIIC2-5	C.2.5.1	Need to add Stainless material for flow orifice. No other changes are required to columns.	Some plants also utilize stainless steel orifices in their closed cooling water systems. The Closed Cooling Chemistry Program addresses the aging effects of stainless steel.	SS has no aging effect in the closed cooling water system environment. The GALL report was not revised to address this comment.
G-VIIC2-6	C2.4.1, C2.5.1	Add general corrosion to aging mechanism column.	General corrosion should be added in a manner similar to other equipment in this section.	General corrosion is applicable for CS in treated water. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC2-7	C2.6.1	This row is incomplete. The Reference and AMP column are blank. In addition, the index page (VII C2-1) for section C2 does not show this item number.	Provide information in the appropriate columns and the index page **OR** remove and include lube oil cooler in the appropriate auxiliary system as stated in the second paragraph under "System, Structures, and Components" on page VII C2-3.	There was only one failure event of the lube oil cooler attributable to IGSCC in the entire U.S. nuclear power plant history. The event occurred at Fort Calhoun in 1973. The GALL report was revised to address this comment by deleting this line item.
G- VIC2-8	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping in each specific section's System Interface paragraph.	The external surfaces of piping etc. is included in the scope of Carbon Steel Components (VII I). The link between Carbon Steel Components and the individual sections is not clearly established in the System Interface sections of the individual sections.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.
G-VIIC3-1	C3.1.1, C3.2.1	Change aging mechanism from "selective leaching" to "dealloying" in the aging mechanism and AMP columns.	To ensure consistency between GALL sections VII C1 and VII C3.	Brass, bronze, and cast iron are subject to a selective leaching aging mechanism. This term is used throughout GALL because it is the standard terminology for the process (and includes dealloying as a subset of selective leaching). All references to dealloying in the GALL report have been changed to selective leaching. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIC3-2	C3.1.1, C3.2.1, C3.3.1	Add a comma after "Raw" in the environment column and "Untreated Salt Water."	To ensure consistency between GALL sections VII C1 and VII C3.	A comma was added after "Raw" in the environment column and "Untreated Salt Water" in order to have consistency between sections. The GALL report was revised to address this comment.
G-VIIC3-3	C3.2.1	Add carbon steel to the material column and general corrosion (for CS only without internal lining or coating) to the aging mechanism column.	To ensure consistency between GALL sections VII C1 and VII C3 and the AMP column.	Global changes were made throughout Ch. VII to ensure consistent descriptions for coatings, linings (elastomer) and claddings (SS). The GALL report was revised to address this comment.
G-VIIC3-4	C3.3.1	Revise the AMP column and the Evaluation and Technical Basis column to delete any reference to selective leaching for brass.	Brass material is not included in the material column of this Item number.	The selective leaching of the material "brass" was deleted from consideration in this environment. The GALL report was revised to address this comment.
G-VIIC3-5	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping in each specific section's System Interface paragraph.	The external surfaces of piping etc. is included in the scope of Carbon Steel Components (VII I). The link between Carbon Steel Components and the individual sections is not clearly established in the System Interface sections of the individual sections.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIID-1	System Description	Revise sentence addressing Regulatory Guide 1.26 as follows: "Based on the Nuclear Regulatory commission Regulatory guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive-Waste Containing components of Nuclear Power Plants," all components of the compressed air system are classified as Group "D" quality Standards, with the exception of those forming part of the containment penetration boundary which are Group "B."	Since scope of Section VII D now also includes containment isolation portion of system, Quality Group classification requires clarification.	The Quality Group classification was clarified by using the following sentence: "Based on Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive-Waste Containing Components of Nuclear Power Plants," all components of the compressed air system are classified as Group "D" Quality Standards, with the exception of those forming part of the containment penetration boundary which are Group "B." The GALL report was revised to address this comment.
G-VIID-2	D.1.1, D.2.1 through D.2.3, D.3.1, D.4.1 through D.4.3	Replace "Internal: Dry, Oil-Free Air" with "Saturated Air".	Dry, Oil-Free Air is not an aggressive environment conducive to aging effects for carbon and low alloy steels; however, moist or saturated air is. Saturated or moist air conditions should exist only upstream of air dryers in typical compressed air system. Plants have addressed air quality issues downstream of dryers per their response to GL 88-14. These responses included many one-time verifications of proper system design, and also assuring adequate maintenance/operating practices: 1) Verification that actual instrument air quality is consistent with manufacturers recommendations for safety related components, 2)	The environment to which components of the compressed air system are exposed progresses from saturated air at the piping and fittings to merely moist air at the dryer. The AMP "Compressed Air Monitoring" (XI.M24, NUREG-1801, Vol. 2) reflects the cleanup of air as it proceeds through filters and dryers. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIID-2 (cont.)			Verification that maintenance practices, emergency procedures, and training are adequate, and 3) Verification that the design of the entire system including air or other pneumatic accumulators is in accordance with its intended function. Note: This included testing of air operated valves. Compressed air systems having design features such as air dryers and filters typically have dew point alarms and/or dew point is tested periodically by the operators as part of their routine monitoring of the equipment. This should not be considered as an aging management program. Aging management activities or programs should only be provided for “saturated air” portion of the system upstream of air dryers. These components are subject to internal general and pitting corrosion. However, because of differences in system design and management philosophy, these aging management activities should be evaluated on a plant specific basis.	

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE1-1	E1.6.1, E1.6.2	Delete E1.6.1 from Item column and delete Casing from Region of Interest column for BAC Aging Mechanism.	The Low Pressure Pump Casing (item E1.6.1) is stainless steel and not subject to BAC.	The low-pressure pump casing, fabricated from stainless steel, is not susceptible to boric acid corrosion. The casing was deleted as a region of interest. The GALL report was revised to address this comment.
G-VIIE1-2	E1.7.1 through E1.7.4 (p. E1-8)	Change Material from LAS, CS to stainless steel.	The Regenerative Heat Exchanger has a borate water for both shell and tube side and is made of stainless steel not carbon steel.	The regenerative heat exchanger is fabricated only of stainless steel. The closure bolting is fabricated from the LAS and CS materials. The GALL report was revised to address this comment.
G-VIIE1-3	E1.10.1 through E1.10.4 (really E1.10.2 through E1.10.4)	Delete this item.	The Volume Control Tank is made of stainless steel not carbon steel. The listed Aging Mechanism is not valid for stainless steel and borated water.	The volume control tank, constructed only of SS, is not susceptible to pitting and crevice corrosion in borated water. The volume control tank closure bolting, fabricated of LAS or CS, was retained as a topic of concern in Section E1 because of possible boric acid corrosion. The GALL report was revised to address this comment by deleting the line items E1.10.2 through E1.10.4 (shell and access cover, nozzle, and penetration).
G-VIIE1-4	E1.10.1 through E1.10.4	If comment G-VII E1-3 above is not incorporated, Change “Pitting and Crevice Corrosion” to “BAC”.	This entry seems inconsistent with all other entries on leaking Borated Water.	See NRC disposition of NEI Comment G-VIIE1-3 in Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE1-5	E1.7.1 through E1.7.4	Delete the Aging Mechanism 'Unanticipated cyclic loading'.	Unanticipated cyclic loading is not a valid Aging Mechanism.	The term "unanticipated" was eliminated because if a mechanism is not anticipated, then it cannot be managed in anticipation. The GALL report was revised to address this comment.
G-VIIE1-6	E1.8.1 through E1.8.3	Delete the Aging Mechanism 'Unanticipated cyclic loading.'	Unanticipated cyclic loading is not a valid Aging Mechanism.	The term "unanticipated" was eliminated because if a mechanism is not anticipated, then it cannot be managed in anticipation. The GALL report was revised to address this comment.
G-VIIE1-7	E1.5.1, E1.5.2, E1.6.1, E1.6.2	Delete the Aging Mechanism Fatigue.	Fatigue is listed as an Aging Mechanism for the Low Pressure and High Pressure Pump. These components are not subjected to high temperatures or thermal cycles that could cause Fatigue; this Aging Mechanism should not be listed for these items.	Temperatures and thermal cycles are relatively benign, fatigue has been deleted as an aging mechanism for the low-pressure and high-pressure pumps in the chemical and volume control system for PWRs. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE1-8	E1.2.1	Delete the Aging Mechanism stress corrosion cracking.	Low Pressure Piping Stress Corrosion Cracking identifies the Environment as External with Heat Tracing and internal with treated water. The Region of Interest is identified as Low Pressure Piping up to 100°C. The use of adhesives with halogens would appear to be a 'Degradation induced by human activities' (Generic Licensing Renewal Issue # 98-0013) and not a real Aging concern.	Pipe, fittings, and flanges for 150psig rating piping have been deleted as components of concern. The SCC aging mechanism for low-pressure piping was deleted because the use of adhesives with halogens can cause 'Degradation induced by human activities' (Generic Licensing Renewal Issue # 98-0013) which is not a real aging concern. The GALL report was revised to address this comment.
G-VIIE1-9	E1.4.1	Delete the Aging Mechanism stress corrosion cracking.	Low Pressure Valves Stress Corrosion Cracking identifies the Environment as External with Heat Tracing and internal with treated water. The Region of Interest is identified as Low Pressure Piping up to 100°C. The use of adhesives with halogens would appear to be a 'Degradation induced by human activities' (Generic Licensing Renewal Issue # 98-0013) and not a real Aging concern.	The SCC aging mechanism for low-pressure valves was deleted because the use of adhesives with halogens can cause "Degradation induced by human activities" (Generic Licensing Renewal Issue # 98-0013), which is not a real aging concern. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE1-10	E1.1.2	Remove all references to ISI for managing Boric Acid Corrosion.	See justification for comment on item XI.M5.	NRC GL 88-05 provides a stand-alone program for inspection of carbon steel structures and components for evidence of boric acid leakage and corrosion. Inservice inspection that detects leakage identified during the performance of pressure tests and hydrostatic tests are required by the ASME Code and are performed independent of the AMP "Boric Acid Corrosion" (XI.M10, NUREG-1801, Vol. 2) and were removed. The GALL report was revised to address this comment.
G-VIIE1-11	E1.7.1 through E1.7.4, E1.8.1 through E1.8.3	Delete entry for Crack Initiation and Growth.	This AE, shown as resulting from "SCC, Unanticipated Cyclic Loading" has been added since the original draft. No reference is provided to justify the inclusion of these mechanisms. In addition, "Unanticipated Cyclic Loading" is not clearly defined. This AE/AM combination was not identified in the first two LRAs.	Crack initiation and growth are legitimate aging effects caused by SCC and cyclic loading acting on SS regenerative heat exchangers in a PWR chemical and volume control system. The term "unanticipated" was eliminated because if a mechanism is not anticipated, then it cannot be managed in anticipation. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE1-12	E1.10.2 through E1.10.4	Make this entry consistent with the remainder of section VII.E1. Both the inclusions of the AE/AM combination and the credited program seem inconsistent with other entries.	AE/AM: Loss of Material/Pitting and Crevice Corrosion is not included as an external effect for other CS/LAS components. Programs: For Loss of Material/Pitting and Crevice Corrosion, this entry refers to a previous entry for the same AE/AM for item VII E1.8.4. The previous item credits the Closed Cycle Cooling Water Chemistry program, which applies to neither external nor borated water environments.	The volume control tank, constructed only of SS, is not susceptible to pitting and crevice corrosion in borated water, the line items E1.10.2 through E1.10.4 (shell and access cover, nozzle, and penetration) were deleted. The volume control tank closure bolting, fabricated of LAS or CS, was retained as a topic of concern in Section E1 because of possible boric acid corrosion. The GALL report was revised to address this comment.
G-VIIE2-1	E2.1.1	Under element 3 of Evaluation and Technical Basis, delete the second sentence and replace with, "Inspection requirements of IWC 2500-1 specify periodic volumetric or surface examination of welds in class 2 components."	As stated in our previous comments sent to the NRC, the category references like category C-A or C-F-1 are only applicable to the 1989 Edition of ASME Section XI. These categories may be deleted or changed to something else in later editions. The AMP should be based on ASME Section XI requirements for class 2 components, period.	Stainless steel is subject to SCC in the presence of impurities. There have been instances of failures in spent fuel pool cleanup system. Cracking instances in piping in PWRs were studied in NUREG-0691 (1980). Affected systems included piping from borated water storage tank to RHR suction, spent fuel cooling piping, etc. An appropriate AMP is "Water Chemistry" (XI.M2, NUREG-1801, Vol. 2). The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE2-2	Entire section	Typos in the Material and environment columns require correction.	These typos make an evaluation of the material presented in the other columns difficult.	Structures and components of the standby liquid control system in BWRs are subjected to an environment consisting of a sodium pentaborate solution at 21-32°C (70-90°F) and ~ 24,500 ppm B). The GALL report was revised to address this comment.
GVIIE2-3	E2.1.1	Environment temperature ranges do not agree. SCC ranges should be from 93ºC to 194ºC.	SCC is not an appropriate aging effect for the internal surfaces of these components when their normal operating temperature is less than 200°F (93ºC).	Even at lower temperatures of 21-32°C (70-90°F), stainless steel is subject to SCC in the presence of impurities. There have been instances of failures in spent fuel pool cleanup system. Cracking instances in piping in PWRs were studied in NUREG–0691 (1980). Affected systems included piping from borated water storage tank to RHR suction, spent fuel cooling piping, etc. An appropriate AMP is "Water Chemistry" (XI.M2, NUREG-1801, Vol. 2). The range over which a particular aging mechanism is active can not be accurately stated since it cannot be accurately predicted even if other variables are disregarded but if there are multiple active aging mechanisms at anyone time then that further complicates the predictability of the temperature range over which any one of those aging mechanisms is active. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE2-4	E2.1.1	Specifically with respect to the piping that is downstream of the explosive valves and upstream of the containment isolation valves, errors in the table for materials (should be SS) and Environment (should be Treated Water or Demineralized water). Temperature range should be from 93ºC to 194ºC.	Higher temperatures are unlikely in this item. Also demineralized water is most often used to flush any part of this line, and the cleanliness requirements and chemical controls are at least as good as the treated water systems.	This section of piping and fittings is only exposed to ambient air, SCC does not occur and the line item was deleted. The GALL report was revised to address this comment.
GVIIE2-5	E2.1.1	AMP should be Chemistry Controls with resultant E&TB section.	This section of piping will receive the same treatment as any piping that could discharge water into the reactor vessel. Therefore, an acceptable AMP would be the AMP outlined in XI.M11.	Stainless steel piping and fittings in contact with sodium pentaborate solution (~ 24,500 ppm B) at 21-32°C (70-90°F) may be susceptible to stress corrosion cracking. An appropriate AMP is “Water Chemistry” (XI.M2, NUREG-1801, Vol. 2). The GALL report was not revised to address this comment.
GVIIE2-6	E2.2.1, E2.3.1, E2.4.1	The temperature range appears unusually high, especially for the storage tank. The temperature range should not exceed boiling (~100ºC). The low temperature for the range should be in keeping with the other comments of this section: 93ºC (200°F).	While high temperature spots around the heaters are possible, it is very unlikely that 302ºF would ever be reached. SCC is not a detrimental aging effect in components containing sodium pentaborate unless the mixing is inadequate and the temperature normally exceeds 200°F.	In the standby liquid control system in BWRs, the stainless steel solution storage tanks, the valve body and bonnets, and the injection pump casing are exposed to sodium pentaborate solution (~24,500 ppm B) at 21-32°C (70-90°C) and may be susceptible to stress corrosion cracking. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE2-7	Item Missing, applies to E.2.1.1	Cracking due to thermal fatigue is not discussed in this section for piping and should be to be consistent with other sections.	Cracking due to thermal cycling induced fatigue will have been addressed through a TLAA for BWR plants. This section does not contain this aging effect and should to be consistent with other sections.	In the standby liquid control system in BWRs, the stainless steel pipings and fittings are exposed to either sodium pentaborate solution or demineralized reactor coolant (between the explosive actuated discharge valves and containment isolation valve). This is a rarely used system. Since this system is only used in emergencies, it does not experience cycling. The GALL report was not revised to address this comment.
GVIIE2-8	E2.1.1, E2.2.1, E2.2.2, E2.3.1, E2.4.1	Delete all entries for SCC.	Based on the operating experience presented in the Evaluation and Technical Basis entries, Items (4) and (10), it appears that these entries should be removed as the case is made that this Aging Mechanism will not occur.	Stress corrosion cracking (SCC) of stainless steel (SS) components exposed to borated water is possible at temperatures below 200°F if contaminants are present in the water. This is supported by operating experience at PWR plants (NRC IN 79-19, IE Bulletin 79-17). As suggested by NEI at a public meeting on 01/25/01, the staff reviewed the information in NUREG/CR-6001 and concurred that operating experience indicates that degradation does not occur if water chemistry is maintained. The aging management program was revised to rely solely on the water chemistry program. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE3-1	All Items	This section should be deleted. (Comments below are provided in case this comment is not incorporated into GALL.)	The components in this section are not in scope of license renewal.	Even though the reactor water cleanup system can be isolated from the reactor water coolant system it is a pressure boundary concern during operation (NRC GL 88-01). Scoping for license renewal is plan specific. The GALL report is not a scoping document. The GALL report was not revised to address this comment.
GVIIE3-2	E3.1.1	Consistency issue: this item correctly identifies the temperature range for SCC in SS components. Other commodities in other sections do not.	SCC is not an applicable aging effect in non-saline solutions when the normal operating temperature is less than 200°F.	The temperature range for SCC in SS components was corrected to be consistent for comparable operating regimes throughout all of Chapter VII. The temperature will be in effect up to 550°F until the regenerative heat exchanger and then start decreasing. SCC was retained in GALL. The GALL report was revised to address this comment.
GVIIE3-3	E3.1.1	The lower limit of, “>93ºC,” should read, “Up to 288ºC (550°F)” for the line item dealing with Cumulative Fatigue Damage.	The basis for excluding piping that has thermal cycles from room temperature up to 93ºC is unclear. Depending upon the pipe geometry, low to moderate temperature cycling may be dominating in the pipe stress analysis.	Stainless steel piping and fitting, beyond the second isolation valve, in the BWR reactor water cleanup (RWCU) system, is exposed to oxygenated water at 93-288°C (200-550°F). The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE3-4	E3.2.1	A lower limit should be placed on the temperature range for SCC in the pump casing. This limit should be 200°F.	NUREG-0313 provides a basis for 200°F as a lower limit. Given the high controls placed on the chemistry of the RWCU fluids, SCC is not an applicable aging effect for the pump casings that operate normally below 200°F.	The cast austenitic stainless steel RWCU pump casing is exposed to oxygenated water at 93-288°C (200-550°F). The GALL report was revised to address this comment.
GVIIE3-5	E3.2.2	SLAS should be spelled when first used.	Writing style comment.	Acronyms such as high strength low alloy steel (HSLAS) are defined when they are first used in each chapter of GALL. The GALL report was revised to address this comment.
GVIIE3-6	E3.2.1	A site-specific program should handle fatigue for the pump casing.	No CLB may exist for a TLAA on the pump casings. The design analysis is vendor specific and may not be a TLAA.	The comment that no current licensing basis (CLB) may exist for a TLAA on the pump casings may be valid for some of the older plants to the extent that a fatigue analysis may not have been required for these older plants. The license renewal applicant only has to demonstrate compliance with the original licensing basis design criteria for 60-years. If the criteria did not include a fatigue evaluation, then the applicant doesn't have to perform one. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE3-7	E3.2.2	Delete entry for Stress Relaxation.	Stress Relaxation is the unloading of pre-loaded components caused by long term exposure to elevated temperatures and/or neutron irradiation. The stress in a member decreases when a constant amount of deformation is applied due to creep. Loss of prestress occurs at a decreasing rate; the majority of the loss is within the first year. The amount of prestress loss significantly decreases with time to approach an asymptotic value. Therefore, the level of prestress with extended operation should be comparable to current conditions. Proper component specification, design, and maintenance practices prevent this mechanism from occurring. Creep is not a concern for alloy and ferritic steels below 700ºF, for austenitic steels below 800ºF, and for nickel based alloys below 1800ºF. Creep is not generally a consideration in light water reactors due to operation at a maximum of 650ºF or below, which is somewhat below the creep range for most ASME Code materials. `	The high-strength low-alloy steel RWCU pump closure bolting will not be affected by stress relaxation at the operational temperature range. This entry was deleted. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE3-8	E3.3.1 through E3.3.4	The line item addressing Crack Initiation and Growth for the Regenerative Heat Exchanger should be split into two items because the temperature limitations on the SCC mechanism are different from the cyclic loading mechanism.	SCC is not an applicable aging effect in non-saline solutions when the normal operating temperature is less than 200°F.	The stainless steel components of the regenerative heat exchanger are exposed to oxygenated water at a 288°C (550°F) maximum temperature and 10 MPa maximum pressure. Even by NEI's criteria (comment E2-3 in this same table), SCC should be considered a legitimate aging mechanism. The GALL report was not revised to address this comment.
GVIIE3-9	E3.3.1 through E3.3.4	Remove references to "Cyclic Loading".	"Cyclic Loading" is not a mechanism. SCC can be postulated to result in crack growth without consideration of "Cyclic Loading". Inclusion of "Cyclic Loading" adds no value to this entry.	Stress corrosion cracking of the stainless steel components of the regenerative heat exchanger in the BWR reactor water cleanup system results in crack initiation and growth. The term "cyclic loading" was deleted from consideration as an aging mechanism. The GALL report was revised to address this comment.
GVIIE3-10	E3.4.1 through E3.4.4	The line item addressing Crack Initiation and Growth for the Non-Regenerative Heat Exchanger should be split into two items because the temperature limitations on the SCC mechanism are different from the cyclic loading mechanism.	SCC is not an applicable aging effect in non-saline solutions when the normal operating temperature is less than 200°F.	The stainless steel components of the nonregenerative heat exchanger are exposed to oxygenated water at a 288°C (550°F) maximum temperature and 10 MPa maximum pressure. Even by NEI's criteria (comment E2-3 in this same table), SCC should be considered a legitimate aging mechanism. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
GVIIE3-11	E3.4.1 through E3.4.4	Remove references to "Cyclic Loading".	"Cyclic Loading" is not a mechanism. SCC can be postulated to result in crack growth without consideration of "Cyclic Loading". Inclusion of "Cyclic Loading" adds no value to this entry.	Stress corrosion cracking of the stainless steel components of the nonregenerative heat exchanger in the BWR reactor water cleanup system results in crack initiation and growth. The term "cyclic loading" was deleted from consideration as an aging mechanism. The GALL report was revised to address this comment.
GVIIE3-12	E3.4.4	A maximum temperature limit for the line item for MIC should be expressed. 200°F is an acceptable limitation.	For portions of the RWCU that regularly see temperatures in excess of 200°F, MIC is not an applicable aging mechanism.	Microbiologically influenced corrosion affecting non-regenerative heat exchanger (serviced by closed-cycle cooling water) shell and access cover is an aging mechanism of concern for portions of the RWCU with temperatures under 200°F. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE4-1	E4.1.1	Under element 2 of Evaluation and Technical Basis, delete the last sentence regarding hydrogen water chemistry.	Both hydrogen water chemistry and noble metal addition are economic and business decisions made by each utility for their plants and should not be credited as a preventive action within GALL. This is a generic comment in various sections of the GALL for BWR's.	The AMP "Water Chemistry" (XI.M2, NUREG-1801, Vol. 2) with augmentation from the AMP "One-Time Inspection" (XI.32, NUREG-1801, Vol. 2) manages the aging of piping and fittings in the shutdown cooling system for older BWRs. As denoted in Element 2 "Preventive Actions" of the AMP "Water Chemistry" (XI.M2, NUREG-1802, Vol. 2), the use of hydrogen water chemistry and noble metal additions are not required for BWRs, but their use may allow reducing the extent of inservice inspection of stainless steel piping and BWR vessel internals. Hydrogen additions are effective in reducing electrochemical potentials in the recirculation piping system, but are less effective in the core region. Noble metal additions through a catalytic action increase the effectiveness of hydrogen additions in the core region. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE4-2	E4.1.1	The Evaluation and Technical Basis elements 3, 5 and 10 have detailed information that is not necessary. Chapter V D2, item D2.1.1-D2.1-7 for similar materials and aging effect provides clear and succinct information for these elements and should be duplicated in this chapter and section. Specifics are as follows: Element 3, Parameters Monitored/Inspected: delete all and replace with element 3 information of Evaluation and Technical Basis of Chapter V.D2, item D2.1.1-D2.1.7. Element 5, Monitoring and Trending: delete the example after Section XI that states “e.g., 25% are examined every 10 y. at least 12% in 6 y.” Element 10, Operating Experience: delete all sentences after second sentence and replace with, “The AMP outlined in GL 88-01 has been effective in managing the effect of stress corrosion cracking in SS piping.”	These changes will make the GALL consistent for description of AMPs for similar materials and aging effects in different chapters of the GALL report.	Stainless steel piping and fittings in shutdown cooling systems in older BWRs exposed to oxygenated water are susceptible to stress corrosion cracking. Appropriate aging management programs include “BWR Stress Corrosion Cracking” (XI.M7, NUREG-1801, Vol. 2) and “Water Chemistry” (XI.M2, NUREG-1801, Vol. 2). The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIE4-3	E4.3.1	In the AMP column, (1) delete the "and" between BWRVIP 29 and TR-103515. Instead replace with "BWRVIP 29 (TR-103515). (2) Evaluation and Technical Basis: Element 2 delete "and TR-103515" and the last sentence about hydrogen water chemistry. (3) Element 3 delete the second sentence about details of ISI categories.	TR-103515 is BWRVIP 29. See rationale above and in comment 1. Makes it consistent with other GALL sections. See comment 2.	Stainless steel valve body and bonnets in shutdown cooling systems in older BWRs exposed to oxygenated water are susceptible to stress corrosion cracking. Appropriate aging management programs include "BWR Stress Corrosion Cracking" (XI.M7, NUREG-1801, Vol. 2) and "Water Chemistry" (XI.M2, NUREG-1801, Vol. 2). (1 and 2) The documents BWRVIP-29 and TR-103515 are the same document. When the document is used as a reference, it is referred to as BWRVIP-29. (3) As denoted in Element 4 "Detection of Aging Effects" of the AMP "Water Chemistry" (XI.M2, NUREG-1801, Vol.2), when used by itself, inspection of select components may be undertaken to verify the effectiveness of the chemistry control program and to ensure that significant degradation is not occurring and the component intended function will be maintained during the extended period of operation. The GALL report was revised to address this comment as stated above.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF1-1	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping.	The external surfaces of piping etc. should be included in Section VIII I, however this link is not clearly established.	See NRC disposition of NEI comment G-VII-1 in Appendix B, Table B.2.6.
G-VIIF1-2	System Interface	Include a reference to Section VII C2 (Closed Cycle Cooling Water System) as the cooling coils typically receive their cooling from this source.	The cooling coils typically receive their cooling from another system and this source is typically a Closed Cycle Cooling Water System.	Clarification has been provided in the System Interfaces section of the introductory page for the Control Room Area Ventilation System (Table F1) by adding the following sentence. “The cooling coils receive their cooling water from other systems such as the hot water system or the chilled water cooling system.” The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF1-3	F1.4.2	Delete all references to Charcoal Adsorber Filter.	The Charcoal Adsorber Filter is not a 'passive long lived component.' Charcoal Adsorber is typically tested in accordance with Technical Specifications and Reg. Guide 1.52. Change out of Charcoal is expected during a 40-year plant life.	The charcoal absorber filter will be replaced during a 40-year plant life. The charcoal absorber filter is not a passive, long-lived component and will not be subject to an aging management review. The SRP was used to provide guidance and govern the consideration of this component. As stated in SRP Table 2.1-3, "Specific Staff Guidance for Screening," consumables that fall within category (d) for system filters, fire extinguishers, fire hoses, and air packs are typically replaced based on performance or condition monitoring that identifies whether these components are at the end of their qualified lives and may be excluded, on a plant-specific basis, from aging management review under 10 CFR 54.21(a)(1)(ii). The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF1-4	F1.1.1, F1.1.2, F1.2.1, F1.4.1	Remove reference to MIC.	Microbiologically Influenced Corrosion is listed as an Aging Mechanism for the ducting, filters, and cooling coils. The fluid inside the duct is air with the potential for some moisture. Moisture does not subject the components to the aggressive environment normally associated with this type of corrosion. Therefore, this aging mechanism should not be considered. See NUREG-1705.	Microbiologically influenced corrosion (MIC) is not a viable aging mechanism for the duct, filters, and cooling coils that are not characterized by the usual aggressive environment normally associated with MIC. The GALL report was revised to address this comment by retaining MIC as an aging mechanism of concern for duct/drip-pan and piping for moisture drainage in the duct.
G-VIIF1-5	F1.2.1	Remove reference to General Corrosion.	This Aging Mechanism is listed for the Containment Air Handler Heating/Cooling Coils. The coils are annealed 90/10 copper nickel and is not susceptible to this type of corrosion. Therefore, this Aging Mechanism should not be considered.	The 90/10 copper/nickel containment air handler heating/cooling coils in the control room area ventilation system are exposed to warm, moist air and are susceptible to pitting and crevice corrosion. This alloy is not susceptible to general corrosion. The GALL report was revised to address this comment by deleting general corrosion as an aging mechanism.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF1-6	F1.3.1	Remove reference to MIC.	Treated Closed Cycle Cooling Water is not susceptible to MIC.	Carbon steel components exposed to chemically treated closed-cycle cooling water (CCCW) are not susceptible to microbiologically influenced corrosion because treated CCCW is not amenable to biological growth. This aging mechanism was deleted for piping and fittings in the control room area ventilation system. The GALL report was revised to address this comment.
G-VIIF1-7	F1.1.3, F1.1.4	Remove "and Radiation" from Aging Mechanism entry.	Location of equipment would preclude radiation from contributing to aging during normal operations.	The Neoprene duct seals and collars in the control room area ventilation system are exposed to warm, moist air and are susceptible to heat-induced elastomer degradation. There is no radiation effect during normal operation. The GALL report was revised to address this comment by deleting the contribution of radiation to the aging mechanism.
G-VIIF2-1	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping.	The external surfaces of piping etc. should be included in Section VIII I, however this link is not clearly established.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF2-2	System Interface	Include a reference to Section VII C2 (Closed Cycle Cooling Water System) as the cooling coils typically receive their cooling from this source.	The cooling coils typically receive their cooling from another system and this source is typically a Closed Cycle Cooling Water System.	Clarification has been provided in the System Interfaces section of the introductory page for the Auxiliary and Radwaste Area Ventilation System (Table F2) by adding the following sentence "The cooling coils receive their cooling water from other systems such as the hot water system or the chilled water cooling system." The GALL report was revised to address this comment.
G-VIIF2-3	F2.4.2	Delete all references to Charcoal Adsorber Filter.	The Charcoal Adsorber Filter is not a 'passive long lived component.' Charcoal Adsorber is typically tested in accordance with Reg. Guide 1.52. Change out of Charcoal is expected during a 40-year plant life.	See NRC disposition of NEI comment G-VIIF1-3 in this Appendix B, Table B.2.6.
G-VIIF2-4	F2.1.1, F2.1.2, F2.2.1, F2.4.1	Remove reference to MIC.	Microbiologically Influenced Corrosion is listed as an Aging Mechanism for the ducting, filters, and cooling coils. The fluid inside the duct is air with the potential for some moisture. Moisture does not subject the components to the aggressive environment normally associated with this type of corrosion. Therefore, this aging mechanism should not be considered. See NUREG-1705.	See NRC disposition of NEI comment G-VIIF1-4 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF2-5	F2.2.1	Remove reference to General Corrosion.	This Aging Mechanism is listed for the Containment Air Handler Heating/Cooling Coils. The coils are annealed 90/10 copper nickel and is not susceptible to this type of corrosion. Therefore, this Aging Mechanism should not be considered.	See NRC disposition of NEI comment G-VIIF1-5 in this Appendix B, Table B.2.6.
G-VIIF2-6	F2.3.1	Remove reference to MIC.	Treated Closed Cycle Cooling Water is not susceptible to MIC.	See NRC disposition of NEI comment G-VIIF1-6 in this Appendix B, Table B.2.6.
G-VII F2-7	F2.1.3, F2.1.4	Remove "and Radiation" from Aging Mechanism entry.	Location of equipment would preclude radiation from contributing to aging during normal operations.	See NRC disposition of NEI comment G-VIIF1-7 in this Appendix B, Table B.2.6.
G-VII F3-1	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping.	The external surfaces of piping etc. should be included in Section VIII I, however this link is not clearly established.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.
G-VIIF3-2	System Interface	Include a reference to Section VII C2 (Closed Cycle Cooling Water System) as the cooling coils typically receive their cooling from this source.	The cooling coils typically receive their cooling from another system and this source is typically a Closed Cycle Cooling Water System.	Clarification has been provided in the System Interfaces section of the introductory page for the Primary Containment Heating and Ventilation System (Table F3) by adding the following sentence "The cooling coils receive their cooling water from other systems such as the hot water system or the chilled water cooling system." The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF3-3	F3.4.2	Delete all references to Charcoal Adsorber Filter.	The Charcoal Adsorber Filter is not a 'passive long lived component.' Charcoal Adsorber is typically tested in accordance with Technical Specifications and Reg. Guide 1.52. Change out of Charcoal is expected during a 40-year plant life.	See NRC disposition of NEI comment G-VIIF1-3 in this Appendix B, Table B.2.6.
G-VIIF3-4	F3.1.1, F3.1.2, F3.2.1, F3.4.1	Remove reference to MIC.	Microbiologically Influenced Corrosion is listed as an Aging Mechanism for the ducting, filters, and cooling coils. The fluid inside the duct is air with the potential for some moisture. Moisture does not subject the components to the aggressive environment normally associated with this type of corrosion. Therefore, this aging mechanism should not be considered. See NUREG-1705	See NRC disposition of NEI comment G-VIIF1-4 in this Appendix B, Table B.2.6.
G-VIIF3-5	F3.2.1	Remove reference to General Corrosion.	This Aging Mechanism is listed for the Containment Air Handler Heating/Cooling Coils. The coils are annealed 90/10 copper nickel and is not susceptible to this type of corrosion. Therefore, this Aging Mechanism should not be considered.	See NRC disposition of NEI comment G-VIIF1-5 in this Appendix B, Table B.2.6.
G-VIIF3-6	F3.3.1	Remove reference to MIC.	Treated Closed Cycle Cooling Water is not susceptible to MIC.	See NRC disposition of NEI comment G-VIIF1-6 in this Appendix B, Table B.2.6.
G-VIIF4-1	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of piping.	The external surfaces of piping etc. should be included in Section VIII I, however this link is not clearly established.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF4-2	System Interface	Include a reference to Section VII C2 (Closed Cycle Cooling Water System) as the cooling coils typically receive their cooling from this source.	The cooling coils typically receive their cooling from another system and this source is typically a Closed Cycle Cooling Water System.	Clarification has been provided in the System Interfaces section of the introductory page for the Diesel Generator Building Ventilation System (Table F4) by adding the following sentence, "The cooling coils receive their cooling water from other systems such as the hot water system or the chilled water cooling system." The GALL report was revised to address this comment.
G-VIIF4-3	F4.1.1, F4.1.2, F4.2.1	Remove reference to MIC.	Microbiologically Influenced Corrosion is listed as an Aging Mechanism for the ducting, filters, and cooling coils. The fluid inside the duct is air with the potential for some moisture. Moisture does not subject the components to the aggressive environment normally associated with this type of corrosion. Therefore, this aging mechanism should not be considered. See NUREG-1705.	See NRC disposition of NEI comment G-VIIF1-1 in this Appendix B, Table B.2.6.
G-VIIF4-4	F4.2.1	Remove reference to General Corrosion.	This Aging Mechanism is listed for the Containment Air Handler Heating/Cooling Coils. The coils are annealed 90/10 copper nickel and are not susceptible to this type of corrosion. Therefore, this Aging Mechanism should not be considered.	See NRC disposition of NEI comment G-VIIF1-5 in this Appendix B, Table B.2.6.
G-VIIF4-5	F4.3.1	Remove reference to MIC.	Treated Closed Cycle Cooling Water is not susceptible to MIC.	See NRC disposition of NEI comment G-VIIF1-6 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIF4-6	F4.1.3, F4.1.4	Remove "and Radiation" from Aging Mechanism entry.	Location of equipment would preclude radiation from contributing to aging during normal operations.	See NRC disposition of NEI comment G-VIIF1-7 in this Appendix B, Table B.2.6.
G-VIIG-1	VIIG	The fire protection program needs to be combined and placed in Chapter XI. Separate sections could be provided for fire barrier penetration seals; fire barrier walls, ceiling, and floors; and fire rated doors.	Place program in Chapter XI to be consistent with other programs.	The AMP "Fire Protection" (XI.M26, NUREG-1801, Vol. 2) includes fire barrier inspection program and diesel-driven fire pump inspection program. The fire barrier inspection program requires periodic visual inspection of fire barrier penetration seals, fire barrier walls, ceilings, and floors, and periodic visual inspection and function test of fire rated doors to ensure that operability is maintained. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIG-2	VIIG	Rather than focus on structures, which may change from site to site, this section should be rewritten to focus on components. Combine items G.1, G.2, G.3, G.4, and G.5 into three items: Fire Barriers, Fire Barrier Penetrations Seals, and Fire Rated Doors.	Editorial comment	The AMP "Fire Protection" (XI.M26, NUREG-1801, Vol. 2) includes fire barrier inspection program and diesel-driven fire pump inspection program. The fire barrier inspection program requires periodic visual inspection of fire barrier penetration seals, fire barrier walls, ceilings, and floors, and periodic visual inspection and function test of fire rated doors to ensure that operability is maintained. Aging mechanisms may be different in different structures. The GALL report is classified according to safety-related structures. Class I structures typically include all the structures and components identified in VIIG. The applicant always has the option of conducting an alternative plant-specific program. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIG-3	VIIG, Page VIIG-3	The structures in the first paragraph are not necessarily included within fire protection at all sites. The list of structures should be deleted.	Editorial comment	Representative structures (intake structures, turbine building, etc.) are provided in the Systems, Structures, and Components section of the introductory page for the Fire Protection section and are meant to be applicable to many plants although there may be other examples. The GALL report is not a scoping document. Class I structures typically include all the structures and components identified in VIIG. The applicant always has the option of conducting an alternative plant-specific program. The GALL report was not revised to address this comment.
G-VIIG-4	VIIG, G1.1 Page VIIG-5	Add the following as introduction for evaluation and technical basis: SECY-96-146 documents aging evaluations of fire barrier penetration seals, with details provided in an attached report. The report states that “many fire barrier materials are resistant to thermally accelerated aging and that the material properties of silicone-based material, which dominate the industry, are particularly age independent.” The document also reports they “did not find any penetration seal problems that were directly related to aging.” Therefore,	SECY-96-146 has drawn conclusions on aging of penetration seals. To ensure that these conclusions are captured and that no programs are required for aging management for penetration seals, the information should be included in this section.	Section 5.7 of SECY 96-146 concludes that existing licensee and vendor seal installation programs are adequate to prevent potential penetration seal installation problems. However, the staff never concluded that the existing penetration seal programs were adequate to address monitoring/preventive activities for aging penetration seals. For example, plant programs tend to focus on degradation caused by voids, holes, splits, and gaps in penetration seal materials. These are penetration seal operability issues. The intent of license renewal

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIG-4 (cont.)		no aging effects should be identified for penetration seals. However, if plant specific aging effects are identified which require aging management, the fire barrier inspection as presented below provides an acceptable method for managing aging. An applicant needs to ensure that its implementation of the fire barrier inspection is consistent with this evaluation.		is to manage the effects of aging prior to the loss of the intended function. Actions contained in preventive/monitoring programs would focus on shrinkage or other aging effects, which could lead to cracking or separation, which could eventually affect operability. Using the loss of the intended function as an indication to manage aging of penetration seals does not meet the intent of 10 CFR 54.21. In addition, the staff did not conclude in SECY-96-146 that abnormal shrinkage and aging could never occur in the future as plants operate beyond 40 years. Furthermore, NEI did not consider the influence of abnormal pipe movement caused by the cyclical heatup/cooldown period that occurs with refueling outages. These movements can cause penetration seals to move over time, which may lead to shrinkage, which causes cracking and separation. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIG-5	VIIG1.1, page VIIG-5	Change the following attributes under the program: **(2) Preventive Actions:** No preventive actions are specified. The program is a monitoring program. **(4) Detection of Aging Effects:** Visual inspection should detect cracking, separation from walls and component, rupture and puncture of seal. Visual inspection of a sample is performed at least once every 18 months. The frequency and extent of inspection ensures timely detection of the aging effects before loss of component intended function.	The attributes are changed to more correctly reflect the program. This statement matches how other preventive actions are addressed when it is a monitoring program. Clarified that a sample is inspected every 18 months.	The AMP "Fire Protection" (XI.M26, NUREG-1801, Vol. 2) includes a fire barrier inspection program and diesel-driven fire pump inspection program because the attributes were not clearly outlined. Elements (2) and (4) have been revised to match how other preventive actions are addressed and to clarify the detection of aging effects. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIG-6	VIIG1.2, page VIIG-5 and VIIG1.3, page VIIG-7	Change the following attribute: **(2) Preventive Actions**: No preventive actions are specified. It is a monitoring program.	This statement matches how other preventive actions are addressed when it is a monitoring program.	The fire barrier walls, ceilings, and floors and also the fire-rated doors in the intake structure are subject to aging resulting in loss of material. The AMP "Fire Protection" (XI.M26, NUREG-1801, Vol. 2) and the AMP "Structural Monitoring" (XI.S6, NUREG-1801, Vol. 2) manages the aging of the fire barrier walls, ceilings, and floors. The AMP "Fire Protection"(XI.M26, NUREG-1801, Vol. 2) manages the aging of the fire rated doors. In the Fire Protection AMP, element (2) was revised to include the following: "For operating plants, fire hazard analysis assess the fire potential and fire hazard in safety-related plant areas and specifies measures for fire prevention, fire detection, fire suppression, and fire containment and alternative shutdown capability for each fire area containing structures, systems, and components important to safety." The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIIG-7	VIIG1.2, Page VIIG-5	Under parameters monitored, do not discuss the mechanisms.	The rule focuses on aging effects, not mechanisms.	Aging of the fire barrier walls, ceilings, and floors in the intake structure is managed by the AMP "Fire Protection" (XI.M26, NUREG-1801, Vol. 2) and the Structural Monitoring AMP (XI.S6). In Element (3) "Parameters Monitored/Inspected" of the AMP "Fire Protection" (XI.M26, NUREG-1801, Vol.2), visual inspection of the fire barrier walls, ceilings, and floors is said to examine the signs of degradation such as cracking, spalling, and loss of material caused by freeze-thaw, chemical attack, and reaction with aggregates. Visual inspection of penetration seals examines the signs of degradation such as cracking, seal separation from walls and component, separation of layers of material, rupture and puncture of seals which are directly caused by increased hardness and shrinkage of seal material due to weathering. The focus in this section is on aging effects (as produced by cited mechanisms). The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII G-8	G.1.3, G.2.3, G.3.3, G.4.3, G.5.2	Delete entry for "Wear."	Element (10) of Evaluation and Technical Basis concludes, "Operating experience with this AMP has shown that degradation is insignificant." If degradation is insignificant, it cannot affect the intended function.	Absence of degradation during the first 40 years does not preclude problems during the period of extended operation. Furthermore, in Element 10 "Operating Experience," it is noted that fire doors have experienced wear of the hinges and handles. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII G-9	G.6.1, G.6.2	Delete entries for "Biofouling" for all components except sprinklers.	Component intended function is pressure boundary only. Biofouling does not prevent this intended function. This Aging Mechanism has the potential to cause blockage of deluge system spray nozzles. Other than that, it should not be considered applicable for fire protection system piping and components.	Biofouling affects both system flow performance and pressure boundary integrity. Flow performance is considered an active function covered under the current licensing basis and should not be included within the scope of license renewal. However, biofouling causes loss of material, which affects the pressure boundary and this passive function requires aging management. The GALL report was revised as follows to address this comment: 1. For all piping and components, all line items for buildup of deposits due to biofouling were deleted. 2. Loss of material due to biofouling was included as an aging effect for piping and pressure boundary components. 3. The aging management programs XI.M20 "Open-Cycle Cooling Water System," XI.M26 "Fire Protection," and XI.M27 "Fire Water System" were revised to remove reference to flow blockage and to clarify the aging effect to be managed is loss of material.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII G-10	G.7.1, G.7.2	Delete entries for Lubricating Oil environment.	(1) General Corrosion, Galvanic Corrosion, Crevice Corrosion, and Pitting are listed as Aging Mechanisms for the RCP Oil Collection Tank, Piping, Tubing, and Valves. These corrosion mechanisms are not plausible for these components since the internal environment is lube oil and air. (2) Lube oil acts to inhibit corrosion of carbon steel, and there is inadequate moisture in the system to promote corrosion. Therefore, General Corrosion, Crevice Corrosion, and Pitting should not be listed for the lube oil collection system components. This position was accepted in the CCNPP SER. (3) The element (10) Operating Experience entries under Evaluation and Technical Basis concur that no corrosion-related degradation has been observed for these components.	The collection tank and piping, tubing, and valve bodies in the reactor coolant pump oil collection system are subjected to a lubricating oil environment. (1 and 2) Corrosion is a plausible mechanism with lubricating oil and contaminant for the components (tank, piping, tubing, valve body) in the reactor coolant pump oil collection system. This has been addressed in the Oconee LRA (Vol. II, page 3.5-11 to 3.5-14: Table 3.5-9, Vol. II, page 3.5-135) and the ONS License Renewal SER (page 3-149 to 150). For clarification, “lubricating oil” in the environment column was replaced with “lubricating oil (with contaminants and/or moisture).” (3) A plant-specific AMP is suggested to determine the thickness of the components or tank. An acceptable verification program is provided in the AMP “One-Time Inspection” (XI.M32, NUREG-1801, Vol. 2). The GALL report was revised to address this comment as stated abaove.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII G-11	G.8.1	Remove reference to the Diesel Driven Fire Pump (Pump Casing).	The fire water pump has been mistakenly included with fuel oil components.	Both the fire water pump casing and the fuel oil line are in the scope of the program. The fire oil supply line should be kept with fire pump casing. BG&E LR states that the diesel fire pump is periodically tested to verify operability/availability through flow and discharge pressure tests. The pump is under observation during performance of the above tests and degradation of the fuel oil supply lines would be immediately evident. The GALL report was not revised to address this comment.
G-VII G-12	G.8.1	Delete entry for Fuel Oil environment.	(1) Loss of Material is listed as an applicable Aging Effect due to the Aging Mechanisms Crevice Corrosion, Pitting, Galvanic Corrosion, and General Corrosion for the Diesel Fire Pump Fuel Oil Supply Line. These corrosion mechanisms should only be considered plausible in fuel oil systems where there is a potential for water to pool or separate (tanks, receivers, stagnant piping, etc. (BAW-2270). The fuel oil supply line is not such a location, therefore, these mechanisms should not be considered. (2) This position was accepted in the Oconee SER. (3) The element (10) Operating Experience entries under Evaluation	(1) The carbon steel diesel-driven fire pump casing and fuel oil supply line in the diesel fire system are exposed to a fuel oil environment and are susceptible to general, galvanic, pitting, and crevice corrosion. The AMP “Fire Protection” and “Fuel Oil Chemistry” (XI.M26 and XI.M30, NUREG-1801, Vol. 2) manage aging. As stated in Element 3 of the AMP “Fire Protection” (XI.M26, NUREG-1801), the diesel-driven fire pump is under observation during the performance tests such as flow and discharge test, sequential starting capability test, and controller function test for detecting any degradation of the fuel supply line. Even if the position was accepted in the Oconee SER that

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII G-12 (cont.)			and Technical Basis concur that no corrosion-related degradation has been observed for these components.	corrosion would only be plausible in the fuel oil systems where there is a potential for water to pool or separate (tanks, receivers, stagnant piping), this does not imply that this position applies to all plants (varying in configuration and design). It does not necessarily preclude other plants from having to evaluate this. (2) GALL is a living and evolving document. A position accepted in the Oconee SER does not necessarily preclude other plants from having to evaluate this. (3) Absence of degradation during operation to date does not preclude problems during the period of extended operation. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H1-1	H1.1.1, H1.4.2	(1) Delete the references in the References column Replace "For description of the AMP, see Chapter XI.S8 'Coating Program" with "Plant-specific aging management program" in the Aging Management Program column Replace "For evaluation and technical basis of the 10 elements of the AMP, see Chapter XI.S8 'Coatings Program' with "Plant-specific aging management program is to be evaluated."	The aging effect to be managed is loss of material of the carbon steel tank. The program described is management of the degradation of the coating. Degradation of the coating will not result in a loss of the component intended function of the tank. Different plants use a variety of activities or programs to monitor for loss of material of the carbon steel tank, not degradation of the coating. Due to this variety, the industry proposes that the aging management program be a plant-specific aging management program.	The condition of the coating does not directly affect the intended function. Coatings are covered under the Maintenance Rule. As shown in the columns for the recommended AMP and "Further Evaluation," a plant-specific AMP is to be evaluated and further evaluation is stipulated for aboveground piping and fittings. The GALL report was revised to address this comment by deleting coating degradation as an aging mechanism of concern for auxiliary systems.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H1-2	H1.1.2	Delete the entries in the Reference, Aging Management Program, and Evaluation and Technical Basis columns and replace with the following: Leave the Reference column blank Insert "Plant-specific aging management program is to be evaluated" in the Aging Management Program column. Insert Plant-specific aging management program is to be evaluated" in the Evaluation and Technical Basis column.	The program described is not an industry standard practice at nuclear plants. Various activities are employed by different utilities that are not encompassed within the description of this program. The industry proposes that plant-specific aging management programs be evaluated for managing this aging effect.	The AMP "Buried Piping and Tanks Surveillance" (XI.M28, NUREG-1801, Vol. 2) manages the aging of buried carbon steel piping. Although the Buried Piping and Tanks Surveillance AMP (based on NACE standards) is not an existing nuclear industry standard practice, it is one acceptable method. An alternative to the AMP "Buried Piping and Tanks Surveillance" (XI.M28, NUREG-1801, Vol. 2), is the AMP "Buried Piping and Tanks Inspection" (XI.M34, NUREG-1801, Vol. 2) which inspects based on the frequency for the need to dig up piping considering plant operating experience that would allow for crediting the inspection when a pipe is dug up for any reason. The frequency and plant operating experience could be subject to a plant specific review. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H1-3	H1.4.1	Should "ASTM D 270" be "ASTM D 4057."	This ASTM Standard was not in the 1996 through 2000 editions of the ASTM Standards. ASTM D 4057 has the same title. It may have replaced ASTM D 270.	The AMP "Fuel Oil Chemistry" (XI.M30, NUREG-1801, Vol. 2) manages the aging of carbon steel internal surfaces of the tank in the diesel fuel oil system. The reference ASTM D 270 was replaced by ASTM D 4057-95(2000), *Standard Practice for Manual Sampling of Petroleum and Petroleum Products*. The GALL report was revised to address this comment.
G-VII H1-4	H1.4.1	(1) Replace: "Exposure to fuel oil contaminants such as water and microbiological organisms is minimized by periodic cleaning/draining tanks and by verifying the quality of new oil before its introduction into the storage tanks." With: "Exposure to fuel oil contaminants such as water and microbiological organisms is minimized by verifying the quality of stored fuel oil and new fuel oil before its introduction." (2) Delete the following sentences from the Aging Management Program column: "However, corrosion may occur at locations where contaminants may accumulate, such as tank bottom, and verification of the effectiveness of the program should ensure that	Fuel oil chemistry alone is sufficient to manage aging the fuel oil storage tanks. Proper monitoring and maintenance of the fuel oil quality will preclude the accumulation of contaminants that could lead to corrosion.	The AMP "Fuel Oil Chemistry" (XI.M30, NUREG-1801, Vol. 2) manages the aging of carbon steel internal surfaces of the tank in the diesel fuel oil system. (1) The AMP program description states "Exposure to fuel oil contaminants, such as water and microbiological organisms, is minimized by periodic draining or cleaning of tanks...." Periodic cleaning and draining of tanks allows removal of sediments and periodic draining of water collected at the bottom of a tank which minimizes the amount of water and the length of contact time. (2) The AMP program description states that corrosion may occur at locations in which contaminants may accumulate, such as tank bottoms. Accordingly, there is a need for verification of the effectiveness of

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H1-4 (cont.)		significant degradation is not occurring and the component intended function will be maintained during he extended period of operation. An acceptable verification program consists of a one-time thickness measurement of the tank bottom surface."		the program to ensure that significant degradation is not occurring and the component intended function would be maintained during the extended period of operation. Tank bottom thickness measurement is an acceptable method to verify the effectiveness of the AMP. The GALL report was not revised to address this comment.
G-VII H1-5	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of carbon steel components in this section.	It is not clear that the external surfaces of carbon steel components are addressed in Section VII I of the GALL.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H1-6	H1.4.1	Delete entry for Biofouling.	Buildup of Deposit/Biofouling is listed as an Aging Effect/Mechanism for DFO Tank Internal Surfaces. The only passive intended function for the DFO Tank in the Diesel Fuel Oil System is the pressure boundary function. Buildup of Deposit/Biofouling does not affect the Tank's ability to accomplish this intended function, so this Effect/Mechanism should not be considered.	Biofouling affects both system flow performance and pressure boundary integrity. Flow performance is considered an active function covered under the current licensing basis and should not be included within the scope of license renewal. However, biofouling causes loss of material, which affects the pressure boundary and this passive function requires aging management. The GALL report was revised as follows to address this comment: 1. For all piping and components, all line items for buildup of deposits due to biofouling were deleted. 2. For all piping and components, loss of material due to biofouling was included as an aging mechanism for pressure boundary components. 3. The management program XI.M20 "Open-Cycle Cooling Water System" was revised to remove reference to flow blockage.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-1	H2.1.1, H2.1.2	Delete ASME OM S/G Part 2 from the References column.	ASME OM S/G Part 2 provides performance and functional testing requirements that verifies the active functions of a system. The parameters monitored by this OM do not detect loss of material of the system components prior to a loss of the component function. Chemistry alone is sufficient in managing loss of material. This is demonstrated by the two industry events listed in the operating experience of the program description. One of those events was the loss of an active component function, not a passive function.	The AMP "Closed-Cycle Cooling Water" (XI.M21, NUREG-1801, Vol. 2) AMP relies on preventive measures to minimize corrosion by maintaining inhibitors and by performing surveillance testing and inspection based on the guidelines of EPRI-TR-107396 for closed-cycle cooling water (CCCW) systems. These measures will ensure that the CCCW systems and components serviced by the CCCW system are performing their function acceptably. The requirement for performance of functional tests per ASME OM S/G Part 2 was deleted in the AMP "Closed-Cycle Cooling Water" (XI.M21, NUREG-1801, Vol. 2). The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-2	H2.1.1, H2.1.2	Delete the following in the Aging Management Program column: ", and performance and functional testing in accordance with ASME OM Standards and Guides, Part 2 to ensure that the CCCW system or components serviced by the CCCW system are performing their functions acceptably."	ASME OM S/G Part 2 provides performance and functional testing requirements that verifies the active functions of a system. The parameters monitored by this OM do not detect loss of material of the system components prior to a loss of the component function. Chemistry alone is sufficient in managing loss of material. This is demonstrated by the two industry events listed in the operating experience of the program description. One of those events was the loss of an active component function, not a passive function.	The AMP "Closed-Cycle Cooling Water" (XI.M21, NUREG-1801, Vol. 2) relies on preventive measures to minimize corrosion by maintaining inhibitors and by performing surveillance testing and inspection based on the guidelines of EPRI-TR-107396 for closed-cycle cooling water (CCCW) systems. These measures will ensure that the CCCW systems and components serviced by the CCCW system are performing their function acceptably. The requirement for performance of functional tests per ASME OM S/G Part 2 was deleted in the AMP "Closed-Cycle Cooling Water" (XI.M21, NUREG-1801, Vol.2). The GALL report was revised to address this comment.
G-VII H2-3	H2.1.1, H2.1.2	Need to add general corrosion, pitting corrosion, and crevice corrosion to the Aging Mechanism column for piping and fittings service by open cycle cooling water system.	These mechanisms will occur on carbon steel exposed to a raw water environment.	Carbon steel piping and fittings for the diesel generator cooling water subsystem in the emergency diesel generator system are susceptible to general, pitting, and crevice corrosion. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-4	H2.1.1, H2.1.2	Delete "Jacket" from the Region of Interest column.	The jacket is a part of the diesel engine that is excluded from a license renewal aging management review.	The jacket (associated with the diesel engine cooling water subsystem) is part of the diesel engine that is excluded from a license renewal aging management review. The jacket (H2.1.2) was deleted from consideration. The GALL report was revised to address this comment.
G-VII H2-5	H2.1.1, H2.1.2	(1) Make the following change in the Aging Management Program column for carbon steel susceptible to erosion/corrosion: "However, the system is chemically treated with hydrazine to lower the dissolved oxygen level in order to minimize the corrosion effects. Lowering the oxygen content increases the susceptibility of the carbon steel piping to erosion/corrosion. This susceptibility depends on the flow rate, which is plant specific. Therefore a plant specific AMP is necessary." Should read as: "However, the system may be chemically treated with hydrazine to lower the dissolved oxygen level in order to minimize the corrosion effects. Lowering the oxygen content increases the susceptibility of the carbon steel piping to erosion/corrosion. This susceptibility depends on the parameters outlined in NSAC 202L-R2. If the system is	Just using hydrazine and lowering the oxygen content does not necessarily make erosion/corrosion a concern in this system. Other factors must be considered as outlined in NSAC 202L-R2.	The AMP "Open-Cycle Cooling Water System" (XI.M21, NUREG-1801, Vol. 2) manages the aging of the carbon steel piping and fittings for the diesel generator cooling water subsystem (serviced by open cycle cooling water system). The aging mechanism of erosion/corrosion has been deleted from consideration in the discussion of the emergency diesel generator system in GALL. The diesel engine cooling water subsystem jacket (H2.1.2) was deleted from consideration in Section H2 because it is part of the diesel engine that is excluded from a license renewal aging management review. The further evaluation column was changed to "No." The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-5 (cont.)		susceptible to erosion/corrosion, the components should be added to the scope of Flow Accelerated Corrosion program." (2) Change: "Plant-specific aging management program is to be evaluated." to read "The scope of the Flow Accelerated Corrosion Program may need to be expanded to include these components if they are found to be susceptible to erosion/corrosion." (3) Change "Yes, plant specific" to "No" under the Further Evaluation column.		
G-VII H2-6	H2.1.1, H2.1.1	Vibration induced cracking is not a license renewal aging effect and should be deleted.	Vibration induced cracking is expected to occur during the current term and be corrected. This type of aging is random and is corrected as discovered with inspections of similar locations and configurations to ensure the event is location specific or a one-time event.	Vibration-induced cracking results in failure and subsequent replacement of affected devices. The rapid failure and swift correction implies this is not an aging issue. The aging mechanism of vibration-induced cracking was deleted from consideration in the discussion of the emergency diesel generator system in GALL. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-7	H2.5.1	Should "ASTM D 270" be "ASTM D 4057."	This ASTM Standard was not in the 1996 through 2000 editions of the ASTM Standards. ASTM D 4057 has the same title. It may have replaced D 270.	The AMP "Fuel Oil Chemistry" (XI.M30, NUREG-1801, Vol. 2) manages the aging of carbon steel tanks in the diesel generator fuel oil subsystem. The reference ASTM D 270 was replaced by ASTM D 4057-95(2000), Standard Practice for Manual Sampling of Petroleum and Petroleum Products. The GALL report was revised to address this comment.
G-VII H2-8	H2.5.1	(1) Replace: "Exposure to fuel oil contaminants such as water and microbiological organisms is minimized by periodic cleaning/draining tanks and by verifying the quality of new oil before its introduction into the storage tanks." With: "Exposure to fuel oil contaminants such as water and microbiological organisms is minimized by verifying the quality of stored fuel oil and new fuel oil before its introduction." (2) Delete the following sentences from the Aging Management Program column: "However, corrosion may occur at locations where contaminants may accumulate, such as tank bottom, and verification of the effectiveness of the program should ensure that significant degradation is not	Fuel oil chemistry alone is sufficient to manage aging the fuel oil storage tanks. Proper monitoring and maintenance of the fuel oil quality will preclude the accumulation of contaminants that could lead to corrosion.	The AMP "Fuel Oil Chemistry" (XI.M30, NUREG-1801, Vol. 2) manages the aging of diesel fuel oil storage tanks. (1) The AMP "Program Description" states, "Exposure to fuel oil contaminants, such as water and microbiological organisms, is minimized by periodic draining or cleaning of tanks...." Periodic cleaning and draining of tanks allows removal of sediments and periodic draining of water collected at the bottom of a tank minimizes the amount of water and the length of contact time. (2) The AMP program description states that corrosion may occur at locations in which contaminants may accumulate, such as tank bottoms. Accordingly, there is a need for verification of the effectiveness of the program to ensure that

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-8 (cont.)		occurring and the component intended function will be maintained during he extended period of operation. An acceptable verification program consists of a one-time thickness measurement of the tank bottom surface."		significant degradation is not occurring and the component intended function would be maintained during the extended period of operation. Tank bottom thickness measurement is an acceptable method to verify the effectiveness of the AMP. The GALL report was not revised to address this comment.
G-VII H2-9	System Interface	Include a reference to Section VII I (Carbon Steel Components) for the external surfaces of carbon steel components in this section.	It is not clear that the external surfaces of carbon steel components are addressed in Section VII I of the GALL.	See NRC disposition of NEI comment G-VII-1 in this Appendix B, Table B.2.6.
G-VII H2-10	H2.1.1, H2.1.2	Remove references to MIC.	Demineralized water in a closed cycle is not subject to MIC.	Carbon steel piping and fittings for the diesel engine cooling water subsystem (serviced by open-cycle cooling water system) exposed to chemically treated demineralized <90°C (194°F) water is susceptible to general, pitting and crevice corrosion. Microbiologically influenced corrosion (MIC) was deleted, as an aging mechanism because demineralized water in a closed-cycle is not amenable to MIC. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-11	H2.1.1, H2.1.2	Delete entry for Biofouling.	The only passive intended function for the components in question is the pressure boundary function. Buildup of Deposit/Biofouling does not affect the components' ability to accomplish this intended function, so this Effect/Mechanism should not be considered.	Biofouling affects both system flow performance and pressure boundary integrity. Flow performance is considered an active function covered under the current licensing basis and should not be included within the scope of license renewal. However, biofouling causes loss of material, which affects the pressure boundary and this passive function requires aging management. The GALL report was revised as follows to address this comment: 1. For all piping and components other than heat exchangers, all line items for buildup of deposits due to biofouling were deleted. 2. For all piping and components, loss of material due to biofouling was included as an aging mechanism for pressure boundary components. 3. The aging management program XI.M20 "Open-Cycle Cooling Water System" was revised to remove reference to flow blockage.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-12	H2.1.1, H2.1.2	Delete entry for Erosion/Corrosion.	There is no operating experience to justify inclusion of this mechanism. Also, Hydrazine is not typically used in Diesel cooling water systems.	The AMP "Open-Cycle Cooling Water System" (XI.M21, NUREG-1801, Vol. 2) manages the aging of the carbon steel piping and fittings for the diesel generator cooling water subsystem (serviced by open cycle cooling water system). The aging mechanism of erosion/corrosion has been deleted from consideration in the discussion of the emergency diesel generator system in GALL. The diesel engine cooling water subsystem jacket (H2.1.2) was deleted from consideration in Section H2 because it is part of the diesel engine that is excluded from a license renewal aging management review. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-13	H2.1.1, H2.1.2	Delete entry for Vibration Induced Cracking.	There is no operating experience to justify inclusion of this mechanism. Why is this diesel subsystem susceptible to vibration but no others are? Excessive vibration is a design or maintenance issue, not an aging mechanism.	Vibration-induced cracking results in failure and subsequent replacement of affected devices. The rapid failure and swift correction implies this is not an aging issue. The aging mechanism of vibration-induced cracking was deleted from consideration in the discussion of the emergency diesel generator system in GALL. The diesel engine cooling water subsystem jacket (H2.1.2) was deleted from consideration in Section H2 because it is part of the diesel engine that is excluded from a license renewal aging management review. The GALL report was revised to address this comment.
G-VII H2-14	H2.5.1	“Dip” Tank should be “Drip” Tank.	There is no such thing as a “Dip” Tank.	The carbon steel day and drip tanks comprise part of the diesel generator fuel oil subsystem. The item was changed to drip tank to correct this typo. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII H2-15	H2.5.2	Delete entry for Fuel Oil environment.	Loss of Material is listed as an applicable Aging Effect due to the Aging Mechanisms Crevice Corrosion, Pitting, Galvanic Corrosion, and General Corrosion for the Diesel Fuel Oil Strainer. These corrosion mechanisms should only be considered plausible in fuel oil systems where there is a potential for water to pool or separate (tanks, receivers, stagnant piping, etc. (BAW-2270). The fuel oil strainer is not such a location, therefore, these mechanisms should not be considered. This position was accepted in the Oconee SER.	The fuel oil strainer is not in an environment where there is a potential for water to pool or separate. Corrosion as a mechanism should not be considered. The item was deleted. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII I-1	I.1.1	Revise Structure and Component "Carbon Steel Components (PWR's) to read "Carbon Steel Components and Closure Bolting (PWR's).	Bolting is not a component; as such it should not be called out separately in other sections in chapter VII. Chapter XI.M5, "Boric Acid Corrosion" applies. There is no need to distinguish bolting from other pressure boundary external surfaces relative to boric acid corrosion.	Bolting is an integral part of piping, fittings and miscellaneous related items, pumps, valves, and heat exchangers in the PWR containment spray system. Bolting is considered to be a system component for each individual engineered safety features system because it can be uniquely identified and also because it is a small component whose review could be missed if categorized under a broader category. GALL VII-I on CS Components includes AMPs for degradation of all CS structures and components, including closure bolting. In addition, ASME Section XI treats individual bolting as a component and requires inspection of individual bolting. The GALL report was not revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII I-2	I.1.1	Delete reference to ASME section XI in program description for BAC.	Implementation of the Boric Acid Corrosion Program at the sites has nothing to do with ASME Section XI. This program is performed independent of Section XI for the identification of boric acid corrosion. Most utilities perform this inspection at the start of the outage to identify problems so that they may be repaired while off-line. Leakage identified during the performance of pressure tests and hydrostatic tests are handled per the ASME Code requirements.	NRC GL 88-05 provides a stand-alone program for inspection of carbon steel structures and components for evidence of boric acid leakage and corrosion. Inservice inspection that detects leakage identified during the performance of pressure tests and hydrostatic tests are required by the ASME Code and are performed independent of the AMP “Boric Acid Corrosion” (XI.M10, NUREG-1801, Vol. 2) and were removed. The GALL report was revised to address this comment.
G-VII I-3	I.1.1	Atmospheric corrosion is only applicable to carbon steel components associated with portions of systems operating below 212°F.	Since moisture is necessary for general, pitting and any other forms of atmospheric corrosion, the external surfaces of carbon steel components, which operate above 212°F, are not susceptible to loss of material due to corrosion.	Several CS components in the Auxiliary Systems are exposed to temperatures lower than 212°F, and are therefore susceptible to general corrosion. Because atmospheric corrosion is not applicable to this environment, the term has been deleted and replaced with general corrosion, which is applicable to this environment. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII I-4	I.1.1	Delete reference to XI.S8, "Coating Program" under Aging Management Program Column for atmospheric corrosion. Plant specific review should be performed.	The use of coatings is a preventive measure to minimize or preclude the loss of material due to corrosion. Loss or degradation of coatings does not result in loss of material, and thus is not considered an aging effect. Programs credited for monitoring loss of material typically constitute periodic visual inspections of component external surfaces for signs of corrosion or loss of material. Since programs credited vary between plant sites, a plant specific review should be performed.	The external surfaces of BWR and PWR CS components are subjected to air, moisture, and humidity resulting in loss of material caused by general corrosion. (The term "atmospheric corrosion" was replaced with "general corrosion.") A plant-specific aging management program needs to be evaluated for these conditions. Reference to the AMP "Protective Coating Monitoring and Maintenance Program" (XI.S8, NUREG-1801, Vol. 2) was deleted. Because the condition of the coating does not directly affect the intended function, coating degradation was deleted as an aging mechanism of concern for auxiliary systems. As shown in the columns for the recommended AMP and "Further Evaluation," a plant-specific AMP is to be evaluated and further evaluation is stipulated. The GALL report was revised to address this comment.

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII I-5	I.2.1	(1) Delete "Air, Moisture, Humidity and Leaking Fluid" under Environment Column for Closure Bolting. Replace with "Air, Leaking Chemically treated Borated Water." (2) Delete "Atmospheric Corrosion" under Aging Mechanism column and replace with "Boric Acid Corrosion." (3) Replace information in References column, Aging Management Program column and Evaluation and Technical Basis column with that provided in I.1.1 for Boric Acid Corrosion.	Most carbon or low alloy steel bolting is in a dry environment and coated with a lubricant, thus general corrosion of bolting has not been a major concern in the industry. Corrosion of fasteners has only been a concern where leakage of a joint occurs, specifically, when exposed to aggressive chemical attack such as that resulting from borated water leaks. Aging effect requiring management should be loss of mechanical closure integrity due to aggressive chemical attack (boric acid corrosion).	(1)Closure bolting in high-pressure or high-temperature BWR or PWR systems can be said to be exposed to "Air, Moisture, Humidity and Leaking Fluid" for both systems. The general term "leaking fluid" was used to also encompass the borated water found in PWRs. (2) Because atmospheric corrosion is not applicable to this environment, the term has been deleted and replaced with general corrosion, which is applicable to this environment. (3) Closure bolting in the above-mentioned environment in high-pressure or high-temperature BWR or PWR systems is susceptible to general corrosion resulting in loss of material. The AMP "Bolting Integrity" (XI.M18, NUREG-1801, Vol. 2) which covers all bolting within the scope of license renewal manages the aging process. The GALL report was revised to address this comment only for part (2).

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII I-6	I.2.1	Delete Aging Effect/Mechanism "Loss of Pre-load due to Stress Relaxation." (Note: Reference column and AMP Column incorrect list Item H.2.1 instead of I.2.1.)	Loss of pre-load of mechanical closures can occur due to settling of mating surfaces, relaxation after cyclic loading, gasket creep, and loss of gasket compression due to differential thermal expansion. These effects are the same as that of a degraded gasket; that is, the potential for leakage of internal fluid at the mechanical joint. Since the ASME code does not consider gaskets, packing, seals, and O-rings to perform a pressure retaining function, these components are typically not considered to support an intended function and not within the scope of license renewal. Thus, with the exception of Class 1 components and those cases where a gasket or seal is utilized to provide a radiological barrier, the aging mechanisms associated with loss of pre-load, described above are not considered to require management. Class 1 components credit the ISI Inspection Program to address loss of pre-load due to stress relaxation.	Loss of preload would result in leakage and would be managed as part of the bolted component. The GALL report was revised to address this comment by deleting loss of preload as an aging effect. (Errors in the Reference and AMP columns were corrected in NUREG-1801, Vol. 2.)

Table B.2.6: Disposition of NEI Comments on Chapter VII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VII I-7	I.2.1	Delete Aging Effect/Mechanism "Crack Initiation/Growth" due to Cyclic loading, Stress Corrosion Cracking. (Note: Reference column and AMP Column incorrect list Item H.2.1 instead of I.2.1.)	Although there have been a few instances of cracking of bolting in the industry due to SCC, these have been attributed to high yield stress materials and contaminants, such as the use of lubricants containing MoS_2. For quenched and tempered low alloy steels (e.g., SA193 Grade B7) used for closure bolting material, susceptibility to SCC is controlled by yield strength. Additionally, operating experience and existing data indicate that SCC failure should not be a significant issue for the bolting materials of SA193 Grade B7.	Closure bolting in high-pressure or high-temperature BWR or PWR systems exposed to air, moisture, humidity and leaking fluid can be susceptible to the aging mechanisms of cyclic loading and stress corrosion cracking. Field experience shows that SCC (NRC GL 91-17) caused 20% of the bolt failures. The bolts made of SA 193 Grade B7 can have YS as high as 175 ksi and failures have been reported with YS as low as 150 ksi. In Section II of the ASME Code, the specification for SA193 Grade B7 for bolting only give a minimum YS of 105, but no maximum is given. Crack initiation and growth can result in leakage. 20% of the bolting failure is due to SCC. The GALL report was not revised to address this comment.

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APPENDIX B, TABLE B.2.7

DISPOSITION OF NEI COMMENTS ON CHAPTER VIII OF GALL REPORT

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Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII-1	General comment on System Interface	Include a reference to Section VIII H (Carbon Steel Components) for the external surfaces of piping in each specific section's System Interface paragraph.	The external surfaces of piping etc. is included in the scope of Carbon Steel Components (VIII H). The link between Carbon Steel Components and the individual sections is not clearly established in the System Interface sections of the individual sections.	The external surfaces of piping are included in the scope of carbon steel structures and components in Section H of Chapter VIII. The links between CS components and the individual sections were made by revising the GALL report to include the following sentence in "System, Structures and Components" in Sections A to G of Chapter VIII: "Aging management programs for degradation of external surface of carbon steel components are included in Section H of Chapter VIII." (Similar changes were also made in Chapters V and VII). The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII A-1	A.1.1, A.1.2, A.2.1	Need to add the aging effect loss of material due to general, crevice, and pitting corrosion for carbon steel piping, fittings, and valves that is managed by Water Chemistry, with the reference being EPRI TR-102134, Revision 3 or later.	Carbon steel components are susceptible to this aging effect in this environment. Water Chemistry will manage the aging effect.	Carbon steel piping, fittings, and valves are susceptible to aging mechanisms of general, pitting, and crevice corrosion in a steam environment. These aging mechanisms were added in the GALL report for CS components in the Steam Turbine System by including two additional line items on general, pitting and crevice corrosion for piping and fittings and for valve bodies. The AMPs for these new line items are water chemistry augmented by one-time inspection (XI.M2 and XI.M32 in NUREG-1801, Vol. 2). A similar change was made for steam extraction system piping, fittings, and valves; condensate systems coolers/condensers (treated water side); and steam generator blowdown systems (PWR) blowdown heat exchanger (treated water side). One-time inspection is needed to verify the effectiveness of water chemistry control and confirm the absence of an aging effect. If an aging effect is detected, the results are evaluated to determine the appropriate corrective actions. The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII A-2	System Interface	Include a reference to Section VIII H (Carbon Steel Components) for the external surfaces of carbon steel components in this section.	It is not clear that the external surfaces of carbon steel components are addressed in Section VIII H of the GALL.	See NRC disposition of NEI comment G-VIII-1 in this Appendix B, Table B.2.7.
G-VIII B1-1	B1.1.1, B1.1.2, B1.2.1	Add general corrosion to the Aging Mechanism column.	General corrosion could occur in this environment.	General corrosion is not an aging mechanism of concern in a steam environment with temperatures up to 300°C because this steam is relatively dry and does not provide enough moisture for general corrosion. The GALL report was not revised to address this comment.
G-VIII B1-2	System Interface	Include a reference to Section VIII H (Carbon Steel Components) for the external surfaces of carbon steel components in this section.	It is not clear that the external surfaces of carbon steel components are addressed in Section VIII H of the GALL.	See NRC disposition of NEI comment G-VIII-1 in this Appendix B, Table B.2.7.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII B2-1	B2.2.1	The FAC program described in Section XI is not usually applied to valve bodies. A note stating that the applicant's FAC program must choose bounding locations for the measurement of wall thinning in valves may need to be placed here.	FAC programs generally monitor thinning in pipe locations, since valve bodies are usually much thicker than pipe walls.	Wall thinning in valve bodies is of concern because turbulent flow in the valve bodies can cause flow-accelerated corrosion (FAC). The EPRI program CHECWORKS evaluates valve body FAC susceptibility. The FAC program in XI-M6 (XI-M17 in NUREG-1801, Vol. 2) explains that the applicant's FAC program needs to choose bounding locations for the measurement of components other than piping. AMP XI-M17 of the GALL report was revised to add valve bodies as a component that requires bounding. The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII B2-2	All Items	Thermal Cycling Induced Fatigue is not listed as an Aging Effect. This is unusual in that most other sections list this aging effect, with the resultant AMP of a TLAA.	Consistency is the issue here. Either thermal cycling induced fatigue should be added here or stricken from the other sections. A TLAA is appropriate since this piping is usually design as Non-Class 1 with an assumed number of temperature cycles for 40-year life.	Thermal-cycle induced fatigue is an aging mechanism that may be experienced by non-class 1 components such as main system piping and fittings, but not valves. This aging mechanism was added for non-Class I components that were analyzed for allowable cycles (< 7000 cycles) for the 40-years life. This is a TLAA to be evaluated for the period of extended operation. As a result of this comment, 3 new rows were added in chapter VIII of the GALL report for cumulative fatigue damage: 1) piping and fittings in main steam system (BWR), 2) piping and fittings in main feedwater system (BWR), and 3) piping and fittings in auxiliary feedwater system (PWR). The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII D1-1	D1.1.1	General, Crevice, and Pitting Corrosion, delete one-time inspections from the Aging Management Program column. Revise the Further Evaluation Column to state 'No'.	Operating experience alone has shown the chemistry control program has been effective in controlling corrosion of the Feedwater Systems in plants. Feedwater chemistry parameters are well monitored and well controlled in plants. Routine maintenance on equipment has not shown any concerns over loss of material in feedwater systems.	General, pitting, and crevice corrosion are aging mechanisms that may be experienced by CS piping and fittings in Feedwater Systems in PWR plants. For example, steam generator feedwater nozzle and girth weld heat-affected zone exposed to secondary water have experienced pitting (IN 90-04, NUREG/CR-4868). The appropriate AMP is water chemistry augmented by one-time inspection (XI.M2 and XI.M32 in NUREG-1801, Vol. 2). One-time inspection is needed to verify the effectiveness of water chemistry control and confirm the absence of an aging effect. If an aging effect is detected, the results are evaluated to determine the appropriate corrective actions. The GALL report was not revised to address this comment.
G-VIII D1-2	D1.2.1	The FAC program described in Section XI is not usually applied to valve bodies. A note stating that the applicant's FAC program must choose bounding locations for the measurement of wall thinning in valves may need to be placed here.	FAC programs generally monitor thinning in pipe locations, since valve bodies are usually much thicker than pipe walls.	See NRC disposition of NEI comment G-VIII B2-1 in this Appendix B, Table B.2.7.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII D1-3	D1.2.1	General, Crevice, and Pitting Corrosion, delete one-time inspections from the Aging Management Program column. Revise the Further Evaluation Column to state 'No'.	Operating experience alone has shown the chemistry control program has been effective in controlling corrosion of the Feedwater Systems in plants. Feedwater chemistry parameters are well monitored and well controlled in plants. Routine maintenance on equipment has not shown any concerns over loss of material in feedwater systems.	See NRC disposition of NEI comment G-VIII D1-1 in this Appendix B, Table B.2.7. .
G-VIII D1-4	D1.3.1, D1.3.2	The Flow Accelerated Corrosion should not be the AMP for Wall Thinning. If wall thinning is a concern, thickness measurements of the pump casing should be taken.	FAC programs generally monitor thinning in pipe locations, since valve bodies are usually much thicker than pipe walls.	Wall thinning of pump internals in the steam turbine-driven and motor-driven feedwater pumps need not be monitored by thickness measurements because pump internals have certain tolerances so any thinning of the casing wall will not significantly affect the pump performance. The maintenance program detects the deterioration in performance. Pump casings were deleted from the region of interest for the PWR feedwater system (D1.3.1), condensate system (E.3.1), and the PWR steam generator blowdown system (F.3.1). The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII D1-5	D1.1.1, D1.2.1, D1.3.1, D1.3.2	Entries combine General, Crevice, and Pitting Corrosion, but discussion under Aging Management Program considers only Crevice and Pitting Corrosion. Does one time inspection apply to General Corrosion as well? Should the entries be separated?	Consistency	General, pitting, and crevice corrosion aging mechanisms are experienced by carbon steel pipings and fittings in the main feedwater line, valves, and pump casing and suction and discharge lines associated with the feedwater pump. One-time inspection (XI.M32 in NUREG-1801, Vol. 2) includes detection of loss of material caused by general corrosion. The water chemistry program (XI.M2) of the GALL report was revised to add general corrosion as an aging mechanism for carbon steel components. The GALL report was revised to address this comment.
G-VIII D2-1	D2.1.1, D2.2.1, D2.3.1, D2.3.2	Does Flow Accelerated Corrosion also include the Erosion and/or Erosion-Corrosion aging mechanisms? The FAC program should not be credited for the other mechanisms.	FAC is an applicable aging mechanism for the type of fluid in the components evaluated in this section. Other loss of material mechanisms may be applicable as well, and the FAC program described in the generic program does not include the other mechanisms.	Flow accelerated corrosion (FAC), an applicable aging mechanism for the type of fluid in BWR feedwater system components, is considered in the GALL report to include erosion/corrosion but not the erosion aging mechanisms. FAC and erosion/corrosion are synonymous. Erosion is a mechanical process that requires a plant specific evaluation in the GALL report. The GALL report was not revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII E-1	E.1.1, E.2.1, E.3.1	Under "Aging Effect" should also include loss of material. The "Aging Mechanisms" should be general, crevice and pitting corrosion. Under "References" include EPRI TR-102134 and under "AMP" include description of water chemistry program and the following words "Alternatively, program effectiveness may be demonstrated based on industry or plant specific information." "Evaluation and Technical Basis" should refer to Chapter XI.M11 "Water Chemistry."	Carbon steel exposed to raw water is susceptible to loss of material due to general, crevice and pitting corrosion. Industry or plant specific information may be utilized to demonstrate that preventive measures e.g. chemistry control with addition of corrosion inhibitors, are effective in preventing the aging effect from occurring.	See NRC disposition of NEI comment G-VIII A-1 in this Appendix B, Table B.2.7.
G-VIII E-2	E.4.1– E.4.4 (serviced by open-cycle cooling water)	Under "Aging Mechanism" should also include crevice and pitting corrosion.	Carbon and stainless steel exposed to raw water are susceptible to loss of material due to crevice and pitting corrosion. The corrosion mechanisms may be minimized by chemistry controls.	The carbon and stainless steel tubes, tubesheets, channel heads, and shells of the condensate coolers and condensers exposed to raw water will be susceptible to general, pitting, and crevice corrosion. These aging mechanisms that cause loss of material were added for the condensate coolers/condensers, the steam generator blowdown heat exchangers, and the auxiliary feedwater bearing oil coolers, in Chapter VIII of the GALL report. The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII E-3	E.4.1– E.4.4 (serviced by open-cycle cooling water)	Under "AMP" For Treated Water Side the program relies on preventive measures to minimize corrosion by monitoring and controlling chemistry based on the guidelines of EPRI-TR-102134 for secondary water chemistry in PWR's. Under "Evaluation and Technical Basis," add, "For evaluation and technical basis of the 10 elements of the AMP, see Chapter XI.M11, Water Chemistry."	To provide AMP for secondary side of heat exchanger.	The carbon and stainless steel tubes, tubesheets, channel heads, and shells of the condensate coolers and condensers exposed to treated water will be susceptible to general (carbon steel only), pitting, and crevice corrosion. Because the AMP relies on preventive measures based on the guidelines of EPRI-TR-102134 for secondary water chemistry in PWRs and EPRI-TR-103515 for reactor water chemistry in BWRs, the GALL report was revised to add XI.M3 (XI.M20 in NUREG-1801, Vol. 2), Open Cycle Cooling Water System, for the raw water side, and XI.M11 (M2 in NUREG-1801, Vol. 2), Water Chemistry, for the treated water side of the heat exchanger. A similar change in the GALL report was also made for the steam generator blowdown system heat exchangers. The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII E-5	E.4.1–E.4.4 (serviced by closed-cycle cooling water)	Under "AMP" Delete requirement for performance of functional tests per ASME OM S/G Part 2 and add "If the adequacy of the chemistry control programs cannot be confirmed over the operating history of the plant or if any unexplained downward trend in heat exchanger performance is identified that cannot be remedied by maintenance of an open-cycle system, it may be necessary to selectively perform functional testing of the affected heat exchangers."	NRC Generic Letter 89-13.	The aging management program relies on preventive measures to minimize corrosion by maintaining inhibitors and by performing non-chemistry monitoring consisting of inspection and nondestructive evaluations based on the guidelines of EPRI-TR-107396 for closed-cycle cooling water (CCCW) systems. The inspections for monitoring, other than chemistry, includes data collection and analyses to predict the potential problems such as loss of structural integrity and reduced heat transfer caused by corrosion and/or deposition. These measures ensure that the CCCW systems and components serviced by the CCCW system are performing their function acceptably. The requirement for performance of functional tests per ASME OM S/G Part 2 was deleted in the AMP "Closed-Cycle Cooling Water" (XI.M21 in NUREG-1801, Vol. 2). The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII E-6	E.4.1–E.4.4 (serviced by closed-cycle cooling water)	Under "AMP" For Treated Water Side the program relies on preventive measures to minimize corrosion by monitoring and controlling chemistry based on the guidelines of EPRI-TR-102134 for secondary water chemistry in PWR's. Under "Evaluation and Technical Basis," add, "For evaluation and technical basis of the 10 elements of the AMP, see Chapter XI.M11, Water Chemistry."	To provide AMP for secondary side of heat exchanger.	See NRC disposition of NEI comment G-VIII E-3 in this Appendix B, Table B.2.7.
G-VIII E-7	E.5.1	A separate line item should be created for SS Condensate Storage Tanks. The aging effects would be pitting and crevice corrosion. The AMA would be a plant specific activity based on plant design and management philosophy. Hence further evaluation is warranted.	Existing line item is for stainless steel and carbon steel (-coated) tanks. However, the aging mechanisms exclude general corrosion, which would be applicable to carbon steel only.	Stainless steel condensate storage tanks exposed to a treated water environment are susceptible to pitting and crevice corrosion; under such conditions, uncoated CS condensate storage tanks are also subject to general corrosion. Because tanks composed of different materials are subject to different aging mechanisms, a new line item has been created for SS condensate storage tanks with "Water Chemistry" augmented by "One-time Inspection" (XI.M2 and XI.M32 in NUREG-1801, Vol. 2) as the appropriate AMPs. A similar change was made for the auxiliary feedwater system (PWR) condensate storage (emergency) tank in the GALL report. The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII E-8	E.5.1	Under "AMP" add the following: "Alternatively, program effectiveness may be demonstrated based on industry or plant specific information."	Industry or plant specific information may be utilized to demonstrate that preventive measures e.g. chemistry control with addition of corrosion inhibitors, are effective in preventing the aging effect from occurring.	The suggested AMP for condensate storage tanks exposed to a treated water environment consists of water chemistry augmented by one-time inspection (XI.M2 and XI.M32 in NUREG-1801, Vol. 2). One-time inspection is needed to verify the effectiveness of water chemistry control and confirm the absence of an aging effect. If an aging effect is detected, the results are evaluated to determine the appropriate corrective actions. The applicant has the option of conducting an alternative plant-specific program. The GALL report was not revised to address this comment.
G-VIII E-9	E.5.1 (tank aboveground, external surface)	Under "AMP" and "Evaluation and Technical Basis," substitute with "Plant Specific program."	External corrosion of above ground carbon steel tanks should be addressed on a plant specific basis. Refer to Chapter XI.M7 comments.	"Above Ground Carbon Steel Tanks" (XI.M29 in NUREG-1801, Vol. 2) provides one acceptable AMP for the external corrosion of above ground carbon steel tanks. The applicant has the option of conducting an alternative plant-specific program. The GALL report was not revised to address this comment.
G-VIII E-10	E.5.1 (Tank buried, external surface)	Under "AMP" and "Evaluation and Technical Basis," substitute with "Plant Specific program."	Nuclear industry experience dictates external corrosion of buried components should be addressed on a plant specific basis. Refer to Chapter XI.M8 comments.	See NRC disposition of NEI comment G-XI.M8-1 in this Appendix B, Table B.2.9-2.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII E-11	E.6.1	Under "Aging Mechanism" add general corrosion.	Carbon steel exposed to treated water is susceptible to general corrosion.	The carbon steel components such as piping and fittings, demineralizer, and strainer associated with the condensate cleanup system may be exposed to treated water. Because of their susceptibility to general corrosion, this aging mechanism was included. The GALL report was revised as a result of this comment.
G-VIII E-12	E.4.1-E.4.4	Combine entries for General Corrosion.	General Corrosion is listed as an aging mechanism in two entries for these items. This is an unnecessary duplication and is confusing because different programs are credited.	General corrosion is an aging mechanism of concern for the condensate coolers/condensers serviced by both open-cycle and closed-cycle cooling water. These line entries were not combined because the AMPs are distinctly different for CCCW and OCCW (XI.M20 and XI.M21 in NUREG-1801, Vol. 2). The GALL report was revised by adding a new line item that references "Water Chemistry" augmented by "One-time Inspection" (XI.M2 and XI.M32 in NUREG-1801, Vol. 2) for the treated water side of the heat exchanger. The GALL report was revised to address this comment.
G-VIII E-13	E.5.1	Clarify meaning of "Corrosion."	Mechanism is referred to ambiguously. In remainder of Report, corrosion mechanisms are delineated as General, Crevice, Pitting, etc.	The term corrosion was revised to specifically state "general, pitting, and crevice corrosion." The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII F-1	F.1.1, F.1.2, F.2.1, F.3.1	Aging Management Program (AMP) column: Add the following at the end of the paragraph: "Alternatively, demonstration of an effective Chemistry Control Program by documented plant and or industry operating/maintenance experience also constitute acceptable verification."	Crevice and pitting corrosion occur most frequently in areas of low flow such as joints and connections or points of contact between metals and non-metals. These conditions would typically be found in component internals and flanged connections (such as those associated with valves and pumps), and thus, would be identified during routine or corrective maintenance where disassembly was performed. It should be noted that ASME XI requires a visual examination to determine the condition of Class 1 valve and pump internals at least once each Inspection Interval. When significant corrosion or failed parts are identified on safety related components, the utility corrective action programs require the identification of root cause and in many cases standard metallurgical analyses are employed to define the underlying aging mechanisms. Lack of evidence of crevice or pitting corrosion-related problems in these plant documents provides verification of an effective chemistry control program.	General, pitting, and crevice corrosion occur in carbon steel components such as PWR steam generator blowdown system pipings and fittings and blowdown pump casing exposed to secondary side treated water. Although ASME Section XI requires a visual examination to determine the condition of Class 1 valve and pump internals at least once each inspection interval, this is not relevant to GALL Chpt. VIII discussing Non-Class 1 components. Lack of documented evidence of crevice and pitting corrosion does not imply an absence of the effect of these mechanisms. The applicant has the option of conducting an alternative plant-specific program. The GALL report was not revised as a result of this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII F-2	F.4.1 through F.4.4	Eliminate Buildup of deposit due Biofouling as an Aging mechanism for all heat exchanger components except heat exchanger tubes.	Buildup of deposit due to biofouling is an aging effect which impacts heat transfer intended function, and is thus documented only for heat exchanger tubes. Buildup of deposit does not affect pressure boundary, except for MIC, which is addressed under loss of material.	Biofouling affects both system flow performance and pressure boundary integrity. Flow performance is considered an active function covered under the current licensing basis and should not be included within the scope of license renewal. However, biofouling causes loss of material, which affects the pressure boundary and this passive function requires aging management. This position does not contradict License Renewal Issue No. 98-105 states that the heat transfer function for heat exchangers is within the scope of license renewal. Therefore, biofouling of heat exchanger tubes require aging management. The GALL report was revised as follows to address this comment: 1. Delete all heat exchanger components except the tubes from the material column for buildup of deposits due to biofouling. 2. For all piping and components other than heat exchangers, deleted all line items for buildup of deposits due to biofouling. 3. For all piping and components including heat exchangers, loss of material due to biofouling was included as an aging mechanism for pressure boundary components.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII F-2 (cont.)				4. The aging management program XI.M20 “Open-Cycle Cooling Water System” was revised to remove reference to flow blockage.
G-VIII F-3	F.4.1-F.4.4	Remove reference to Stainless Steel in entry for General Corrosion.	Stainless Steel is not susceptible to General Corrosion.	Blowdown heat exchangers serviced by closed-cycle cooling water consist of SS tubes, CS tubesheet, CS channel head and access cover. The SS tubes are not susceptible to general corrosion. The GALL report was revised to address this comment by clarifying that only CS components are subject to this aging mechanism and that both SS and CS components are subject to pitting and crevice corrosion aging mechanisms..

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII G-1	G.1.1	The Flow Accelerated Corrosion is not valid Aging Mechanism for Auxiliary Feedwater. Delete this entry.	Flow Accelerated Corrosion (FAC) is listed as an Aging Mechanism for the AFW Piping. FAC of this piping is not plausible because the temperature of the water is near ambient temperature and the system is typically in standby. The AFW pumps take suction from a Condensate Storage Tank that is not heated. Industry experience indicates that FAC is not plausible for cold water systems with good chemistry control and infrequent operation. Therefore, FAC is not plausible for this piping and this entry should be removed. This position was accepted in the CCNPP SER.	The flow accelerated corrosion (FAC) of auxiliary feedwater (AFW) lines of recirculating steam generators with preheaters is of concern. In plants with these steam generators (Westinghouse Models D4, D5, and E steam generators), a portion of the main feedwater is diverted to the auxiliary feedwater line via a preheater bypass line during normal operation. As a result, a portion of the auxiliary feedwater line between steam generator and the bypass line connection experiences FAC. At one plant, this portion of the auxiliary feedwater line has experienced significant wall thinning because of FAC. Reference: NRC IN 92-07, “Rapid Flow-Induced Erosion/Corrosion of Feedwater Piping.” FAC is a concern for AFW piping and fittings in plants with preheated steam generators. The GALL report was not revised as a result of this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII G-2	G.1.1, G.1.2	Revise Environment from '<90ºC …Steam Generator' to be just 'Treated Water'.	The temperatures as stated are confusing.	The temperatures were intended to convey a sense of the treated water's general low temperature and the preheated sections high temperatures, since both temperatures apply for this environment. The environment is now denoted simply as treated water. The GALL report was revised to address this comment.
G-VIII G-4	G.1.1, G.1.2	Delete entry for Biofouling.	The only passive intended function for the components in question is the pressure boundary function. Buildup of Deposit/Biofouling does not affect the components' ability to accomplish this intended function, so this Effect/Mechanism should not be considered.	See NRC disposition of NEI comment for G-VIII-F-2 in this Appendix B, Table B.2.7.
G-VIII G-5	G.4.1	Clarify meaning of "Corrosion."	Mechanism is referred to ambiguously. In remainder of Report, corrosion mechanisms are delineated as General, Crevice, Pitting, etc.	See NRC disposition of NEI comment for G-VIII-E-13 in this Appendix B, Table B.2.7.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII G-6	G.5.1-G.5.3	Remove reference to Stainless Steel in entry for General Corrosion.	Stainless Steel is not susceptible to General Corrosion.	AFW bearing oil coolers for steam-turbine pumps are serviced by closed-cycle and open-cycle cooling water and are subjected to treated water, open water, and lubricating oil environments. The SS shells, tubes, or tubesheets are not susceptible to general corrosion. The GALL report was revised to address this comment by clarifying that only CS components are subject to this aging mechanism and that both SS and CS components are subject to pitting and crevice corrosion aging mechanisms.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII G-7	G.1.1, G.1.2	(1) Entry for piping combines General, Crevice, and Pitting Corrosion, but discussion under Aging Management Program considers only Crevice and Pitting Corrosion. (2) Does one time inspection apply to General Corrosion as well? (3) Should the entries be separated? (4) Also, later entries for pumps and valves do not include General Corrosion. (5) Why is General Corrosion not an AERM (aging effect requiring management) for these entries given same materials and environment?	Consistency	(1 and 2) The AMP of water chemistry augmented by one-time inspection (XI.M2 and XI.M32 in NUREG-1801, Vol. 2), was revised to address general, pitting, and crevice corrosion. A one-time inspection applies to general corrosion as well. (3) Since the aging effect of general, pitting, and crevice corrosion is identically "loss of material, these three aging mechanisms are best handled in the same line item with the same AMP (water chemistry augmented by one-time inspection). (4 and 5) AFW pump casings and valve bodies are composed of carbon steel and are subject to general, pitting, and crevice corrosion. The entries for pumps and valves were revised to include general corrosion as an applicable aging effect. The GALL report was revised to address this comment for parts 1, 2, 4, and 5.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII H-1	H.1.1	Revise Structure and Component "Carbon Steel Components (PWR's) to read "Carbon Steel Components and Closure Bolting (PWR's).	Bolting is not a component; as such it should not be called out separately in other sections in chapter VIII. Chapter XI.M5, "Boric Acid Corrosion" applies. There is no need to distinguish bolting from other pressure boundary external surfaces relative to boric acid corrosion.	GALL VIII, Section H on Carbon Steel Components includes AMPs for degradation of all carbon steel structures and components, including closure bolting. ASME Section XI treats individual bolting as a component and requires inspection of individual bolting. The line item for BAC of external surfaces refers to those PWR carbon steel components that do not contain borated coolant. The components containing borated coolant are addressed in other sections of Chapter VIII. The GALL report was not revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII H-2	H.1.1	Delete reference to ASME section XI in program description for BAC.	Implementation of the Boric Acid Corrosion Program at the sites has nothing to do with ASME Section XI. This program is performed independent of Section XI for the identification of boric acid corrosion. Most utilities perform this inspection at the start of the outage to identify problems so that they may be repaired while off-line. Leakage identified during the performance of pressure tests and hydrostatic tests are handled per the ASME Code requirements.	The Boric Acid Corrosion (BAC) Program is based on NRC Generic Letter 88-05, which is a stand alone program to monitor the reactor coolant boundary for borated water leakage. ASME Section XI, which is independent of the boric acid corrosion program, is a code requirement to identify leakage during the performance of pressure tests and hydrostatic tests. Staff considers the ASME Section XI inspections to be non-related to the boric acid corrosion program and has removed reference to ASME Section XI from the BAC program. The GALL report was revised to address this comment.
G-VIII H-3	H.1.1	Atmospheric corrosion is only applicable to carbon steel components associated with portions of systems operating below 212ºF.	Since moisture is necessary for general, pitting and any other forms of atmospheric corrosion, the external surfaces of carbon steel components, which operate above 212ºF, are not susceptible to loss of material due to corrosion.	Several carbon steel components in the Steam and Power Conversion System are exposed to temperatures lower than 212°F, and are therefore susceptible to general corrosion. Corrosion mechanisms are delineated throughout the GALL report as general (incorporating atmospheric), pitting, crevice, etc. The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII H-4	H.1.1	Delete reference to XI.S8, "Coating Program" under Aging Management Program Column for atmospheric corrosion. Plant specific review should be performed.	The use of coatings is a preventive measure to minimize or preclude the loss of material due to corrosion. Loss or degradation of coatings does not result in loss of material, and thus is not considered an aging effect. Programs credited for monitoring loss of material typically constitute periodic visual inspections of component external surfaces for signs of corrosion or loss of material. As programs credited vary between plant sites, a plant specific review should be performed.	The external surfaces of BWR and PWR carbon steel components are subjected to air, moisture, and humidity resulting in loss of material caused by general corrosion. (The term "atmospheric corrosion" was replaced with "general corrosion" to be consistent with similar changes in Chapters V and VII). A plant-specific aging management program needs to be evaluated for these conditions. Reference to AMP XI.S8 "Protective Coating Monitoring and Maintenance Program" was removed. The GALL report was revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII H-5	H.2.1	(1) Delete "Air, Moisture, Humidity and Leaking Fluid" under Environment Column for Closure Bolting. Replace with "Air, Leaking Chemically treated Borated Water." (2) Delete "Atmospheric Corrosion" under Aging Mechanism column and replace with "Boric Acid Corrosion." Replace information in References column, Aging Management Program column and Evaluation and Technical Basis column with that provided in H.1.1 for Boric Acid Corrosion.	Most carbon or low alloy steel bolting is in a dry environment and coated with a lubricant, thus general corrosion of bolting has not been a major concern in the industry. Corrosion of fasteners has only been a concern where leakage of a joint occurs, specifically, when exposed to aggressive chemical attack such as that resulting from borated water leaks. Aging effect requiring management should be loss of mechanical closure integrity due to aggressive chemical attack (boric acid corrosion).	(1) Closure bolting in high-pressure or high-temperature BWR or PWR systems is exposed to "Air, Moisture, Humidity and Leaking Fluid." Chemically treated borated water is applicable only to PWRs. (2) Boric acid corrosion of PWR closure bolting is addressed in the first line item for Section H on Carbon Steel Components. This bolting also experiences atmospheric corrosion (the term "atmospheric corrosion" was replaced with "general corrosion" to be consistent with similar changes in Chapters V and VII). Item H.2.1 represents both PWR and BWR closure bolting. The GALL report was not revised to address this comment.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII H-6	H.2.1	Delete Aging Effect/Mechanism "Loss of Pre-load due to Stress Relaxation."	Loss of pre-load of mechanical closures can occur due to settling of mating surfaces, relaxation after cyclic loading, gasket creep, and loss of gasket compression due to differential thermal expansion. The effects of these mechanisms are the same as that of a degraded gasket; that is, the potential for leakage of internal fluid at the mechanical joint. Since the ASME code does not consider gaskets, packing, seals, and O-rings to perform a pressure retaining function, these components are typically not considered to support an intended function and not within the scope of license renewal. Thus, with the exception of Class 1 components and those cases where a gasket or seal is utilized to provide a radiological barrier, the aging mechanisms associated with loss of pre-load, described above are not considered to require management. Class 1 components credit ISI Inspection to address loss of pre-load due to stress relaxation.	See NRC disposition of NEI comment for G-VII-I-6 in this Appendix B, Table B.2.6.

Table B.2.7: Disposition of NEI Comments on Chapter VIII of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-VIII H-7	H.2.1	Delete Aging Effect/Mechanism "Crack Initiation/Growth" due to Cyclic loading, Stress Corrosion Cracking.	Although there have been a few instances of cracking of bolting in the industry due to SCC, these have been attributed to high yield stress materials and contaminants, such as the use of lubricants containing MoS_2. For quenched and tempered low alloy steels (e.g., SA193 Grade B7) used for closure bolting material, susceptibility to SCC is controlled by yield strength. Additionally, operating experience and existing data indicate that SCC failure should not be a significant issue for the bolting materials of SA193 Grade B7.	See disposition of NEI comment G-VII I-7 in this Appendix B, Table B.2.6.

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APPENDIX B, TABLE B.2.8

DISPOSITION OF NEI COMMENTS ON CHAPTER X OF GALL REPORT

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Table B.2.8: Disposition of NEI Comments on Chapter X of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
G X-1	B.3.6 GALL X	Revise the title of the Chapter to be "Chapter X Programs that Support TLAAs."	The programs identified in this section are not necessarily in support of Option (iii). Cycle counting and EQ are programs that can also be used to confirm design basis assumptions in support of Options (i and ii).	See NRC disposition of NEI comment S 4.3-9 in this Appendix B, Table B.2.13. Options (i) and (ii) calculations are performed prior to the period of extended operation to verify that the fatigue analysis remains valid. The intent of cycle counting in option (iii) is to monitor the usage during the extended period of operation to assure that the CUF does not exceed its allowable limit. The GALL report was not revised to address this comment.
G X.M1-1	B.3.6 GALL X.M1	GALL X.M1 Metal Fatigue of Reactor Coolant Pressure boundary intermingles thermal cycle counting with the addressing of reactor water effects. Delete the information in X.M1 associated with reactor water effects. Specifically: Program Description: Delete the second paragraph and the reference in the third paragraph to environmental effects. Evaluation and Technical basis: Adjust the numbered topics as follows: (2) Preventive Actions: Delete the phrase "and considering the effect of the reactor water environment, as described under program description above."	The thermal cycle count method of managing the existing fatigue design basis has been found acceptable for renewal and can be used by the majority of the industry. When reworded, the attributes in X.M1 can clearly be referenced by renewal applicants beginning near-tem. Addressing reactor water effects is less clear and has been done differently by the initial applicants. Additionally, it is the subject of ongoing industry and NRC efforts (Reference Christopher I. Grimes July 18, 2000 letter, *Summary of Meeting with the Nuclear Energy Institute (NEI) to Discuss Fatigue of Metal Components for 60-year Plant*	The reference to Appendix L in the AMP is as a consequence of outstanding technical issues regarding Appendix L that require resolution. This is one area where further staff review will be required if an applicant proposes the use of Appendix L. The acceptable way to evaluate environmental effects of fatigue is by calculation of CUF. The GALL report was not revised to address this comment.

Table B.2.8: Disposition of NEI Comments on Chapter X of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
G X.M1-1 (cont.)		(3) In the third sentence, delete "local," revise "of the plant transient" to "of plant transients" and delete "for each transient." (4) Detection of Aging Effects: Reword to "not applicable for a preventive management program." (5) Monitoring and Trending: Reword to "The program should be provided for periodic assessment of actual accumulated cycles versus the design calculation values." (6) Acceptance Criteria: Delete the phrase "considering environmental fatigue effects." (7) Corrective Actions: Replace the second sentence with the following, "Acceptable corrective actions may include a more rigorous analysis of the component to demonstrate that the design code limit will not be exceeded, inspection coupled with appropriate flaw tolerance assessment, repair, or replacement of the component. ASME Section XI Appendix L provides methods and criteria for performing these activities." Delete the last sentence. Operating Experience: In the last sentence, replace the phrase "in selecting the monitored locations" with "by the program." 3. References: Delete the three references. Add a reference to NUREG-1723, Safety Evaluation Report Related to the License	*Life*, Adams Accession No. ML003733789). Given the current state of awareness on the ways to address reactor water effects, the near-term applicants can not use X.M1 the way it is currently structured. Since the GALL report was designed to create materials that can be referenced by renewal applicants, removing the information associated with reactor water effects from the GALL and maintaining them only in the SRP-LR until a future time better satisfies this objective. Item (3): For fatigue monitoring programs, the actual transient history may be evaluated, not each specific transient. Item (7): Appendix L permits a licensee to demonstrate that a component is acceptable with regard to cumulative fatigue effects by performing a flaw tolerance evaluation of the component as an alternative to meeting the fatigue requirements of ASME Section III. The NRC has reviewed Appendix L and determined that its use is generally acceptable. Licensees should be aware that the ASME Code is considering revisions to Appendix L concerned with flaw aspect ratio and the influence of reactor water environmental effects on both fatigue usage and crack	

Table B.2.8: Disposition of NEI Comments on Chapter X of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
G X.M1-1 (Cont.)		Renewal of Oconee Nuclear Station Units 1, 2 and 3 where the thermal cycle count method of fatigue management was accepted by the NRC.	growth evaluations.	
G X.S1-1	B.3.6 GALL X.S1	Move this program description to Chapter XI.	The activities described in X.S1 constitute an aging management program and do not address a TLAA.	See NRC disposition of NEI comment S 4.5-1 in this Appendix B, Table B.2.13. This merely provides one way that an applicant can choose to perform its TLAA in accordance with 10 CFR 54.21(c)(1)(iii). The attributes addressed in X.S1 are related to the time-dependent characteristics of the pre-stressing forces in pre-stressed concrete containments as applicable to the extended period of operation. The GALL report was not revised to address this comment.

Table B.2.8: Disposition of NEI Comments on Chapter X of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
G X.S1-2	B.3.6 GALL X.S1	Clarify regulatory meaning of the "trend line."	Under Program Description, last sentence in second paragraph begins "The goal would be to keep the trend line above the PLL," because "if the trend line crosses the PLL, the existing prestress in the containment could go below the MRV soon after the inspection." If the extension of the trend line crosses the PLL at some point in the future, then the second part of the sentence about not meeting the criteria "soon after the inspection" would not necessarily be true. Therefore, "trend line" needs to be clarified in this case as to whether it means the trend line only including the last data point, or the extension of the existing data trend line.	Depending upon the angle between the trend line and the PLL line, the trend line could go below MRV in 2 to 10 years. That is when the use of auxiliary verb "could" has some merits. The trend line in context of SRP, GALL and 10 CFR 50.55a(b)(2)(ix)(B) or 10 CFR 50.55a(b)(2)(viii)(B), means the regression line (i.e., extrapolated line) reflecting the actual measured lift-off data. The NEI commenter is partially correct in pointing out that in all cases the statement, "if the trend line crosses the PLL, the existing pre-stress in the containment could go below the MRV soon after the inspection, which will not meet the requirement of 10 CFR 50.55a(b)(2)(ix)(B) or 10 CFR 50.55a(b)(2)(viii)(B)." The GALL report was not revised to address this comment

APPENDIX B, SECTION B.2.9

DISPOSITION OF NEI COMMENTS ON CHAPTER XI OF GALL REPORT

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Table B.2.9-1: Disposition of NEI Electrical Comments on Chapter XI of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G2 XI.E1	XI.E1 Paragraph 1 XI.E2 Paragraph 1	In the first and second sentences of paragraph 1, replace “nominal plant” with “plant design.”	“Nominal plant environment” is a vague term that does not describe any values normally maintained at a station. “Design environments” are defined at plants and are the values to which actual environments can be compared.	The term “nominal plant environment” is a vague term that does not describe any specific values normally maintained at a station. GALL Chapter XI, Sections E1 and E2 were revised to address this comment by replacing the term “nominal plant environment” with the term “plant design environment” to more clearly define the environments being referenced**.**

Table B.2.9-1: Disposition of NEI Electrical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G2 XI.E2	XI.E2 Paragraph 1 XI.E3 Paragraph 1	Add the following sentence: in G2-XI.E2 - after sentence 3 in paragraph 1 in G2-XI.E3 – before the last sentence in paragraph 1 "An adverse localized environment is a condition in a limited plant area that is significantly more severe than the specified service condition for the cable."	The term "*adverse localized environment*" is used in the first paragraph but is not defined.	The term "adverse localized environment" is a unique term that is not defined in the program description. GALL Chapter XI, Sections E1, E2, and E3 were revised to address this comment by incorporating the following definition, extracted from EPRI TR-109619, into the program descriptions: "An adverse localized environment is a condition in a limited plant area that is significantly more severe than the specified service condition for the cable. An adverse variation in environment is significant if it could appreciably increase the rate of aging of a component or have an immediate adverse effect on operability." Also, EPRI TR-109619 was included in the list of references for each program.

Table B.2.9-1: Disposition of NEI Electrical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G2 XI.E3	XI.E3 Paragraph 1	Replace sentence 2 of paragraph 1 with the following sentence: "When an energized medium-voltage cable is exposed to wet conditions for which it is not designed, water treeing or a decrease in dielectric strength of the conductor insulation could occur.	Section XI.E3, Paragraph 1, sentence 2 implies that any medium-voltage cable that is not designed for submergence is subject to water treeing or a decrease in dielectric strength of the conductor insulation. There are levels of moisture exposure lower than total submergence for which a cable could be designed to withstand without being subject to water treeing or a decrease in dielectric strength. Also, the DOE/Sandia Cable AMG states that the growth and propagation of water trees is *"somewhat unpredictable"* so it is not a sure thing that water treeing will occur even with the "right" conditions. Sentence 2 should instead reflect that when a medium-voltage cable is exposed to wet conditions for which it is not designed it could be subject to water treeing or a decrease in dielectric strength of the conductor insulation.	Note that this comment refers to sentence 3 of paragraph 1 in the August 2000 version, and not sentence 2. There are levels of moisture exposure lower than total submergence for which a cable could be designed to withstand without being subject to water treeing or a decrease in dielectric strength. Therefore, the proposed change is acceptable and has been incorporated. GALL Chapter XI, Section E3 was revised to address this comment.

Table B.2.9-1: Disposition of NEI Electrical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G2 XI.E4	XI.E4	Delete program XI.E3 and reference the Boric Acid Corrosion Program (XI.M5).	Section XI.E3, paragraph 1, sentence 2 states: *"The program described herein is an augmentation of the* Boric Acid Corrosion Program *…"* This program as described is part of a plant's Boric Acid Corrosion Program in that visual inspections of electrical equipment are performed along with the visual inspections of mechanical equipment and structures. Using "augmentation" implies that electrical equipment is not included in a plant's current Boric Acid Corrosion Program. Since this program is just a part of the Boric Acid Corrosion Program (XI.M5) it is not logical to have pieces of the same program appear in two places in the GALL report. Suggest deleting program XI.E4 in electrical and just referencing program XI.M5 for this aging effect.	Note that this comment refers to program XI.E4 in the August 2000 version, and not program XI.E3. The Boric Acid Corrosion Program (XI.M5 in August 2000 version of GALL) has been revised to specifically include electrical components in its scope and is now AMP XI.M10 in NUREG-1801, Vol. 2. The program previously described in AMP XI.E4 in the August 2000 version of GALL was incorporated into XI.M10, because it is not necessary to have two separate programs concerned with the same aging effects of electrical components. GALL Chapter XI, Section E4 was deleted to address this comment. The Boric Acid Corrosion program (XI.M10 in NUREG-1801, Vol. 2) is now referenced. Also, conforming changes were made to GALL Volume 1, and the SRP-LR Section 3.6.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XIM1	Thermal Aging Embrittlement of Cast Austenitic Stainless Steel	SRP-LR Section 3, Table 3.1-1 shows that aging management activities to address the loss of fracture toughness due to thermal aging embrittlement of Class 1 and Class CS cast austenitic stainless steel (CASS) components in BWR and PWR plants are adequate. The SRP-LR refers to Chapter XI, Section XI.M1, for discussion of the adequacy of the aging management activities. However, when the loss of fracture toughness is due to a combination of thermal aging embrittlement and neutron irradiation embrittlement (reactor vessel internals) are the aging management activities called into question. This discussion is contained in Section XI.M2. The Gall report also contains important findings in this regard. For example, the GALL report states that "The reactor vessel internals receive a visual inspection in accordance with Category B-N-3 of Subsection IWB, ASME Section XI. This inspection is not sufficient to detect the effects of loss of fracture toughness due to thermal aging and neutron irradiation embrittlement of cast austenitic stainless steel (CASS) reactor vessel internals." The GALL report also states that	The license renewal technical issue related to CASS component thermal aging embrittlement is closed with respect to the screening criteria used to determine the potential significance of thermal aging embrittlement for CASS reactor coolant system and reactor vessel internals components. The only remaining issues are related to the adequacy of activities to manage the potential loss of fracture toughness caused by thermal aging embrittlement. Almost all of the ASME Code Section XI inservice inspection activities have been found to be acceptable, with the exception of three items. First, the visual (VT-3) examinations for reactor internals have been found to be inadequate, and supplemental (e.g., VT-1 or enhanced VT-1) examinations are required. This item will be subsumed under the license renewal technical issue concerning VT-1 versus VT-3 examinations. Second, the Examination Category B-J inspections for piping welds have been found to be inadequate, with supplemental volumetric inspections of limiting base metal locations required. This item might be acceptable to the industry, since it is demonstrably likely that the limiting	The Aging Management Programs (AMPs) related to the Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (AMP XI.1 in the August 2000 draft of GALL and relocated as AMP XI.12 in NUREG-1801, Vol. 2) and the Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (AMP XI.2 in the August 2000 draft of GALL and relocated as AMP XI.13 in NUREG-1801, Vol. 2) do not address SAW/SMAW flaw acceptance criteria for CASS components. Industry needs to justify that the correlation of SAW/SMAW crack growth resistance curves with those for thermally aged CASS is valid up to 40% delta ferrite. As delineated in each section, an AMP consists of the following: determination of the susceptibility of CASS components to thermal aging embrittlement based on casting method, molybdenum content, and percent ferrite. In AMP XI.12 (managing thermal aging embrittlement of CASS) For "potentially susceptible" components, aging management is accomplished through either enhanced volumetric examination or plant- or component-specific flaw tolerance evaluation. Additional inspection or evaluations to demonstrate that the material has

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XIM1 (cont.)		"The reactor coolant system components are inspected in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Subsection IWB. This inspection is not sufficient to detect the effects of loss of fracture toughness due to thermal aging embrittlement of cast austenitic stainless steel (CASS) components." The SRP-LR and the GALL report accept the industry screening criteria (i.e., casting method, Mo content, delta ferrite content) for susceptibility of CASS components to thermal aging embrittlement, with one minor exception. The exception concerns the comparison of SAW/SMAW crack growth resistance curves with thermally aged CASS crack growth resistance curves. The industry finds the comparison valid out to 40 % delta ferrite, while the NRC staff will not accept the comparison for delta ferrite greater than 25 %. The NRC staff want flaw evaluation for piping with >25% ferrite to be performed on a case-by-case basis using fracture toughness data provided by the applicant. However, for potentially susceptible components, the industry and the	base metal locations can be shown to be within the 0.5-inch zone on either side the welds being examined under the current Examination category B-J procedures. Third, the acceptability of the existing SAW/SMAW flaw acceptance criteria for CASS components has been found to be limited to 25 % delta ferrite. The industry finds that the available data, while sparse, shows good comparison out to delta ferrite of 40 %. The Gall report recognizes that "Cracking is expected to initiate at the surface and should be detectable by ISI." The GALL report also recognizes that volumetric examination covers welds and extends 1/2 in. on either side of the weld and through the wall thickness. The GALL report recognizes the added importance of Examination Category B-P, which involves visual (VT-2) examination of all pressure retaining boundaries during the system leakage test (IWB-5221) and system hydrostatic test (IWB-5222). The system leakage test is conducted prior to plant startup following each refueling outage, and hydrostatic test is conducted at or near the end of each inspection interval.	adequate fracture toughness are not required for components that are not susceptible to thermal aging embrittlement. In AMP XI.13 (managing thermal aging and neutron irradiation embrittlement of CASS) for each "potentially susceptible" component, aging management is accomplished through either (a) a supplemental examination of the affected component based on the neutron fluence to which the component has been exposed as part of the applicant's 10-year inservice inspection (ISI) program during the license renewal term, or (b) a component-specific evaluation to determine its susceptibility to loss of fracture toughness. The GALL report was not modified to address this comment.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XIM1 (cont.)		NRC staff disagree on some of the aging management activities. The SRP-LR and the GALL report stipulate either a supplemental examination of the some of the susceptible components or a component-specific evaluation to determine the consequences of a loss of fracture toughness. The supplemental examinations for reactor coolant system components are for base metal locations in CASS piping not covered by ASME Code Section XI Examination Category B-J. Flaw tolerance calculations can be used in lieu of these supplemental visual, surface, or volumetric examinations. The supplemental examinations for reactor vessel internals are to replace the Examination Category B-N-3 visual (VT-3) examinations. For pump casings and valve bodies, based on the assessment documented in the letter dated May 19, 2000, from Christopher Grimes, NRC, to Douglas Walters, Nuclear Energy Institute (NEI), screening for susceptibility to thermal aging is not required. The existing ASME Section XI inspection requirements, including the alternative requirements of ASME Code Case N-481 for pump casings,	Therefore, while the option of flaw tolerance will be helpful in avoiding unnecessary supplemental examinations, the industry continues to assert that existing ASME Code Section XI inservice inspection activities are adequate to manage the loss of fracture toughness in CASS components caused by thermal aging embrittlement. This adequacy determination applies not only to the Examination Category B-N-3 inspections for internals components, but also to the base metal for reactor coolant system piping components subject to Examination category B-J requirements.	

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XIM1 (cont.)		are considered adequate for all pump casings and valve bodies. Also, the existing ASME Section XI inspection requirements are considered adequate for managing the effects of loss of fracture toughness due to thermal embrittlement of CASS valve bodies.		
G-XI.M4-1	Closed Cycle Cooling Water System	Delete all information associated with the ASME OM S/G, Part 2 as it does not demonstrate chemistry effectiveness in managing aging. Chemistry is sufficient to manage the aging in this system. The Operating Experience attribute for Closed Cycle Cooling Water System should be revised to note that the applicant must provide objective evidence that the program presented in GALL is effective in managing the aging. This evidence could be provided in several different ways, such as a review of operating experience. The Closed Cycle Cooling Water System should state the following: **PROGRAM DESCRIPTION** The program relies on preventive measures to minimize corrosion by maintaining corrosion inhibitors based on the guidelines of EPRI TR–107396 for closed–cycle cooling water (CCCW) systems,	ASME OM S/G, Part 2, provides performance and functional testing guidelines to verify the active functions of the closed cooling water system to demonstrate chemistry effectiveness. Monitoring parameters such as flows, temperatures, and pressures does not manage the loss of material of system components nor will it provide indication that loss of the component function is imminent. As a result, this standard is not effective in maintaining the passive function of the system components nor does it demonstrate chemistry effectiveness. Chemistry alone is sufficient to manage the aging effects in a closed cycle cooling system unless a review of operating experience pertaining to the applicant's program notes otherwise. A review of operating experience should demonstrate program effectiveness	The aging management program relies on preventive measures to minimize corrosion by maintaining inhibitors and by performing non-chemistry monitoring consisting of inspection and nondestructive evaluations based on the guidelines of EPRI-TR-107396 for closed-cycle cooling water (CCCW) systems. The inspections for monitoring, other than chemistry, includes data collection and analyses to predict the potential problems such as loss of structural integrity and reduced heat transfer caused by corrosion and/or deposition. These measures will ensure that the CCCW systems and components serviced by the CCCW system are performing their function acceptably. The GALL report was modified to delete reference to ASME OM S/G Part 2 and the requirement for performance of functional tests per ASME OM S/G Part 2 in the AMP

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M4-1 (cont.)		**EVALUATION AND TECHNICAL BASIS** ***(1) Scope of Program:*** A CCCW system is defined as part of the service water system that is not subject to significant sources of contamination, one in which water chemistry is controlled, and one in which heat is not directly rejected to a heat sink. The program described in this section applies only to such a system. If any one or more of these conditions are not satisfied, the system is to be considered open–cycle cooling water system and is addressed in XI.M3 of this chapter. The staff notes that if the adequacy of cooling water chemistry control can not be confirmed, the system should be treated as an open-cycle system and Action III of GL 89-13 for open-cycle systems should implemented. Action III would require an inspection and maintenance program for piping and components in the CCCW system to ensure that corrosion, erosion, and protective coating failure cannot degrade the performance of safety-related systems serviced by CCCW. ***(2) Preventive Actions:*** The program relies on maintaining system corrosion inhibitor concentrations within specified limits of EPRI TR–107396 to minimize corrosion.	or the need for further actions to prove effectiveness. A couple of industry events do not provide significant proof that chemistry is ineffective at the applicant's plant and requires further actions unless those events occurred at the applicant's plant.	"Closed-Cycle Cooling Water" (XI.M21 in NUREG-1801, Vol. 2).

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M4-1 (cont.)		***(3) Parameters Monitored/Inspected:*** The program includes monitoring and control of cooling water chemistry corrosion inhibitor concentrations the specified limits of EPRI TR–107396 to minimize corrosive effects of the aggressive environment. ***(4) Detection of Aging Effects:*** Water chemistry manages corrosion by controlling the environment and requires no detection of aging effects. ***Monitoring and Trending:*** The frequency of sampling water chemistry varies from continuous, daily, weekly, or as needed, based on plant operating conditions. ***Acceptance Criteria:*** Corrosion inhibitors concentrations are maintained within the limits specified in the EPRI water chemistry guidelines for CCCW. ***(7) Corrective Actions:*** Corrosion inhibitor concentrations outside the allowable limits are returned to acceptable range within the time period specified in the EPRI water chemistry guidelines for CCCW. ***(8 & 9) Confirmation Process and Administrative Controls:*** Site QA procedures, review and approval processes, and administrative controls are implemented in accordance with requirements of		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M4-1 (cont.)		Appendix B to 10 CFR Part 50 and will continue to be adequate for the period of license renewal. As discussed in the appendix to this report, the staff finds 10 CFR Part 50, Appendix B, acceptable in addressing confirmation process and administrative controls. ***(10) Operating Experience:*** Degradation of closed-cycle cooling water systems due to corrosion product buildup [Licensee Event Report (LER) 93-029-00] or through-wall cracks in supply lines (LER 91-019-00) have been observed in operating plants. The operating experience indicates that the controlling system chemistry with corrosion inhibitors is effective in managing the effects of aging. **REFERENCES** EPRI TR-107396, *Closed Cooling Water Chemistry Guidelines*, Electric Power Research Institute, Palo Alto, CA, November 1997. NRC Generic Letter 89-13, *Service Water System Problems Affecting Safety-Related Equipment*, July 18, 1989. NRC Generic Letter 89-13, Supplement 1, *Service Water System Problems Affecting Safety-Related Equipment*, April 4, 1990. LER #93-029-00, *Inoperable Check Valve in the Component Cooling*		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M4-1 (cont.)		*System as a Result of a Build-Up of Corrosion Products between Valve Components*, December 13, 1993. LER #91-019-00, *Loss of Containment Integrity due to Crack in Component Cooling Water Piping*, October 26, 1991.		
G-XI.M4-2	Closed Cycle Cooling Water System	The LER numbers listed in the reference list are not valid numbers.	The numbers are not standard LER numbers. Searches were not able to find these LERs.	The referenced LER numbers were verified to be valid. The details of these LERs are: LICENSEE EVENT REPORT (LER) LER #: 93-029-00, DOCKET NUMBER: 05000327, Inoperable Check Valves in the Component Cooling System as a Result of a Build-Up of Corrosion Products between Valve Components, EVENT DATE: 11/16/93, REPORT DATE: 12/13/93, SCSS Accession # 9312270020, (http://scss.ornl.gov/scss/) LICENSEE EVENT REPORT (LER) LER #:91-019-00, DOCKET NUMBER: 05000280, Loss of Containment Integrity due to Crack in Component Cooling Water Piping, EVENT DATE: 8/28/91, REPORT DATE: 9/26/91, SCSS Accession # 9110010058, (http://scss.ornl.gov/scss/) The GALL report was not revised as a result of this comment.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
XI-M5-1	XI.M5	Revise first sentence of element (1) Scope of Program to read "The program covers any carbon steel **and low alloy steel** structures and components"	Both types of steel are affected. This addition makes the sentence more technically correct.	The AMP for Boric Acid Corrosion (XI.M5 in August 2000 version and relocated to XI.M10 in NUREG-1801, Vol. 2) covers any carbon steel and low-alloy steel structures or components on which borated reactor water leaks. The GALL report was modified to address the comment by including low-alloy steel structures and components in the program scope.
XI-M5-2	XI.M5	Remove all references to ISI in Program Description and elements (4) and (7).	NRC has approved responses to GL 88-05 that both include ASME XI visual examinations and those that don't. (In most cases, ISI will be one aspect of the 88-05 program.) If 88-05 program was deemed adequate without inclusion of ISI inspections, it should be adequate for aging management because adequate substitutes for the ISI aspect would have been included. GL 88-05 neither refers to nor requires ISI. Option should be with individual applicant as to whether to include ISI as one aspect of their 88-05 response. This position was accepted in NUREG-1705. Also, program information for elements (1), (5), and (10) does not seem to consider ISI as a separate aspect.	The boric acid corrosion AMP is sufficient by itself to detect leaks so as to prevent or mitigate boric acid corrosion on the external surfaces of CS components. The ASME Section XI inspections are being performed, independent of the boric acid corrosion AMP, typically before startup following a normal refueling outage. The GALL report, Chapter XI was revised to address the comment by revising the boric acid corrosion AMP (XI.M10 in NUREG-1801, Vol.2) to delete requirements to perform inservice inspections in accordance with ASME Chapter XI.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
XI-M6-1	XI.M6	Revise second sentence of element (1) Scope of Program to read "Pump casings and valve bodies retaining pressure in these high energy systems are bounded by the piping inspections performed for the program."	This revision more accurately reflects the scope of the program as defined by NSAC-202L-R2 since the pumps and valves are not actually part of the original UT scope.	The scope of the Flow Accelerated Aging Management Program XI-M6 (XI-M17 in NUREG-1801, Vol. 2) was revised to state that "Valve bodies retaining pressure in these high-energy systems are also covered by the program." The FAC of pump casing was deleted from the GALL report because wall thinning will affect pump performance that will be detected by the plant maintenance program. The GALL report was modified to address this comment.
G-XI.M7-1		Delete generic program for "Outer Surfaces of Above Ground Carbon Steel Tanks" in its entirety.	External corrosion of above ground carbon steel tanks should be addressed on a plant specific basis based upon the different monitoring programs credited by the industry and the differences in tank design utilized. The loss of material due to corrosion of external surfaces of carbon steel components (including tanks) is addressed by a variety of different industry programs. Some tanks may be included in the Maintenance Rule Structures Monitoring Program, while other tank inspections may be governed by the Fire Protection Program or other existing programs. Additionally, the potential aging effects on the external surface of the bottom of tanks are greatly dependent on the design of the tank.	The program title was changed to "Above Ground Carbon Steel Tanks" (XI.M29 in NUREG-1801, Vol. 2) and it provides one acceptable AMP for the external corrosion of above ground carbon steel tanks. The GALL report was not modified to address this comment because the applicant has the option of conducting an alternative plant-specific program.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M7-1 (cont.)			Some tanks are designed with a solid concrete foundation, which supports the floor of the tank. These tanks utilize a layer of asphalt or other material between the tank bottom and the concrete to eliminate high point bearing and to preclude moisture intrusion. Other designs utilize a concrete ring wall to support the walls of the tank and the tank bottom sits on compacted oil impregnated sand. Some tanks utilize a layer of grout between the tank bottom and the ring header to preclude moisture intrusion. As such, the environments and resulting potential aging effects associated with tanks are dependent upon site specific design considerations. Therefore, potential aging effects on external surfaces of above ground carbon steel tanks should be addressed on a plant specific basis.	
G-XI.M8-1		Delete generic program for “Outer Surface of Buried Piping and Components” in its entirety.	Nuclear industry experience dictates external corrosion of buried piping should be addressed on a plant specific basis. Aging effects associated with buried piping are highly dependent upon site specific considerations such as aggressiveness of soil/fill environment, materials used, and condition of protective coatings. Because Bell hole examinations have the potential of damaging	The AMP “Buried Piping and Tanks Surveillance” (XI.M28, NUREG-1801, Vol. 2) manages the aging of buried carbon steel piping. Although the Buried Piping and Tanks Surveillance AMP (based on NACE standards) is not an existing nuclear industry standard practice, it is one acceptable method. An alternative to the AMP “Buried Piping and Tanks Surveillance” (XI.M28, NUREG-1801, Vol. 2) is found in the AMP

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M8-1 (cont.)			coatings when unearthing pipe, they are not typically conducted at nuclear plants. Additionally, the most common failures are due to localized pinhole degradations in the coatings. However, when specific components are unearthed for repairs (e.g., a fire protection post indicator isolation valve), the condition of the external coatings on adjacent unearthed piping is typically inspected as a good practice. Plants which have experienced external aging effects with buried piping have taken actions to address their specific issues, including replacement of piping when deemed necessary. Therefore, potential aging effects on external surfaces of buried piping and components should be addressed on a plant specific basis.	"Buried Piping and Tanks Inspection (XI.M34, NUREG-1801, Vol. 2) which inspects based on the frequency for the need to dig up piping considering plant operating experience that would allow for crediting the inspection when a pipe is dug up for any reason. The frequency and plant operating experience could be subject to a plant specific review. The GALL report was modified to address this comment by adding a new alternative AMP, "Buried Piping and Tanks Surveillance" (XI.M28, NUREG-1801, Vol. 2).
G-XI.M9-1	Fuel Oil Chemistry	The ASTM Standard D270 does not exist in the ASTM Standards from 1996 through 2000. We believe that this standard should be replaced with ASTM D4057.	Unable to find the ASTM Standard D270. The title in the reference list matches the title D4057.	The "Fuel Oil Chemistry" AMP XI.M9 (XI.M30 in NUREG-1801, Vol. 2) was revised and the reference ASTM D 270 was replaced by ASTM D 4057-95(2000), *Standard Practice for Manual Sampling of Petroleum and Petroleum Products*. The GALL report was modified to address this comment.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M9-2	Fuel Oil Chemistry	If ASTM Standard D270 should be D4057, then the second sentence in the Parameters Monitored/ Inspected is incorrect. D4057 provides guidance for obtaining a sample; it does not define fuel oil specifications. Fuel oil specifications are outlined in D975.	A review of ASTM Standard D4057 did not reveal any fuel oil specifications. Standard D4057 only provides guidance for obtaining samples.	The "Fuel Oil Chemistry" AMP XI.M9 (XI.M30 in NUREG-1801, Vol. 2) was revised and references ASTM Standard D 4057 for guidance on oil sampling and ASTM Standard D 975 for guidance on fuel oil specifications. The GALL report was modified to address this comment.
G-XI.M9-3	Fuel Oil Chemistry	ASTM D975 does not specify microbiological limits for fuel oil as stated in the Acceptance Criteria attribute of the program.	A review of ASTM 975 did not reveal any limits for microbiological limits in fuel oil. In addition, the industry is not aware of a standard that specifies microbiological limits for fuel oil.	The "Fuel Oil Chemistry" AMP XI.M9 (XI.M30 in NUREG-1801, Vol. 2) was revised and the reference to ASTM D 975 concerning microbiological limits was deleted and the appropriate references for sediment D 2709 and particulates D 2276.were added. The ASTM Standards D 1796 and D 2709 are used for determination of water and sediment contamination in diesel fuel. For determination of particulates, *modified* ASTM D 2276, Method A, is used. The GALL report was modified to address this comment.
G-XI.M9-4	Fuel Oil Chemistry	Statements for verification of program effectiveness should be deleted from the Program Description and Detection of Aging Effects attributes. Statements concerning demonstration of program effectiveness should be in the Operating Experience attribute as defined by Appendix A of the	Chemistry alone is sufficient to manage the aging effects in the fuel oil system unless a review of operating experience pertaining to your program notes otherwise. A review of operating experience should demonstrate program effectiveness or the need for further actions, such as inspections, to	The "Fuel Oil Chemistry" AMPXI.M9 (XI.M30 in NUREG-1801, Vol. 2) was revised and the references suggested by NEI are now incorporated. One-time inspection is needed to verify the effectiveness of the fuel oil chemistry aging management program and confirm the absence of aging effects.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M9-4 (cont.)		SRP-LR. In addition, the statements should be clarified to note that other means of demonstrating effectiveness other than inspection, such as operating experience review, are available. In addition, the Fuel Oil Chemistry is sufficient to manage aging in the fuel oil tanks and should be written as follows: **PROGRAM DESCRIPTION** The program includes a combination of surveillance and maintenance procedures. Fuel oil quality is maintained by monitoring and controlling fuel oil contamination in accordance with the guidelines of ASTM Standards D975, D4057, D1796, and D2709. Exposure to fuel oil contaminants, such as water and microbiological organisms, is minimized by verifying the quality of existing fuel oil and new oil before its introduction into the storage tanks. **EVALUATION AND TECHNICAL BASIS** ***(1) Scope of Program:*** The program is focused on managing the conditions that cause general, pitting, and microbiologically-induced corrosion of the diesel fuel tank internal surfaces; it reduces the potential of exposure of the tank internal surface to fuel oil contaminated with water and	prove effectiveness. A few industry events do not provide significant proof that chemistry is ineffective at applicant's plant and requires further actions unless those events occurred at applicant's plant.	Because the applicant has the option of conducting an alternative plant-specific program. The GALL report was not modified to address the first part of this comment.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M9-4 (cont.)		microbiological organisms. ***(2) Preventive Actions:*** The quality of fuel oil is maintained by additions of biocides to minimize biological activity, stabilizers to prevent biological breakdown of the diesel fuel, and corrosion inhibitors to mitigate corrosion. Coatings, if used, prevent or mitigate corrosion by protecting the internal surfaces of the tank from contacting with water and microbiological organisms. ***(3) Parameters Monitored/Inspected:*** The AMP monitors fuel oil quality and the levels of water and microbiological organisms in the fuel oil, which cause loss of material of the tank internal surface. ASTM standard D975 defines fuel oil specifications and standard D4057 defines sampling requirements. The ASTM standards D1796, and D2709, provide guidance to quantify insoluble particulate contamination in diesel fuel. These are the principle parameters relevant to tank structural integrity. ***(4) Detection of Aging Effects:*** Degradation of the diesel fuel oil tank cannot occur without exposure of the tank internal surfaces to contaminants in the fuel oil, such as water and microbiological organisms. Compliance with diesel fuel oil		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M9-4 (cont.)		standards in item 3 above and periodic multilevel sampling provides assurance that fuel oil contaminants are below acceptable levels. ***(5) Monitoring and Trending:*** Water and biological activity or particulate contamination concentrations are monitored and trended at least quarterly. Based on industry operating experience, quarterly sampling and analysis of fuel oil provide for timely detection of conditions conducive to corrosion of the internal surface of the diesel fuel oil tank before the potential loss of its intended function. ***(6) Acceptance Criteria:*** ASTM standard D 975 specifies acceptance criteria for the limits of water content and sediment in the diesel fuel oil. ***(7) Corrective Actions:*** Specific corrective actions are implemented in accordance with the plant quality assurance (QA) program. For example, corrective actions are taken to prevent recurrence when the specified limits for fuel oil standards are exceeded or when water is drained during periodic surveillance. Also, when the presence of biological activity is confirmed, a biocide is added to fuel oil. As discussed in the appendix to this report, the staff finds 10 CFR Part 50, Appendix B, acceptable in		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M9-4 (cont.)		addressing corrective actions. ***(8 & 9) Confirmation Process, and Administrative Controls:*** Site QA procedures, review and approval processes, and administrative controls are implemented in accordance with requirements of Appendix B to 10 CFR Part 50 and will continue to be adequate for the period of license renewal. As discussed in the appendix to this report, the staff finds 10 CFR Part 50, Appendix B, acceptable in addressing confirmation process and administrative controls. ***(10) Operating Experience:*** The operating experience at some plants has included identification of water in the fuel, particulate contamination, and biological fouling. However, no instances of fuel oil system components failures attributed to contamination have been identified. This operating experience indicates that maintaining monitoring and controlling fuel oil quality is effective in managing the effects of aging. **REFERENCES** ASTM D 975-98b, *Standard Specification for Diesel Fuel Oils*, The American Society of Testing Material, West Conshohocken, PA. ASTM D 4057-95, *Standard Method of Sampling Petroleum and*		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M9-4 (cont.)		*Petroleum Products*, The American Society of Testing Material, West Conshohocken, PA. ASTM D 1796-97, *Standard Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method*, The American Society of Testing Material, West Conshohocken, PA. ASTM D 2709-96, *Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge*, The American Society of Testing Material, West Conshohocken, PA.		
G-XI.M10-1		Delete the 4th sentence of element 4 in the Evaluation and Technical Basis that states "This program of functional testing, …in accordance with 10 CFR Part 50, Appendix R."	System testing, maintenance and inspection in accordance with NFPA should be adequate. Not all sections of Appendix R are applicable to all plants, depending on the date the plant was licensed, commitments to Appendix A of BTP APCSB 9.5-1, or NRC acceptance of plant fire protection features as documented by the staff in comprehensive fire protection SER's issued before Appendix A to BTP APCSB 9.5-1 was published. Moreover, Appendix R primarily addresses design and personnel requirements necessary to assure safe shutdown capabilities. With respect to system testing, maintenance and inspections, Appendix R includes only general requirements.	The referenced sentence in the Evaluation and Technical Basis of the "Fire Water System" AMP XI.M10 (XI.M27 in NUREG-1801, Vol. 2) "This program is implemented in accordance with 10 CFR part 50, Appendix R." has been deleted. The AMP states that "To ensure no significant corrosion, MIC, or biofouling has occurred in water-based fire protection systems, periodic flushing, system performance testing, and inspections are conducted." The GALL report was modified to address this comment.
G-XI.M10-2		In the program description, replace the last 3 sentences to state the following: "In addition to NFPA	Meeting applicable NFPA commitments and the additional internal inspections of system	There is evidence that for aging programs, NFPA is not enough to detect MIC, corrosion, or fouling

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M10-2 (cont.)		commitments, internal inspections are performed on system components when disassembled to identify evidence of loss of materials due to corrosion and biofouling. Also, system is normally maintained at required operating pressure and is monitored such that loss of system pressure is immediately detected and corrective actions initiated."	components when disassembled along with maintaining the system at normal operating pressure provide the assurance that the system intended functions are maintained. This is demonstrated by the element 10, Operating Experience write-up, where the GALL report states, "Water based fire protection systems designed, inspected, tested and maintained in accordance with the NFPA standards have demonstrated reliable performance for at least 80 years."	prior to a loss of the intended function. The programs in NFPA are requirements that do not focus on the detection of aging effects prior to loss of the intended function, as the license renewal rule states. GALL was revised to include internal inspections for portions of piping to ensure that corrosion, MIC, fouling have not caused significant wall thinning and to ensure sprinkler head operability throughout the period of extended operation. The revised program description would read: In addition to NFPA codes and standards, which do not currently contain programs routinely subjected to flow, need to be subjected to full flow tests at the maximum design flow and pressure before the period of extended operation (and at 5-year intervals thereafter). In addition, a sample of sprinkler heads should be inspected by using the guidance of NFPA 25, Section 2.3.3.1. This NFPA section states "where sprinklers have been in place for 50 years, they shall be replaced or representative samples from one or more sample areas shall be submitted to a recognized testing laboratory for field service testing." It also contains guidance to perform this sampling test every 10 years after the initial field service testing. Finally, portions of fire

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M10-2 (cont.)				protection suppression piping located aboveground and exposed to water also need to be disassembled and visually inspected internally once every refueling outage. The purpose of the full flow testing and internal visual inspections is to ensure that corrosion, MIC, or biofouling aging effects are managed such that the system function is maintained. Element 10 was modified to remove the reference to at least 80 years since no commercial nuclear plants have operated for 80 years. This element now states that "Water-based fire protection systems designed, inspected, tested, and maintained in accordance with NFPA standards have demonstrated reliable performance." The program description of "Fire Water System" XI.M10 (XI.M27 in NUREG-1801, Vol. 2) was not modified to address this comment.
G-XIM11-1	E&TB Item 7	Delete the reference to the "appendix to this report."	It is unclear what this statement means. A more clear reference can be used if desired.	Element 7 "Corrective Actions" of "Reactor Water Chemistry" XI.M11 (XI.M2 in NUREG-1801, Vol. 2) was revised to clarify the reference to the "appendix to this report." The GALL report was modified to address this comment.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M11-2	Water Chemistry	Statements for verification of program effectiveness should be deleted from the Program Description and Detection of Aging Effects attributes. Statements concerning demonstration of program effectiveness should be in the Operating Experience attribute as defined by Appendix A of the SRP-LR. In addition, the statements should be clarified to note that other means of demonstrating effectiveness other than inspection, such as operating experience review, are available. Chemistry alone is sufficient to manage aging and the program should be revised as follows: **PROGRAM DESCRIPTION** The water chemistry program for BWRs relies on monitoring and control of reactor water chemistry based on the EPRI guidelines in TR-103515. The EPRI document TR-103515 has three sets of guidelines, one for primary water, one for condensate and feedwater, and one for control rod drive mechanism cooling water. The water chemistry program for PWRs relies on monitoring and control of reactor water chemistry based on the EPRI guidelines in TR-105714 for primary water chemistry and TR-102134 for	Chemistry alone is sufficient to manage the aging effects unless a review of operating experience pertaining to your program notes otherwise. A review of operating experience should demonstrate program effectiveness or the need for further actions, such as inspections, to prove effectiveness. A few industry events do not provide significant proof that chemistry is ineffective at applicant's plant and requires further actions unless those events occurred at applicant's plant.	The proposed rewrite for XI.M11 "Reactor Water Chemistry" (XI.M2 in NUREG-1801, Vol. 2) provided by NEI is not significantly different from the version submitted for review on August 2000, except for one-time inspection in Element 4 Detection of Aging Effects. One-time inspection is needed to verify the effectiveness of water chemistry control and confirm the absence of an aging effect. If an aging effect is detected, the results are evaluated to determine the appropriate corrective actions. At the 11/15/00 meeting, NEI said that it would provide appropriate language regarding an alternative to a one-time inspection. Although the staff did not receive any NEI input. The GALL report was modified to address the comment by adding a statement indicating that there are alternatives based on past maintenance records.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M11-2 (cont.)		secondary water chemistry. The water chemistry programs are generally effective in removing impurities in primary and secondary water systems. **EVALUATION AND TECHNICAL BASIS** ***(1) Scope of Program:*** The program includes periodic monitoring and control of known detrimental contaminants such as chlorides, fluorides (PWRs only), dissolved oxygen, and sulfate concentrations below the levels known to result in loss of material. Water chemistry control is in accordance with the EPRI guidelines of TR-103515 Rev. 3, for water chemistry in BWRs, TR-105714 Rev. 3, for primary water chemistry in PWRs, and TR-102134 Rev. 3 for secondary water chemistry in PWRs, or later revisions or updates of these reports as approved by the staff. ***(2) Preventive Actions:*** The program includes specifications for chemical species, sampling and analysis frequencies, and corrective actions for control of reactor water chemistry. System water chemistry is controlled to minimize contaminant concentration and mitigate loss of material due to crevice and pitting corrosion.		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M11-2 (cont.)		***(3) Parameters Monitored/Inspected:*** Concentration of corrosive impurities listed in the EPRI guidelines discussed above, and which include chlorides, fluorides (PWRs only), sulfates, dissolved oxygen and hydrogen peroxide, are monitored to mitigate corrosion. Water quality (pH and conductivity) is also maintained in accordance with the guidance. ***(4) Detection of Aging Effects:*** Water chemistry manages corrosion by controlling the environment and requires no detection of aging effects. ***(5) Monitoring and Trending:*** The frequency of sampling water chemistry varies from continuous, daily, weekly, or as needed, based on plant operating conditions. Whenever corrective actions are taken to address an abnormal chemistry condition, increased sampling is utilized to verify the effectiveness of these actions. ***(6) Acceptance Criteria:*** Maximum levels for various contaminants are maintained below the system specific limits based on the limits specified in the EPRI water chemistry guidelines (see item 10, below). Any evidence of the presence of an aging effect or unacceptable water chemistry results is evaluated and its root		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M11-2 (cont.)		cause identified and the condition corrected. ***(7) Corrective Actions:*** When measured water chemistry parameters are outside the specified range, corrective actions are taken to bring the parameter back within the acceptable range in the time period specified in the EPRI water chemistry guidelines. As discussed in the appendix to this report, the staff finds 10 CFR Part 50, Appendix B, acceptable in addressing corrective actions. ***(8) Confirmation Process:*** Following corrective actions, additional samples are taken and analyzed to verify that the corrective actions were effective in returning the concentrations of contaminants such as chlorides, fluorides, sulfates, dissolved oxygen/hydrogen peroxide to within the acceptable ranges. ***(9) Administrative Controls:*** Site QA procedures, review and approval processes, and administrative controls are implemented in accordance with requirements of Appendix B to 10 CFR Part 50 and will continue to be adequate for the period of license renewal. ***Operating Experience:*** The EPRI guidelines documents have been developed based on plant		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.M11-2 (cont.)		experience and have been shown to be effective over time with their widespread use. **REFERENCES** EPRI TR-105714, *PWR primary Water Chemistry Guidelines-Revision 3*, Electric Power Research Institute, Palo Alto, CA, Nov. 1995. EPRI TR-102134, *PWR Secondary Water Chemistry Guideline-Revision 3*, Electric Power Research Institute, Palo Alto, CA, May 1993. EPRI TR-103515, *BWR Water Chemistry Guidelines-Revision 3, Normal and Hydrogen Water Chemistry*, Electric Power Research Institute, Palo Alto, CA, February 1994.		

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XIM12-1	1-10	The aging management activities appear to ignore the activities that licensees take to ensure that aging of in-scope, but non-safety related, bolting does not inhibit the intended function of the system or component.	Following the EPRI guidelines was not required in the Generic Letter (91-17); however, if licensees have examined their bolting practices and have determined that their programs are adequate, then they should only have to say so in their application. Inspection of bolting in non-safety applications will not prove effective in preventing loss of preload or SCC in some cases. These two effects are most properly managed through original design and torquing.	The Bolting Integrity AMP XI.M12 (XI.18 in NUREG-1801, Vol. 2) acknowledges the activities that licensees take to manage aging of in-scope, but non-safety related, bolting. The last sentences of Element (1) in the Bolting Integrity AMP state that the industry's technical basis for the program for safety related bolting and guidelines for material selection and testing, bolting preload control, inservice inspection (ISI), plant operation and maintenance, and evaluation of the structural integrity of bolted joints, are outlined in references. These include EPRI NP-5769, with the exception noted in NUREG 1339, for safety-related bolting, and EPRI TR-104213 replaces the earlier report EPRI NP-5067 for other bolting. The GALL report was not modified to address this comment.
G-XIM12.2	SRP-LR Tables 3.2-1 3.3-1 3.4-1 and 3.5-1 GALL Sections V.D1.1.7 V.D1.2.2 V.D1.3.1 V.D1.4.2 V.D1.5.5	This is a listing of many of the locations where bolting or the Bolting Integrity Program is specifically mentioned. Any discussion on bolting or the alone should be deleted and replaced with a general discussion on closure set integrity in the SRP-LR. No specific, individual listing of bolting is needed. Also the Bolting Integrity Program is not a real plant program. The	These comments should serve to complement other comments associated with mechanical and structural bolting. Other comments have been made to delete bolting as a specific component for review. Bolting is one part of a multi-part closure set that also includes mating surfaces and could contain gaskets. The function of concern is loss of closure integrity and not bolt integrity.	This aging process is managed by "Bolting Integrity"" AMP XI.M12 (XI.M18 in NUREG-1801, Vol. 2) which covers all bolting within the scope of license renewal. Bolting is considered to be a system component because it can be uniquely identified and also because it is a small component whose review could be missed if categorized under a broader category. Because ASME Section XI

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XIM12.2 (cont.)	V.E.2 VII.A3.1.1 VII.A3.2.2 VII.A3.3.2 VII.A3.4.3 VII.A3.5.3 VII.A3.6.1 VII.D.1.2 VII.D.2.2 VII.D.3.2 VII.D.4.2 VII.D.5.2 VII.E1.1.2 VII.E1.2.2 VII.E1.3.2 VII.E1.4.2 VII.E1.5.2 VII.E1.6.2 VII.E1.7.5 VII.E1.8.5 VII.E1.9.1 VII.E1.10.1 VII.E3.2.2 VII.I.2 VIII.B1.1.2 VIII.H.2	appropriate attributes for managing closure integrity will be contained within other plant programs, a number of which are already covered in GALL. Specific details in Comment 3 identify the shortcomings of XI.M12, Bolting Integrity as written.		treats individual bolting as a component and requires inspection of individual bolting. This AMP is retained in the SRP-LR and the GALL report, which were not modified to address this comment.

Table B.2.9-2: Disposition of NEI Mechanical Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XIM12-4	GALL XI.M12	Delete the XI.M12 Bolting Integrity and all associated references from GALL and SRP-LR.	Along with the major perspective issue described in Comment 2 on whether bolting is a component or part of a component, here are some specific problems with the Bolting Integrity write-up and supporting evidence why the program write-up should be deleted: Scope says the program covers all bolting within the scope of license renewal, yet structural bolting is not covered within other program attributes. Also, the program as called out only addresses nuclear class I (RCPB) bolting, mainly 2" and larger. Chapter IV addresses RPV and RPV internals and associated AMP's. Parameters Monitored/Inspected says the program monitors effects of aging on the intended function of closure bolting. Bolting does not have a license renewal intended function. Bolting is part of a closure set that has a closure integrity or structural support function. This is a fundamental issue. of Aging Effects says ASME Section XI is a fine program to manage bolting falling within its purview. We agree for those items falling within the scope of ASME, so the Bolting Integrity write-up is extraneous.	The "Bolting Integrity"" AMP XI.M12 (XI.M18 in NUREG-1801, Vol. 2) covers all bolting within the scope of license renewal. The reference (EPRI TR-104213) replaces the earlier report EPRI NP-5067, *Good Bolting Practices, A Reference Manual for Nuclear Power Plant Maintenance Personnel.* ASME Section XI does not cover structural bolting. As far as the attribute Detection of Aging Effects is concerned, Bolting Integrity program is not extraneous. The GALL report was revised to address the comment by adding a sentence to the AMP EPRI TR-104213*, Bolted Joint Maintenance & Application Guide*.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G.XI.S1-1	Eval & Tech Basis (1)	**Scope of Program** Change item number 3 to "…provided **IWE-1232** and IWE-5220 are met..."	Editorial	The proposed change provides a more concise reference to the appropriate paragraph of IWE. GALL XI.S1 was revised to address this comment.
G.XI.S1-2	XI.S1	**Scope of Program** Industry concerns regarding inaccessible areas have not been addressed. Consider adding the following paragraph "Plant-specific evaluation of such inaccessible areas should begin with an assessment of environmental conditions, such as severe weathering, aggressive groundwater, and impinging flow of groundwater, that could lead to accelerated aging effects in inaccessible areas with little or no effect in accessible areas. Guidelines for quantitative assessment of severe environmental conditions are provided in Section III.A.1.1 of the GALL."	Plant-specific actions to address inspection of inaccessible areas are beyond Code requirements.	Detailed guidance relating to inaccessible areas has been incorporated in GALL Chapter II for containment structures. Also, the discussion of NUREG-1611 as it pertains to inaccessible areas has been deleted from GALL XI.S1 and XI.S2. With these revisions, the NUREG-1611 concern about aging management for inaccessible areas of containment structures is now directly addressed in Chapter II; GALL XI.S1 and XI.S2 address the implementation of IWE and IWL, in accordance with 10 CFR 50.55a, respectively. GALL Chapter and AMPs II, XI.S1, and XI.S2 were revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G.XI.S1-3	Eval & Tech Basis (3)	**(3) Parameters Monitored or Inspected** Clarify that the "Volumetric" examination method is ultrasonic thickness measurements. Revise the Category E-C table entry to "Visual VT-1, Ultrasonic Thickness Measurements."	Misleading characterization of Examination Category E-C.	The term "Volumetric" is used in Table IWE-2500-1. Therefore, to avoid confusion, this is retained in the table description of Examination Category E-C. However, wording has been changed to "Volumetric (Ultrasonic Thickness Measurements)" in the text of XI.S1 because it more accurately describes the type of volumetric examination specified in E-C. GALL XI.S1 was revised to address this comment.
G-XI.S1-4	Eval & Tech Basis (4)	**(4) Detection of Aging Effects** Revise sentence as follows: "An expedited examination of containment is required by 10 CFR 50.55a in which an inservice (baseline) examination <u>specified for the first period of the first inspection interval</u> must be performed by September 9, 2001."	The added words (underlined) come directly from 10 CFR 50.55a and are included for clarification purposes.	The proposed change accurately reflects the requirements in 10 CFR 50.55a. GALL XI.S1 was revised to address this comment.
G.XI.S1-5	Eval & Tech Basis (4)	**(4) Detection of Aging Effects** Clarify that the "Volumetric" examination method is ultrasonic thickness measurements. Revise the next-to-last sentence to "Selected areas, such as containment surfaces requiring augmented examination (E-C) require ultrasonic thickness measurements."	Misleading characterization of Examination Category E-C.	See NRC Disposition of NEI Comment G.XI.S1-3 in Appendix B, Table B.2.9-3.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S1-6	Eval & Tech Basis (8)	**(8) Confirmation Process** While the write-up for IWE is fairly comprehensive, the key provision for aging management in IWE is missing in the text. Please add to the text "IWE-1240 requires augmented examinations of containment surface areas subject to degradation. A VT-1 examination is required for these areas in lieu of the VT-3 examination specified for examination category E-A in Table IWE-2500-1."	IWE-1240 is the key to aging management in Section XI-IWE.	The proposed change is more appropriate in Attribute (4) — Detection of Aging Effects. Attribute (4) already has a general statement for augmented examination of selected areas. However, to more accurately reflect IWE requirements, the evaluation of Attribute (4) has been revised as follows: "IWE-1240 requires augmented examinations (Examination Category E-C) of containment surface areas subject to degradation. A VT-1 examination is required when the area is accessible from both sides and volumetric (ultrasonic thickness measurement) examination is required for areas accessible from only one side." GALL XI.S1 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G.XI.S2-1	Eval & Tech Basis, (1)	**Scope of Program** Industry concerns have not been addressed. Consider adding the following paragraph "Plant-specific evaluation of such inaccessible areas should begin with an assessment of environmental conditions, such as severe weathering, aggressive groundwater, and impinging flow of groundwater, that could lead to accelerated aging effects in inaccessible areas with little or no effect in accessible areas. Guidelines for quantitative assessment of severe environmental conditions are provided in Section III.A.1.1 of the GALL."	Plant-specific actions to address inspection of inaccessible areas are beyond Code requirements.	See NRC Disposition of NEI Comment G.XI.S1-2 in this Appendix B, Table B.2.9-3.
G-XI.S2-2	Eval & Tech Basis, (2)	**(2) Preventive Action** Delete the reference to a "credited coating program" (second sentence).	Concrete coatings are very plant specific based on external environment. Some plants in harsh climate have metal covers over the containment in lieu of coatings. Coatings are generally not used on interior containment concrete surfaces within the scope of IWL.	Reliance on concrete coatings to manage aging is plant-specific. If relied upon during the current operating term, a program that monitors and maintains the concrete coatings should continue to be relied upon for license renewal. Attribute (2) has been revised to state: "If a coating program is currently credited for managing the effects of aging of concrete surfaces, then it should be continued during the period of extended operation." GALL XI.S2 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S2-3	Eval & Tech Basis, (3)	**(3) Parameters Monitored or Inspected** Change "ultimate strength" to "ultimate tensile strength" in sentence on tendon wires are also tested for…	To match the ASME Code (IWL-2523.2). (Editorial)	The proposed change accurately reflects the wording in IWL-2523.2. GALL XI.S2 was revised to address this comment.
G-XI.S2-4	Eval & Tech Basis (4) 5th line	**(4) Detection of Aging Effects** Clarify the inspection intervals for sites with two plants as specified in IWL-2421. The following paragraph needs to be added: "For sites with multiple plants, the examination requirements for the concrete containments may be modified if the containments utilize the same prestressing system and are essentially identical in design, if post-tensioning operations for each subsequent containment constructed at the site were completed not more than 2 years apart, and if the containments are similarly exposed to or protected from the outside environment. When the above conditions are met, the inspection dates and examination requirements may be as follows. For the containment with the first Structural Integrity Test, all examinations required by IWL-2500 shall be performed at 1, 3, and 10 years and every 10 years thereafter. Only the examinations required by IWL-2524 and IWL-2525 need be performed at 5 and 15 years and	To address the inspection interval for sites with multiple units.	The evaluation of IWL only includes the 1992 edition plus 1992 addenda and the 1995 edition plus 1996 addenda, in accordance with the latest revision to 10 CFR 50.55a. These editions do not address "sites with multiple plants." These editions do address "sites with two plants." Consequently, the following sentence was added to Attribute (4): "For sites with two plants, the schedule for inservice inspection is provided in IWL-2421." GALL XI.S2 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S2-4 (cont.)		every 10 years thereafter. *(2)* For each subsequent containment constructed at the site, all examinations required by IWL-2500 shall be performed at 1, 5, and 15 years and every 10 years thereafter. Only the examinations required by IWL-2524 and IWL-2525 need be performed at 3 and 10 years and every 10 years thereafter."		
G-XI.S2-5	Eval & Tech Basis, (3)	**(5) Monitoring and Trending** Delete second sentence that states trending is required.	Not a requirement of IWL.	Although trending is not a requirement of IWL, trending is required by 10 CFR 50.55a(b)(2)(ix) [or (viii) in the latest amendment of the regulation]. It states that "When evaluation of consecutive surveillances of prestressing forces for the same tendon or tendons in a group indicates a trend of prestress loss such that the tendon force(s) would be less than the minimum design prestress requirements before the next inspection interval, an evaluation shall be performed and reported ...." GALL XI.S2 was not revised to address this comment.
G-XI.S2-6	Page XI-S6	Under Attribute (3), delete "wear" from the sentence on tendon anchorage and wires are visually examined….	Code does not state wear.	The proposed change accurately reflects the wording in IWL. GALL XI.S2 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S3-1	Page XI-S11	Under monitoring and trending, at the end of the last sentence add that trending is possible, but not required.		To address this, the last sentence in (5) Monitoring and Trending has been deleted in its entirety. GALL XI.S3 was revised to address this comment.
G-XI.S4-1	Appendix J, Eval & Tech Basis	The "Evaluation and Technical Basis" for the Appendix J Program needs to acknowledge the requirements for the Containment Inspection as discussed in 10 CFR 50 Appendix J, V.A., particularly the sentence: "…to uncover any evidence of structural deterioration which may affect either the structural integrity or leak-tightness."	Prior to the mandatory inspections under ASME XI-IWE and IWL, Appendix J inspections were performed (and continue to be performed) and provide the operating experience for containment aging.	The GALL report includes discussion regarding prior Appendix J containment inspections in the discussion of "Operating Experience" for the IWE (XI.S1) and IWL (XI.S2) AMPs. Since the mandatory inspection requirements of IWE and IWL have essentially superceded the Appendix J inspections, the Evaluation and Technical Basis for the Appendix J AMP (XI.S4) only addresses the leak rate testing requirements of 10 CFR 50 Appendix J. GALL XI.S4 was not revised to address this comment.
G-XI.S5-1	XI.S5, Introduction, and Evaluation & Technical Basis, items 1 and 6	Delete references to A-46 program. Change the discussion in items 1 and 6 of the Evaluation and Technical Basis to refer to masonry walls within the scope of license renewal.	Reference to A-46 program is inappropriate because the evaluation of masonry walls is not a defined element of the USI A-46 program. The appropriate reference is to "those masonry walls within the scope of license renewal."	Masonry walls identified and evaluated during the USI A-46 program that have an intended function consistent with the criteria of 10 CFR Part 54 must be included in the scope of license renewal. The purpose of the reference to the USI A-46 program was to alert applicants and reviewers. In addition, masonry walls that serve a fire barrier function necessary to meet 10 CFR 50.48 are also within the scope of license renewal.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S5-1 (cont.)				At the meeting with NEI on 1/30/01, NEI pointed out that this is a scoping issue and it is not appropriate to address LR scope in GALL. This issue is more appropriately addressed in SRP-LR 2.4. Consequently, in Section 2.4.3.2, "Structural Components Subject to an Aging Management Review" of SRP-LR-LR, Chapter 2, the following sentence was added: "Another example, if a non-safety-related structure or component is included in the plant's CLB as a part of the safe shutdown path resulting from the resolution of USI-A-46, the reviewer should verify that this structure or component has been included within the scope of license renewal." XI.S5 Attribute (1) and Attribute (6) were revised to delete reference to A-46. XI.S5 Attribute (10) has been revised to incorporate USI A-46 and MR inspection in the discussion of operating experience. GALL XI.S5 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S5-2	XI.S5, Evaluation & Technical Basis	Under item 4, **Detection of Aging Effects:** Delete the following two sentences "Unreinforced masonry walls that have not been contained by bracing require the most frequent inspection because the development of cracks may invalidate the evaluation basis. These walls are to be inspected at every refueling outage."	There is no regulatory requirement to perform this inspection at every refueling outage. The wording cited constitutes a backfit of requirements. Requirements for inspection of unreinforced masonry walls are plant-specific, and will generally be contained in either a Masonry Walls Program or the Structures Monitoring Program (SMP) for the Maintenance Rule. Inspection intervals associated with the SMP, for instance, vary significantly.	The sentence, "These walls are to be inspected at every refueling outage," was deleted in Chapter XI.S5, Attribute (4) – Detection of Aging Effects, because the development of an inspection schedule that ensures there is no loss of intended function between inspections is already specified there. The inspection schedule is the responsibility of the applicant. GALL XI.S5 was revised to address this comment.
G-XI.S5-3	XI.S5, Introduction	There is no need to include "NUREG-1557 identifies IE Bulletin 80-11 and IN 87-67 as an acceptable basis…"	Stand alone comments about IE Bulletin 80-11 and IN 87-67 are adequate by themselves.	Reference to NUREG-1557 is extraneous here and has been deleted. GALL XI.S5 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S5-4	XI.S5, Introduction	The following wording should be used: Since the issuance of the IEB 80-11 and IN 87-67, the NRC promulgated 10 CFR 50.65, the Maintenance Rule. Masonry walls may be inspected as part of the Structures Monitoring Program (XI-S6) conducted for the Maintenance Rule. In these cases, the Maintenance Rule evaluation (XI-S6) for license renewal applies and no further explanation is required. For plants with a separate masonry wall program, the following evaluation and technical basis is provided:	Provides for use of existing Structures Monitoring Program and a method for using other plant specific programs.	NEI's proposed wording was incorporated in the Program Description for the Masonry Wall Program (XI.S5), except for the sentence, "*In these cases, the Maintenance Rule evaluation (XI-S6) for license renewal applies and no further explanation is required.*" To clarify the applicability of the structures monitoring program (XI.S6) to aging management for masonry walls, the Program Description for XI.S5 was revised to stipulate that XI.S6 should incorporate the attributes described in XI.S5 when being credited to manage aging of masonry walls. In general, a Structures Monitoring Program to meet the Maintenance Rule does not include consideration of seismic II/I as an intended function. This is an intended function for license renewal. Many masonry walls within the scope of license renewal are not automatically in the scope of a Structures Monitoring Program. The applicant must ensure that all masonry walls in the LR scope are included before taking credit for a Structures Monitoring Program. GALL XI.S5 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S5-5	XI.S5, Evaluation & Technical Basis	Masonry Wall Inspection: **Scope of Program**: The scope of the program includes those masonry walls within the scope of license renewal. **Preventive Actions**: No specific preventive actions are required. **Parameters Monitored/Inspected**: Visual inspection by a qualified individual is sufficient to identify cracking of masonry walls. **Detection:** A visual inspection performed using the guidance of IEB 80-11 and IN 87-67 provides reasonable assurance that the aging effect of cracking will be identified prior to loss of the component intended function. **Monitoring and Trending**: There are no monitoring and trending processes associated with this program **Acceptance Criteria**: Acceptance criteria are no visual indication of cracking of masonry walls, which would invalidate the evaluation basis in response to IEB 80-11. (10)**Operating Experience**: Incorporation of lessons learned from the implementation of IE Bulletin 80-11, USI A-46, and the	There is no need to include USI A-46 program here. It is addressed in Operating Experience. The program is a visual inspection and no preventive actions are identified. The staff has found this acceptable. Cracking is the primary parameter. Frequency does not need to be specified here. Frequency is per the current licensing basis. The NRC staff has found this acceptable. Do not expand criteria previously established.	This NEI proposal had been previously submitted in March 2000. For the August 2000 draft of GALL, this proposal was not considered because it lacked the level of detail needed to clearly define the attributes of an acceptable AMP for masonry walls. GALL XI.S5 was not revised to address this comment. Also see NRC Disposition of NEI Comment G-XI.S5-1 in Appendix B, Table B.2.9-3.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S5-5 (cont.)		MR Inspection should assure the structural integrity of all masonry walls important to safety are adequately managed. This should ensure the structural integrity of the masonry walls within the scope of license renewal is adequately managed for the period of extended operation. Delete Note.	Note has been incorporated in text above in Introduction.	
G-XI.S6-1	XI-S6 Evaluation & Technical Basis (3)	Delete the following statements: "For concrete structural elements, parameters to be monitored or inspected include cracking, spalling, scaling, erosion, corrosion of reinforcing steel, settlements, and deformations. A more complete description of parameters for inclusion in this AMP is presented in ACI 349.3R-96. For steel liners and for joints, coatings, and waterproofing membranes (if any of these three items are relied upon to manage the effects of aging), ACI 349.3R-96 also specifies a description of the parameters to be monitored or inspected. For structural steel elements (including connections), parameters to be monitored or inspected include corrosion, cracking, erosion, discoloration, wear, pitting, gouges, dents, and other signs of surface irregularities. ANSI/ASCE 11-90 provides details for some of these	NEI 96-03 is a more appropriate reference than ACI 349.3, as it was the guidance document actually used by applicants to develop the Structures Monitoring Program for the Maintenance Rule. For example, under acceptance criteria ACI 349.3 specifies acceptance criteria more stringent than the ASME Code. Any reference to ACI 349.3 should state that ACI 349.3 provides guidance on acceptance criteria that may be used. ANSI/ASCE 11-90 is not widely used by the industry to define inspection attributes for structural steel elements. EPRI NP-5380 is an inappropriate reference as it is primarily applicable to construction, not ongoing maintenance of welds. It is not typically the source of industry inspection activities regarding welds.	The quoted text has been deleted. However, the proposed insertion is not appropriate because NEI 96-03 has not been endorsed by the staff for license renewal (see NRC letters to NEI dated October 1, 1996, and September 24, 1997). To clarify the intent, the description in Attribute 3 was revised to indicate that ACI 349.3R-96 and ANSI/ASCE 11-90 are examples of industry codes and standards which can be used to develop or define parameters to be monitored/inspected. The reference to EPRI NP-5380 has been deleted because it does not address inservice inspection. Comparable revisions have been made to Attributes 4 and 6, to address NEI comments G-XI.S6-2 and G-XI.S6-3, in Appendix B, Table B.2.9-3. GALL XI.S6 was revised to address

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S6-1 (cont.)		parameters to be monitored or inspected. For welds, additional details on parameters to be monitored or inspected are provided in EPRI NP-5380." Insert "Specification of parameters to be monitored or inspected should be linked to aging effects. Guidance for parameters monitored/inspected is provided in NEI 96-03." Leave last sentence as is.	EPRI NP-5380 does not address operating inspections of welds. EPRI NP-5380 provides guidelines for construction. The document states that cracks are not permitted. Information on welds should not be identified here.	this comment.
G-XI.S6-2	XI-S6 Evaluation & Technical Basis (4)	Delete the following statements: "As specified in ACI 349.3R-96, "the visual inspection should include all exposed surfaces of the structure, joints and joint material, interfacing structures and materials (e.g., abutting soil), embedments, and attached components such as base plates and anchor bolts." ANSI/ASCE 11-90 specifies that inspection of the physical condition may sometimes require the use of simple physical assistance such as cleaning, scraping, and sounding. Details on detection methods for concrete; steel liners; and joints, coatings, and waterproofing material (if relied upon to manage the effects of aging) are specified in ACI 349.3R-96. Details on detection methods for structural steel (includ-ing connections) are specified in ASNI/ASCE 11-90. Additional details on detection methods for welds are	NEI 96-03 is a more appropriate reference than ACI 349.3, as it was the guidance document actually used by applicants to develop the Structures Monitoring Program for the Maintenance Rule. For example, under acceptance criteria ACI 349.3 specifies acceptance criteria more stringent than the ASME Code. Any reference to ACI 349.3 should state that ACI 349.3 provides guidance on acceptance criteria that may be used. ANSI/ASCE 11-90 is not widely used by the industry to define inspection attributes for structural steel elements. EPRI NP-5380 is an inappropriate reference as it is primarily applicable to construction, not ongoing maintenance of welds. It is not typically the source of industry	See NRC Disposition of NEI Comment G-XI.S6-1 in Appendix B, Table B.2.9-3.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S6-2 (cont.)		specified in EPRI NP-5380. The frequency for the inspection of structures shall be dependent upon the structure, environment, and past performance; however, the frequency shall be no more than ten years. This frequency is in agree-ment with inspection intervals specified in ACI 349.3R-96 for concrete structures and recom-mendations given in NUREG-1522." Replace with: "Guidance for detection is provided in NEI 96-03."	inspection activities regarding welds. EPRI NP-5380 does not address operating inspections of welds. EPRI NP-5380 provides guidelines for construction. The document states that cracks are not permitted. Information on welds should not be identified here.	
G-XI.S6-3	XI-S6 Evaluation & Technical Basis (6)	Delete the following statements: "For concrete structures (including steel liners and joints, coatings, and waterproofing material, if relied upon to manage the effects of aging), Chapter 5 of ACI 349.3R-96 specifies acceptance criteria. Acceptance criteria are specified for 1) acceptance without further evaluation, 2) acceptance after review, and 3) conditions requiring further evaluation. For example, acceptance without further evaluation for concrete is passive cracks in concrete less than 0.4 mm (0.015 in.) in maximum width. Acceptance criteria for visual examination of welds are specified in EPRI NP-5380." Replace with: "Guidance for acceptance criteria is provided in	NEI 96-03 is a more appropriate reference than ACI 349.3, as it was the guidance document actually used by applicants to develop the Structures Monitoring Program for the Maintenance Rule. For example, under acceptance criteria ACI 349.3 specifies acceptance criteria more stringent than the ASME Code. Any reference to ACI 349.3 should state that ACI 349.3 provides guidance on acceptance criteria that may be used. EPRI NP-5380 is an inappropriate reference as it is primarily applicable to construction, not ongoing maintenance of welds. It is not typically the source of industry inspection activities regarding welds. EPRI NP-5380 does not address operating inspections of welds. EPRI	See NRC Disposition of NEI Comment G-XI.S6-1 in Appendix B, Table B.2.9-3. .

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S6-3 (cont.)		NEI 96-03."	NP-5380 provides guidelines for construction. The document states that cracks are not permitted. Information on welds should not be identified here.	
G-XI.S6-4	XI-S6 Evaluation & Technical Basis (7)	Change to "The Structures Monitoring Program should be conducted under 10 CFR 50 Appendix B (Quality Assurance) for Corrective Action, or an existing quality assurance program developed for the Maintenance Rule Program."	Reg. Guide 1.160 Revision 2 recognizes that the Maintenance Rule program includes non-safety related structures and does not require that the licensee develop paper work for BOP to meet the requirements of 10 CFR 50 Appendix B requirements.	Non-safety related structures or components that serve an intended function, in accordance with the criteria provided in 10 CFR Part 54, are within the scope of LR. If aging management of these structures and components is accomplished under an applicant's Structures Monitoring Program, 10 CFR 50 Appendix B applies. In addition, plant-specific QA programs developed for the Maintenance Rule Program cannot be evaluated generically as part of GALL. To reference GALL, Attributes (7), (8), and (9) should be addressed by a commitment to 10 CFR Part 50, Appendix B. Alternatively, a license renewal applicant has the option to describe a plant-specific approach for addressing these attributes, as described in the Appendix to the GALL report. GALL XI.S6 was not revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S6-5	XI-S6 Evaluation & Technical Basis (8)	Change to "The Structures Monitoring Program should be conducted under 10 CFR 50 Appendix B (Quality Assurance), for Confirmation, or an existing quality assurance program developed for the Maintenance Rule Program."	Reg. Guide 1.160 Revision 2 recognizes that the Maintenance Rule program includes non-safety related structures and does not require that the licensee develop paper work for BOP to meet the requirements of 10 CFR 50 Appendix B requirements.	See NRC Disposition of NEI Comment G-XI.S6-4 in this Appendix B, Table B.2.9-3.
G-XI.S6-6	XI-S6 Evaluation & Technical Basis (9)	Change to "The Structures Monitoring Program should be conducted under 10 CFR 50 Appendix B (Quality Assurance), for Administrative Controls, or an existing quality assurance program developed for the Maintenance Rule Program."	Reg. Guide 1.160 Revision 2 recognizes that the Maintenance Rule program includes non-safety related structures and does not require that the licensee develop paper work for BOP to meet the requirements of 10 CFR 50 Appendix B requirements.	See NRC Disposition of NEI Comment G-XI.S6-4 in this Appendix B, Table B.2.9-3.
G-XI.S7-1	Page XI.S7	Add the following Note to the end of the "Introduction" Section: "For plants not committed to RG 1.127, inspection of Water-Control Structures should be inspected under the Maintenance Rule Structural Monitoring Program."	The NRC should recognize that some of the older plants are not committed to RG 1.127 under their CLB. Therefore, applicable water-control structures would be inspected under the Maintenance Rule Structural Monitoring Program.	Aging management of water-control structures under the structures monitoring program (XI.S6) must include the attributes described in XI.S7 to adopt the evaluation conclusion for XI.S7.The following sentence has been added to the Program Description of XI.S7: "For plants not committed to RG 1.127, water-control structures may be included in the Structures Monitoring Program (XI.S6). However, details pertaining to water control structures are to incorporate the attributes described herein." GALL XI.S7 was revised to address this comment.

Table B.2.9-3: Disposition of NEI Structural Comments on Chapter XI of GALL Report (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
G-XI.S7-2	Page XI.S7	Change the second sentence under Item (6) "Acceptance Criteria" to read as follows: "Although not required, acceptance criteria based on the 'Evaluation Criteria' provided in Chapter 5 of ACI 349.3R are acceptable as an option. ACI 349.3R is not mandatory since this document is not part of the Current Licensing Basis of most operating plants."	Item (6) "Acceptance Criteria" identifies ACI 349.3R as an acceptable standard for acceptance criteria to determine the adequacy of observed aging effects for water-control concrete structures. Although Industry does not object to using this standard as a reference, the NRC should recognize that it is not identified within the CLB for operating plants, and therefore should not be considered as a mandatory standard for RG 1.127 inspections under License Renewal.	GALL XI.S7, attribute (6) – Acceptance Criteria has been revised to indicate that, although not required, Chapter 5 of ACI 349.3R provides acceptance criteria that are acceptable. GALL XI.S7 was revised to address this comment.
G-XI.S8-1	Page XI.S23	Delete the Protective Coating Monitoring and Maintenance Program.	This Aging Management Program is not credited for loss of material due to corrosion of steel.	This AMP can be credited for managing loss of material due to corrosion of carbon steel surfaces inside containment. See NRC Disposition of NEI Comment G-IIA1-10 in Appendix B, Table B.2.1. GALL XI.S8 was not revised to address this comment.

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APPENDIX B, TABLE B.2.10

DISPOSITION OF NEI COMMENTS ON CHAPTER 1 OF SRP-LR

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Table B.2.10: Disposition of NEI Comments on Chapter 1 of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-1-1	B.3.7 General	NEI 95-10 should be added as a reference in each section.	This provides the reviewer with insight to the industry recommended process.	The SRP-LR already references NEI 95-10, as appropriate. SRP-LR was revised to address this comment by updating its references to NEI 95-10 to the latest revision.
S-1-2	B.3.7 1.1.3.2	This section should include the 20-year criteria of 1.1.2.2.	Consistency.	10 CFR 54.17(c) does not permit an application for a renewed license to be submitted prior to 20 years before expiration of the current operating license that affects the acceptance of the application for docketing. The timely renewal provision of 10 CFR 2.109(b) does not affect the acceptance of a sufficient application for docketing. An application can be accepted for docketing with less than 5 years of operation remaining under the current license but the provision within 10 CFR 2.109(b) that allows operation beyond the current license period if the staff's review is not complete would not apply. The SRP-LR was revised to address this comment by reformatting and clarifying the SRP-LR, Section 1.1 and Table 1.1-1.
S-1-3	B.3.7 Table 1.1-1	In Item I.4 the 20-year criteria should be moved to Item II Timeliness Provision.	Consistency.	See NRC disposition of NEI comment S-1-2 in this Appendix B, Table B.2.10.

Table B.2.10: Disposition of NEI Comments on Chapter 1 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-1-4	B.3.7 Table 1.1-1	Delete III.1.A.a.and b.	III.1.A.is adequate and consistent with rule requirements. The sufficiency review should verify compliance with the regulation only.	Items III.1.A.a and b have been retained in Table 1.1-1. Although the descriptions of the scoping boundaries for systems and structures discussed in Table 1.1-1, Item III.1.A.a, are not explicitly required by 10 CFR Part 54, both NRC staff and applicant experience with the first renewal applications have established that the boundary information is needed for the staff to verify the completeness and acceptability of the applicant's list of structures and components subject to an AMR (Table III.1.A.b) and the method used to identify them (Table III.1.B). The SRP-LR was revised to address this comment by reformatting and clarifying the SRP-LR, Section 1.1 and Table 1.1-1.
S-1-5	B.3.7 Table 1.1-1	Revise Table 1.1-1, Section III.1.C.b. to read: "Identification of aging effects requiring management based on materials, environment, operating experience, etc."	Section III.1.C.b. states "Identification of applicable aging effects based on materials, environment, operating experience, etc." An "applicable aging effect" is not defined. Suggest substituting the term "aging effects requiring management" as used in NEI 95-10.	See NRC disposition of NEI comment SA.1-2 in this Appendix B, Table B.2.14.

APPENDIX B, TABLE B.2.11

DISPOSITION OF NEI COMMENTS ON CHAPTER 2 OF SRP-LR

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Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-1	General	NEI 95-10 should be added as a reference in each section.	This provides the reviewer with insight to the industry recommended process.	NEI 95-10 is included as a reference in the SRP-LR, Section 2.1, "Scoping and Screening Methodology." The SRP-LR was not revised to address this comment.
S-2-2	2.1.3 Item 3	In the second sentence replace "accident" with "events." Remove the sentence beginning with "however, events such as fire," and the next sentence and replace with "Design basis events are defined as conditions of normal operations, including anticipated operational occurrences, design basis accidents, external events, and natural phenomena for which the plant must be designed to ensure the functions in 54.4(a)(1). See the Branch Technical position beginning on page A.1-1 of the SRP-LR, specifically the design basis event discussion on page A.1-2 in the second paragraph of item 6."	Events not specifically identified in 50.49(b)(1)(ii) are listed – fire, floods, storms, earthquakes, tornadoes and hurricanes. The paragraph should correlate exactly with the definition in 50.49(b)(1)(ii). Additionally SSCs required for compliance with the commission's regulations for fire protection are in scope under 54.4(a)(3).	The word "accident" was replaced by the word "event"; since for a population of events accidents would be a subset of it per 10 CFR 50.49(b)(1)(ii). Fire, floods, storms, earthquakes, tornadoes, and hurricanes are further examples of design basis events and /or anticipated operational occurrences currently used in NUREG-0800 but not addressed in Chapter 15 (Accident Analysis). This is consistent with the definition in §50.49(b)(1)(ii). The SRP-LR, Section 2.1.3, third bulleted-paragraph was revised to address this comment as stated in above paragraph.
S-2-3	2.1.3	Delete item 4.	The LR Rule is deterministic not probabilistic. In 60FR22468: "… [The Commission concludes that it is inappropriate to establish a licensee renewal scoping criterion… that relies on plant-specific probabilistic analyses. Therefore, within the construct of the final rule, PRA techniques are of very limited use for license renewal scoping."	While the LR Rule is "deterministic," the Commission in the SOC of the Rule also states: "In license renewal, probabilistic methods may be most useful, on a plant-specific basis, in helping to assess the relative importance of structures and components that are subject to an aging management review by helping to draw attention to specific

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-3 (cont.)			Further, the guidance in item 4 focuses on drawing " attention to specific vulnerabilities (e.g. results of an IPE or IPEEE)." These evaluations are not parts of the CLB. Staff review of these documents may not provide the information it is seeking. The IPE and IPEEE reports reflect the estimated core damage frequency for the plant configuration at the time the evaluation is performed. These reports also may contain recommendations to modify the plant, revise procedures, or develop training to further reduce the estimated core damage frequency. Some plant modifications may reduce the frequency of initiating events and others may improve the reliability of credited mitigation systems. The IPE and IPEEE reports do not change the CLB by themselves. The plants must perform complete 50.59 reviews and may or may not implement the recommended modifications. Those modifications that are implemented will be reflected in plant drawings, FSAR changes, or technical specification changes, as appropriate. The staff is already reviewing these latter documents, which provide more current information than that which may be contained in the IPE and IPEEE reports.	vulnerabilities (e.g. results of an IPE or IPEEE)." The comment addresses the content of the 4th paragraph in section 2.1.3 of the SRP-LR which provides guidance to the reviewer as to what sources of information are useful for assessing the applicant's CLB. The SRP-LR was not revised to address this comment.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-4	2.1.3	Delete item 5.	The LR Rule is deterministic not probabilistic. In 60FR22468: "… [The Commission concludes that it is inappropriate to establish a licensee renewal scoping criterion… that relies on plant-specific probabilistic analyses. Therefore, within the construct of the final rule, PRA techniques are of very limited use for license renewal scoping." Staff review of the probabilistic documents may not provide the information it is seeking. The IPE and IPEEE reports reflect the estimated core damage frequency for the plant configuration at the time the evaluation is performed. These reports also may contain recommendations to modify the plant, revise procedures, or develop training to further reduce the estimated core damage frequency. Some plant modifications may reduce the frequency of initiating events and others may improve the reliability of credited mitigation systems. The IPE and IPEEE reports do not change the CLB by themselves. The plants must perform complete 50.59 reviews and may or may not implement the recommended modifications. Those modifications that are implemented will be reflected in plant drawings, FSAR changes, or technical specification changes, as	See NRC disposition of NEI comment S-2-3 in this Appendix B, Table B.2.11.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-4 (cont.)			appropriate. The staff is already reviewing these latter documents which provide more current information than that which may be contained in the IPE and IPEEE reports.	
S-2-5	2.1.3.1	Add the following as the last sentence in the first paragraph of 2.1.3.1: "Usually plants will already have a list of those systems, structures, and components identified for compliance with other regulations in the plants CLB that contain identical scoping criteria, such as NRC Regulatory Guide 1.29 or 10CFR100, Appendix A."	This change gives credit to work already completed by the applicant and reviewed and approved by the NRC under 10 CFR Part 50. Such credit would make the staff review more efficient. The NRC staff indicated agreement with a change containing this concept at a public meeting about the SRP-LR on July 18, 2000.	LR applicants can rely on pre-existing lists of SSCs identified for compliance with other regulations to demonstrate §54.4(a) requirements have been satisfied. The SRP-LR, Section 2.1.3.1 was revised to address this comment by adding a sentence to the 1st paragraph.
S-2-6	2.1.3.1.2	Revise the last paragraph of Section 2.1.3.1.2 to read: "It is important to note that the scoping criterion under 10 CFR 54.4(a)(2) specifically applies to those functions 'identified in paragraph (a)(1)(i), (ii), and (iii)' of 10 CFR 54.4 and does not apply to those functions identified in 10 CFR 54.4(a)(3)."	The last paragraph states, *"On the basis of the staff's experience to date, it is important to clarify that the scoping criterion under 10 CFR 54.4(a)(2) specifically applies to those functions 'identified in paragraph (a)(1)(i), (ii), and (iii)' of 10 CFR 54.4. An applicant need not extend this requirement to the scoping criteria under 10 CFR 54.4(a)(3), as is discussed below."* The way this is written (O*n the basis of the staff's experience…*) it implies that staff judgement was necessary to determine that §54.4(a)(2) does not apply to §54.4(a)(3) and that based on staff judgement this could	The rule as written is clear in that the scoping requirements of 10 CFR 54.4(a)(2) do not need to be extended into the scoping criteria of 10 CFR 54.4(a)(3). The SRP-LR, Section 2.1.3.1.2 , was revised to address this comment by revising the last paragraph.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-6 (cont.)			change (…*to date…)* in the future. As the regulation is clear, there is no judgement necessary.	
S-2-7	2.1.3.1.3	In the third paragraph remove "and operate within." Also in the fifth paragraph remove "or operation within."	The regulation does not state "demonstrate compliance with and operation within the Commission's regulations."	10 CFR 50.54(a)(3) includes within the scope of the rule all "SSCs relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations" for the five specific cases listed. The SRP-LR, Section 2.1.3.1.3, 3RD and 5th paragraphs were revised to address this comment to align their wording with that of the regulation.
S-2-8	2.1.3.1.3	In the third full paragraph excluding the quote, remove "based on the applicant's design specifications for the diesel,"	The example in this paragraph regarding the diesel goes beyond the rule and conflicts with other sections of the SRP-LR when it refers to the design specifications for the diesel. The 3rd paragraph further down has more appropriate wording,"that is, whose functions were credited in the analysis or evaluation."	See NRC disposition of NEI comment S-2-7 in this Appendix B, Section B.2.11. The SRP-LR, Section 2.1.3.1.3, 3RD full paragraph was revised to address this comment to align its wording with that of the regulation.
S-2-9	2.1.3.1.3	Restate the third sentence of fifth paragraph to read: "For example, if a nonsafety-related diesel generator is only relied upon to remain functional to demonstrate compliance with the Commission SBO regulations, an applicant need not consider the following SSCs:"	This comment clarifies provides a firmer statement.	See NRC disposition of NEI comment S-2-7 in this Appendix B, Table B.2.11. The SRP-LR, Section 2.1.3.1.3, 5th paragraph was revised to address this comment to align its wording with that of the regulation.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2–10	2.1.3.2.1	Revise the last paragraph of Section 2.1.3.2.1 to read: "10 CFR 54.21(a)(1)(i) explicitly excludes instrumentation, such as pressure transmitters, pressure indicators, and water level indicators, from an aging management review. The applicant does not have to identify pressure retaining boundaries of this instrumentation because 10 CFR §54.21(a)(1)(i) excludes this instrumentation without exception, unlike pumps and valves. Further, instrumentation is sensitive equipment and degradation of the pressure retaining boundary of the instrumentation would be readily determinable by the extensive surveillance and testing. If an applicant determines that certain structures and components listed in Table 2.1-5 as meeting 10 CFR 54.21(a)(1)(i) does not meet that requirement for its plant, the reviewer reviews the applicant's basis for that determination.	The last paragraph of Section 2.1.3.2.1 states: *"10 CFR 54.21(a)(1)(i) explicitly excludes instrumentation, such as pressure transmitters, pressure indicators, and water level indicators, from an aging management review. If an applicant determines that certain structures and components listed in Table 2.1-5 as meeting 10 CFR 54.21(a)(1)(i) do not meet that requirement for its plant, the reviewer reviews the applicant's basis for that determination."* The same paragraph in the SRP-LR Working Draft, September 1997, stated: "10 CFR 54.21(a)(1)(i) explicitly excludes instrumentation, such as pressure transmitters, pressure indicators, and water level indicators, from an aging management review. The applicant does not have to identify pressure retaining boundaries of this instrumentation because 10 CFR §54.21(a)(1)(i) excludes this instrumentation without exception, unlike pumps and valves. Further, instrumentation is sensitive equipment and degradation of the pressure retaining boundary of the instrumentation would be readily determinable by the extensive surveillance and testing."	Instrumentation like pressure transmitters, pressure indicators, and water level indicators is excluded from being subject to aging management review by 10 CFR 54.21(a)(1)(i). In addition, their pressure retaining boundaries do not have to be identified per the staff's position since degradation can be determined by an applicant's surveillance and testing records. The SRP-LR, Section 2.1.3.2.1, last paragraph was revised to address this comment to align its wording with that of the staff's position.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2–10 (cont.)			REFERENCE: Letter from Dennis M. Crutchfield of NRC to Charles H. Cruse of Baltimore Gas and Electric, dated April 4, 1996. This documented NRC position taken regarding instrumentation would be helpful for future NRC reviewers and should be retained in the SRP-LR.	
S-2-11	Table 2.1-1	Delete "Probabilistic Risk Assessment summary report."	The LR Rule is deterministic not probabilistic. In 60FR22468: "… [The Commission concludes that it is inappropriate to establish a licensee renewal scoping criterion… that relies on plant-specific probabilistic analyses. Therefore, within the construct of the final rule, PRA techniques are of very limited use for license renewal scoping." The PRA is not part of the CLB. Staff review of this document may not provide the information it is seeking. The PRA report reflects the estimated core damage frequency for the plant configuration at the time the evaluation is performed. This report also may contain recommendations to modify the plant, revise procedures, or develop training to further reduce the estimated core damage frequency. Some plant modifications may reduce the frequency of initiating events and others may improve the reliability of credited mitigation	See NRC disposition of NEI comment S-2-3 in this Appendix B, Table B.2.11.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-11 (cont.)			systems. The PRA report does not change the CLB by themselves. The plants must perform complete 50.59 reviews and may or may not implement the recommended modifications. Those modifications that are implemented will be reflected in plant drawings, FSAR changes, or technical specification changes, as appropriate. The staff is already reviewing these latter documents, which provide more current information than that which may be contained in the PRA report.	
S-2-12	Table 2.1-1	Delete "Emergency operating procedures."	EOPs are not sources of information regarding evaluations or analyses for design basis events or regulated events.	EOPs were developed to cope with analyzed plant-specific transients and accidents in accordance with NUREG-0737, Item I.C.1 requirements. While EOPs deal with some transients and/or accidents not bound by plant-specific CLBs, EOPs nonetheless constitute a valuable source of information regarding both the facility's CLB and its design basis events. The SRP-LR was not revised to address this comment.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2–13	Table 2.1-2	Revise the third sentence under Commodity Groups to read: "The basis for grouping structures and components can be determined by such characteristics as similar function, similar design, similar materials of construction, similar aging management practices, or similar environments."	Sentence 3 does not consider a grouping based on similar function. Function is a valid basis for grouping as this is the basis for all electrical commodity groups in SRP-LR Table 2.1-5.	Grouping components by function is similar to that of grouping them based on design or environment with function being more bearing on their intended safety function or that of their associated component. The SRP-LR, Table 2.1-2 was revised to address this comment to revising the line item for Commodity Groups to include grouping of components based on function.
S-2-14	Table 2.1-2	Remove the reference to NUREG 1723 in the Complex assemblies row. The staff could add an example of complex assemblies from NUREG 1705, Section 2.2.3.22.2.2.		Although NUREG-1705 discusses complex assemblies, the Example 5 in Appendix C of NEI 95-10, Revision 0, better illustrates the evaluation guidance contained in SRP-LR Table 2.1-2 and NEI 95-10, Section 4.1.1. The SRP-LR, Table 2.1-2 was revised to address this comment.
S-2-15	Table 2.1-4	Reword the fifth function as "Provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals."	This provides a more accurate description of the function of cable.	Clarification on the function of an electrical cable. The SRP-LR, Table 2.1-4, fifth function under 'Components' was revised to address this comment as noted.
S-2–16	Table 2.1-5	Delete motor items 65 and 66.	These motors are examples of the motor commodity group and are already included in the Motors, Generators commodity group.	Inconsistency corrected in NEI 95-10, Rev. 3. The SRP-LR Table 2.1-5 was revised to address this comment by adopting NEI 95-10, Rev. 3.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-17	Table 2.1-5	Remove entry 107 for terminal blocks. Entry 77 should say "Annunciators" and Entry 98 should say "Regulators" The notes regarding references for entries 83, 86, 92, 105 should refer to NRC letters, which provided the passive/active determination for these components. For entry 83 it should be letters from C.I. Grimes to D.J. Walters dated September 19, 1997and November 19, 1999. For entry 86 it should be the letter from C.I. Grimes to D.J. Walters dated April 27, 1999. For entry 92 it should be the letter from C.I. Grimes to D.J. Walters dated September 19, 1997. For entry 105 it should be the letter from C.I. Grimes to D.J. Walters dated September 19, 1997.	Terminal blocks are included in entry 79. The second comment corrects the table. The third clarifies references.	See NRC disposition of NEI comment S-2-16 in this Appendix B, Table B.2.11.
S-2-18	Table 2.1-5	Revise this Item 89 to read: "Surge Arresters (e.g., switchyard surge arresters, lightning arresters, surge suppressers, surge capacitors, protective capacitors, reactors)"	Surge arresters that are separate components have applications other than just high-voltage. Suggest dropping "High-voltage" from the name of the commodity group. In continuing license renewal electrical work reactors, another type of surge arrester, was identified that would be helpful to have in the list of examples.	See NRC disposition of NEI comment S-2-16 in this Appendix B, Table B.2.11.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-19	Table 2.1-5	Change Item 96 to read: "Radiation Monitors (e.g., area radiation monitors, process radiation monitors)" and change the passive determination to "No". Change Item 85 to read: "Elements, RTDs, Sensors, Thermocouples, Transducers (e.g., conductivity elements, flow elements, temperature sensors, radiation sensors, watt transducers, thermocouples, RTDs, vibration probes, amp transducers, frequency transducers, power factor transducers, speed transducers, var. transducers, vibration transducers, voltage transducers)" Change Item 106 to read: "Transmitters (e.g., differential pressure transmitters, pressure transmitters, flow transmitters, level transmitters, radiation transmitters, static pressure transmitters)"	The original SRP-LR table had the three items; Radiation Sensors, Radiation Monitors and Radiation Transmitters listed as separate items. Radiation Sensors was the only item associated with a pressure boundary in the table. Combining these three separate items is not consistent with the rest of the table under Electrical and I&C in combining into commodity groups.	See NRC disposition of NEI comment S-2-16 in this Appendix B, Table B.2.11.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2–20	2.2.3	Revise second sentence of Section 2.2.3, Paragraph 1 to read: "Should the reviewer request additional information from the applicant regarding why a certain system or structure was not identified by the applicant as within the scope of license renewal for the applicant's plant, the reviewer should provide a plant specific CLB reference and the specific scoping criterion under which the reviewer believes the system or structure scopes in."	The second sentence of Section 2.2.3, Paragraph 1 states: *"Should the reviewer request additional information from the applicant regarding why a certain system or structure was not identified by the applicant as within the scope of license renewal for the applicant's plant, the reviewer should provide a brief description of why the reviewer believes that this particular system or structure could be potentially within the scope of license renewal."* The above guidance of providing a brief statement is vague and may not prevent an applicant from having to "prove the negative". The "brief statement" guidance should be expanded to instruct the reviewer to provide a plant specific CLB reference for the system and the specific scoping criterion under which the reviewer believes the system scopes in. It is the responsibility of the reviewer to explain why they believe a specific system or structure that the applicant scoped out is in the scope of license renewal.	If the reviewer questions why a certain system or structure was not within scope in an application and requests additional information from the applicant then he or she should provide the applicant with a brief description of why the SSC may be viewed as within the scope of the license renewal. The SRP-LR, Section 2.2.3, 1st paragraph was revised to address this comment.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-21	2.2.3.1	The last three full paragraphs: these were added since last draft and refer to components, rather than systems and structures. They seem out of place. They should go in the screening section. If the intention was to add these paragraphs here, they should refer to systems and structures.	Consistency with the purpose of the section.	This section of SRP-LR is concerned with systems and structures not components so the word "components" was changed to "systems and structures." The SRP-LR, subsection 2.2.3.1, was revised to address this comment by changing the last and third from the last paragraphs as noted and deleting the second from the last paragraph.
S-2-22	2.3.3.1	Remove this section. This change makes this section consistent with 2.4.	The Rule does not require an applicant to identify structures and components in the scope of license renewal in an application. An application must contain an identification of structures and components that require aging management review. Please see pages 60 and 61 of NEI 95-10, revision 2, for industry guidance regarding contents of the Scoping and Screening sections of a License Renewal Application. The SRP-LR should focus on the actual expected contents of an application.	Clarification on the intent of rule in regard to the basis for requiring structures and systems to be identified in an application. The SRP-LR was revised to address this comment by revising Section 2.4 to be consistent with Section 2.3 and revising subsection 2.3.3.1 in Section 2.3 to meet the intend of the comment.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-23	2.3.3.2	In the first paragraph remove the second sentence.	A license renewal application will not contain a list of components in the scope of license renewal. Please see pages 60 and 61 of NEI 95-10, revision 2, for industry guidance regarding contents of the Scoping and Screening sections of a License Renewal Application. The SRP-LR should focus on the actual expected contents of an application.	Clarification on the intent of rule in regard to the basis for requiring structures and systems to be identified in an application. The SRP-LR, Section 2.3.3.2 was revised to address this comment by eliminating the words "if they" in the third sentence and by revising Section 2.4 to be consistent with Section 2.3.
S-2-24	2.3.3.2	Paragraph 2 states "Although Table 2.1-5 is extensive, it is not all inclusive. Thus, the reviewer should use other available information sources, such as prior application reviews, to determine whether a component is subject to an aging management review." Sections 2.4 and 2.5 do not contain these words. This statement should be removed from Section 2.3. A combination of Table 2.1-5 and other NRC guidance should be sufficient.	Inclusion of a component by a license renewal applicant is not indicative of the need for a following applicant to include a similar component as the current licensing bases and scoping and screening methodologies of the two applicants may be different.	Scoping is plant specific depending on a plant's CLB. Each application is for a different plant and as such can be different in regard to the components identified and scoped in it under the rule. The SRP-LR, Section 2.3.3.2 was revised to address this comment by revising the 2nd paragraph by replacing the verb "is" by "may be" and by adding the same sentence to Sections 2.4 and 2.5.
S-2-25	2.5.1	Remove the third paragraph as system level scoping is addressed in section 2.2.	The third paragraph reiterates information already provided in section 2.2. This section is addressing components requiring aging management review; therefore, this paragraph is not needed for the reviewer.	Section 2.5 is a stand alone section and has a different intent than Section 2.2, thus the information in it is not a mere repeat of the wording in Section 2.2. The SRP-LR was not revised to address this comment.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-26	2.5.1	In the fourth paragraph indicate that the "plant spaces" approach may be used. It is not required.	The License Renewal Rule does not require use of SAND96-0344. An applicant may use another method that complies with rule requirements.	An applicant may use any method to meet the requirement of the rule including the 'plant spaces' approach. The SRP-LR, Section 2.5.1, 4th paragraph was revised to address this comment by changing the words "an applicant would" to "an applicant may".
S-2-27	2.5.1	Revise the last sentence of the fifth paragraph to read: "For the above example, if the applicant identified elevated temperatures in a particular area within the turbine building, the applicant may elect to further refine the scope in this particular area by identifying electrical equipment that is not subject to an aging management review and excluding this equipment from the aging management review. In this case, the excluded electrical equipment would be reported in the application as not subject to an aging management review." (Colaianni, Duke)	The last sentence in Section 2.5.1, paragraph 5, does not follow the way scoping in a specific area would be reported in the application when using the plant spaces approach. The space approach starts with the assumption that all passive long-lived electrical and I&C components subject to an aging management review. During the aging management review when a plant area that could be adverse to equipment is identified, the specific equipment in the area is identified in order to eliminate all equipment that does not meet the scoping criteria. In most cases this eliminates all electrical equipment in the area from the scope of review. Since a scoping evaluation was performed to exclude equipment from the aging management review, the excluded equipment would be reported in the application in a manner such as, "All non-EQ cables and connections are subject to an aging management	The example cited in the comment did not properly illustrate the 'plant spaces' approach. The SRP-LR, Section 2.5.1, 5th paragraph was revised to address this comment by revising the last sentence.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-27 (cont.)			review excluding cables and connections used for the nonsafety-related thermocouples in the in-core instrumentation system."	
S-2-29	2.5.1.1 and 2.5.1.2	Delete Sections 2.5.1.1 and 2.5.1.2. Also delete the sentence before 2.5.1.1.	Sections 2.5.1.1 and 2.5.1.2 are not duplicated in the Mechanical Systems and Structures sections (2.3 and 2.4 respectively) and it seems to be a duplication of the material covered in Section 2.5.3, Review Procedures.	Clarification of intent of Section 2.5 to be consistent with Sections 2.3 and 2.4.. The SRP-LR, Sections 2.5.1.1 and 2.5.1.2 were revised to address this comment by deleting those sections and the sentence just prior to Section 2.5.1.1.
S-2-30	2.5.3	Revise the third paragraph to read: "Equipment in the EQ (10 CFR 50.49) program has a qualified life and is replaced at the end of its qualified life. With a qualified life, EQ equipment does not meet the 'long-lived' screening criteria and is not subject to an aging management review. However, the qualified life analyses that provide the basis for a 40-year or greater qualified life are TLAAs for license renewal. The staff reviews the applicant's EQ TLAA evaluation separately following the guidance in Section 4.4 of this standard review plan."	*"The scope of 10 CFR 50.49 electric equipment to be included within 10 CFR 54.4(a)(3) is that 'long-lived' (qualified life of 40-years or greater) equipment already identified by licensees under 10 CFR 50.49(b), which specifies certain electric equipment important to safety."* The scope of §50.49 (EQ) equipment to be included within §54.4(a)(3) is all EQ equipment, not just EQ equipment with a 40-year or greater qualified life. The sentence implies that the 'long-lived' screening criteria applies only to SSCs that are subject to replacement based on a qualified life or specified time period equal to or greater than 40 years. There is no basis for this limitation of the §54.21(a)(1)(ii) criteria in either 10	The SRP-LR, Section 2.5.3, 3rd paragraph is consistent with the intent of 10 CFR 54.4(a)(3). The SRP-LR was not revised to address this comment.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-30 (cont.)			CFR 54 or in the accompanying Statement of Considerations. *"An applicant may identify EQ equipment separately for TLAA evaluation and not include such equipment as subject to an aging management review under 10 CFR 54.21(a)(1)."* Equipment in the EQ program has a qualified life and is replaced at the end of its qualified life. With a qualified life EQ equipment does not meet the long-lived screening criteria and is not subject to an AMR. The sentence is misleading in that no EQ equipment is required to be included in the list of components subject to an AMR. Much of the information in this paragraph is TLAA evaluation specific and may confuse future reviewers as to the difference between 'long-lived' screening and TLAA evolution regarding EQ equipment.	

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-31	2.5.3.1	Revise this section. This change makes this section consistent with 2.4 and 2.3 as revised.	The Rule does not require an applicant to identify structures and components in the scope of license renewal in an application. An application must contain an identification of structures and components that require aging management review.	See NRC disposition of NEI comment S-2-22 in this appendix, Section B.2.11. The SRP-LR was revised to address this comment by making Section 2.5.3.1 consistent with Sections 2.3 and 2.4.
S-2-32	2.5.3.2	Delete the last sentence of paragraph 2, Section 2.5.3.2.	The last sentence of paragraph 3 states, *"An applicant should justify omitting a component that is within scope of license renewal at their facility and is listed as 'passive' in Table 2.1-5."* This information is not required by 10 CFR 54 to be provided in the application, but would be available for on-site inspection at the applicant's facility. An applicant is required to list in the application components subject to an aging management review and describe and justify the methodology, but not to justify why any specific component is not subject to an aging management review.	The information referred to is not required by 10 CFR 54, but available on-site. The SRP-LR, Section 2.5.3.2, 2nd paragraph was revised to address this comment by deleting the last sentence.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-33	2.1.2	Second bullet: should say “systems, structures, and components”	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-34	2.1.3.2.2	The quote from the SOC should in the middle read “… with a specified time period is deemed …”	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-35	2.1.6	Reference 11 is a duplicate of reference 8.	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-36	Table 2.1-3	Change column heading “Subject” to “Issue.”	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-37	2.2.3.1	The fourth full paragraph says “internal functions”, should instead say “intended functions.”	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-38	2.2.3.1	In the sixth paragraph beginning “An applicant may...” Insert “that” between “indicating” and “the”	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-39	2.3.1	In the fifth paragraph beginning “Mechanical components...” delete “(or must).”	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.

Table B.2.11: Disposition of NEI Comments on Chapter 2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-2-40	2.3.3.2	In the first paragraph the third line from end should read, "...AMR, components that perform..."	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-41	2.4.1	The items in the third bullet are components rather than structures and should be included in the sentence following the bullets.	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-42	2.4.3.1	The fourth paragraph from end and last paragraph say essentially the same thing.	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.
S-2-43	2.5.1	In the second paragraph insert "to" after "staff" in the fifth line from end.	Editorial Comment	Clarification to ensure consistency. The SRP-LR was revised to address this comment.

APPENDIX B, TABLE B.2.12

DISPOSITION OF NEI COMMENTS ON CHAPTER 3 OF SRP-LR

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Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-1	SRP-LR 3.1	SRP-LR Section 3.1.1 Areas of Review, describes "connected systems." Statements describing the "connected systems" should be deleted.	SRP-LR 3.1 covers the aging management review of the reactor coolant systems. Connected systems are not part of the review of the reactor coolant system.	The section SRP-LR 3.1 covers the reactor vessel, vessel internals, and the reactor coolant system (including connected systems). Connected systems up to the second containment isolation valve were included in this chapter to keep Class 1 components with similar programs together in the GALL report. The title of SRP-LR 3.1 was changed to be consistent with the GALL report. The title of SRP-LR 3.5 was also changed to be consistent with GALL Chapters II and III. The SRP-LR was revised to address a portion of this comment as stated in above paragraph.
S3.1-2	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Inservice Inspection	GALL Section I applies. The presentation of the Inservice Inspection program in the GALL is different than any other program evaluated in the GALL that is relied upon for license renewal. What specifically is an applicant supposed to do that allows this program to be credited without further review?	Chapter 1 of the GALL report, Vol. 2, "Application of the ASME Code," does not give specifics of a 10-element inservice inspection program. XI.M1, "ASME, Section XI, Inservice Inspection, Subsections IWB, IWC, and IWD" in NUREG-1801, Vol. 2 does. In places where ISI is acceptable, no further evaluation is annotated in the further evaluation column. The SRP-LR was not revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-3	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Water Chemistry	GALL Section XI.M.11 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XIM11-1 through G-XI.M11-2 in this Appendix B, Table B.2.9-2. The SRP-LR was revised to address this comment to make it consistent with the GALL report.
S3.1-4	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Minimization and Control of SCC Delete this program from all locations in all documents.	For PWRs, this topic is discussed in GALL IV.A2.1.3. Regulatory Guide 1.65 is referenced within this GALL entry. Regulatory Guide 1.65 entitled, "Materials and Inspections for Reactor Vessel Closure Studs," which was published in 1973 was reviewed by the B&W Owners Group during the licensing of BAW-2251, "Demonstration of the Management of Aging Effects for the Reactor Vessel." In a letter to the NRC staff dated April 1, 1997 (Project No.683), the B&WOG addressed Regulatory Guide 1.65 in response to RAI # 14. In brief, the B&WOG concluded that all recommendations (i.e., examination methods and acceptance standards) of the RV studs in Regulatory Guide 1.65 have been superceded by the current examination requirements specified in the 1989 Edition of ASME Section XI. The examination requirements specified in ASME Section XI, Examination Category B-	See NRC disposition of NEI comments G-IVA2-3 in this Appendix B, Table B.2.3. References to the design requirements of Regulatory Guide 1.65 were removed from the GALL report as recommended in NEI comment G-IV A2-3 in Appendix B and in this comment. However, the preventive features of Regulatory Guide 1.65 remain in GALL Chapter XI.M3. Also, programs were not deleted from the SRP-LR for minimization and control of SCC as a result of this comment. The SRP-LR was not revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-4 (cont.)			G-1 are sufficient to manage that potential for IGSCC of the RV studs during the period of extended operation.	
S3.1-5	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Fatigue Monitoring Program	GALL Section X.M1 applies. Refer to comments on Aging Management programs.	The SRP-LR was revised to address this comment by deleting fatigue monitoring program from section 3.1 because it is addressed in Table 4.3-2.
S3.1-6	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Bolting Integrity	GALL Section XI.M.12 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XIM12-1 through G-XIM12-4 in this Appendix B, Table B.2.9-2. The SRP-LR was not revised to address this comment.
S3.1-7	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Reactor Vessel Surveillance	GALL Section XI.M.13 applies. Refer to comments on Aging Management programs.	There were no NEI comments on Chapter XI, program M13. The SRP-LR was not revised to address this comment.
S3.1-8	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Boric Acid Corrosion	GALL Section XI.M.5 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XIM5-1 through G-XIM5-2 in this Appendix B, Table B.2.9-2. The SRP-LR was revised to address this comment to make it consistent with the GALL report.
S3.1-9	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Thermal Aging and neutron irradiation embrittlement (CASS)	GALL Section XI.M.2 applies. Refer to comments on Aging Management programs.	There were no NEI comments on Chapter XI, program M2. The SRP-LR was not revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-10	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Flow Accelerated Corrosion	GALL Section XI.M.6 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment G-XIM6-1 in this Appendix B, Table B.2.9-2. The SRP-LR was revised to address this comment to make it consistent with the GALL report.
S3.1-11	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Quality Assurance	GALL Appendix A and SRP-LR Appendix A.2 apply. Refer to comments on Aging Management programs.	Quality Assurance for Aging Management of Nonsafety-Related Components is described in Branch Technical Position IQMB-1 (Appendix A.2 of the standard review plan.) The SRP-LR was not revised to address this comment.
S3.1-12	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Vessel Closure Head Penetrations Delete the requirement for further review of this program in SRP-LR 3.1.2.2.7.	GALL Section IV A2.2.1 applies. The applicable GALL section states "No Further Evaluation Recommended" as does Table 3.1-1 of the SRP-LR. Actions will be taken by the applicant to address this topic within the bounds of the program.	There is no further evaluation necessary for item A2.2.1, "CRD pressure housing," in chapter IV of the GALL report. SRP-LR statement 3.1.2.2.7 does not apply to this item. The SRP-LR was not revised to address this comment since there is no further evaluation required.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-13	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Steam Generator Tube Integrity	GALL Sections IV D1.2.1, D1.2.3, D2.2.1, and D2.2.2 apply. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-IVD1-3 through G-IVD1-8 in this Appendix B, Table B.2.3. There were no NEI comments on item numbers D1.2.3, D2.2.1, and D2.2.2 The SRP-LR was revised to address this comment by making conforming changes consistent with changes to the Steam Generator Tube Integrity Program.
S3.1-14	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Loose Part monitoring Delete this program from all locations in all documents.	ASME Section XI, Examination Category B-N-3 has been found to be acceptable to manage loss of prestress by the staff in previous reviews. (i.e., BAW-2248, NUREG-1723). Operating experience provided in GALL IV B2.1.7 does not support the assertion that loose parts monitoring is an effective program to detect loss of preload from stress relaxation.	See NRC disposition of NEI comment G-IV-6 in Appendix B, Table B.2.3. ISI alone was considered inadequate in the Oconee SER. The SRP-LR was not revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-15	SRP-LR 3.1	AMPs Evaluated in the GALL report that are Relied on for License Renewal – Neutron Noise monitoring Delete this program from all locations in all documents.	ASME Section XI, Examination Category B-N-3 has been found to be acceptable to manage loss of prestress by the staff in previous reviews. (i.e., BAW-2248, NUREG-1723). Operating experience provided in GALL IV B2.1.7 does not support the assertion that neutron noise monitoring is an effective program to detect loss of preload from stress relaxation.	See NRC disposition of NEI comment G-IV-6 in this Appendix B, Table B.2.3. ISI alone was considered inadequate in the Oconee SER. The SRP-LR was not revised to address this comment.
S3.1-16	SRP-LR 3.1	SRP-LR 3.1.2.2.2 addresses loss of material due to pitting and crevice corrosion in the steam generator shell assembly and refers to IN 90-04. GALL Sections (IV D1.1.3, 1.1.4, 2.1.4) apply. This requirement should be deleted.	IN 90-04, Cracking of the Upper Shell-to-Transition Cone Girth Welds in Steam Generators was issued to alert licensees to problems related to cracking of the upper shell-to-transition cone girth welds in certain steam generators. The aging mechanism is related to the weld itself. The cracking was found during a scheduled ISI. While a common factor was general corrosion pitting on the inside surface of the SGs, the cracks were initiated at the welds not in the base metal. IN 90-04 does not appear to support the GALL/SRP-LR conclusion that further evaluation is necessary. General corrosion pitting of base metal remote from the weld is not likely to result in a loss of component intended function.	See NRC disposition of NEI comment GIV D1-1 in this Appendix B, Table B.2.3. The SRP-LR was not revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-17	SRP-LR 3.1	SRP-LR 3.1.2.2.3, 2nd paragraph should be revised to read as follows: "Appendix H of 10 CFR 50, Section III.B.3 requires staff review of the plant surveillance program for the period of licensed operation."	While it is true that the GALL recommends staff approval, the more correct reason is that such review and approval is required by the regulations.	Staff review is required of surveillance programs for period of licensed operation. The SRP-LR was revised to address this comment by modifying Section 3.1.2.2.3, second paragraph per the comment.
S3.1-18	SRP-LR 3.1	SRP-LR 3.1.2.2.3, 3rd paragraph states that the GALL report recommends an enhanced inservice inspection to detect tight cracks and supplemental examinations for crevice regions of reactor pressure vessel beltline shell and nozzles. Contrary to what the SRP-LR states, there are no such recommendations in the GALL report. This statement should be deleted.	The pertinent GALL report locations for the reactor vessel beltline shell and nozzles are IV.A2.5 and IV A2.3. Both sections address loss of fracture toughness. Neither section identified the recommendation for further evaluation nor the basis for such an issue.	The third paragraph of SRP-LR 3.1.2.2.3 recommending an enhanced ISI and supplemental examinations was not consistent with GALL and was an error. Therefore, the recommendation was removed from the SRP-LR to be consistent with the GALL report. The SRP-LR was revised to address this comment.
S3.1-19	SRP-LR 3.1	SRP-LR 3.1.2.2.4 states that unanticipated thermal and mechanical loading can cause crack initiation and growth. This requirement should be deleted.	SRP-LR A.1.2.1 discusses the process to determine applicable aging effects. Item number 6 specifically states that "abnormal events need not be postulated specifically for license renewal." Unanticipated thermal and mechanical loading is an abnormal event that is outside the design of the plant.	See NRC disposition of NEI comments G-IVC2-3 through G-IVC2-5 in Appendix B, Table B.2.3. GALL was revised to remove the wording "unanticipated" from thermal and mechanical loading. The SRP-LR, Section 3.1.2.2.4, was revised to address this comment consistent with the changes in the GALL report.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-20	SRP-LR 3.1	SRP-LR Sections 3.1.2.2.4 and 3.1.2.2.7 SRP-LR States that GALL recommends enhanced inspection and one-time inspections for small bore piping. The statement needs to be revised to state: GALL recommends one-time inspections for small bore piping.	GALL Chapter IV item C2.1.5 applies to this comment. This GALL section does not recommend enhanced inspections. It only recommends the one-time inspection.	The words “enhanced inspection” were removed from the GALL report on Page C2-9, the last sentence under “Aging Management Programs.” A plant-specific destructive examination or a nondestructive examination (NDE) that permits inspection of the inside surfaces of the piping needs to be conducted to ensure that cracking has not occurred and the component intended function will be maintained during the extended period is the recommendation of GALL for small bore piping. The SRP-LR, Sections 3.1.2.2.4 and 3.1.2.2.7, were revised to address this comment.
S3.1-21	SRP-LR 3.1	Section 3.1.2.2.7 indicates that further evaluation is recommended of CRD nozzles (page 3.1-5). This statement should be deleted.	GALL IV A2.2.1 also indicates that there are actions for the applicant to take but that no further evaluation is recommended by the staff. Also Table 3.1-1, PWR, CRD nozzle item (page 3.1-20) indicates that no further evaluation is recommended.	Program M11, “Nickel-Alloy Nozzles/ and Penetrations,” was placed in Chapter XI of GALL. An applicant that meets this program is not required to provide further evaluation. Table 3.1-2 was also modified to reflect that this is an existing program. The SRP-LR was revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-22	SRP-LR 3.1	Section 3.1.2.2.7 indicates that further evaluation is required to address the potential for cracking of cladding remote from the welds (GALL D1.1.9). This statement needs to be deleted.	The GALL basis for this requirement relies inappropriately on inadvertent introduction of contaminants into the RCS. This activity is an abnormal event and need not be specifically postulated for license renewal unless the event has occurred at the plant. (SRP-LR A.1.2.1) Welds and the heat-affects zones adjacent to them are inspected because they are known to be the leading indicator of potential cracks. The consideration of potential cracks beyond the welds and HAZ is not required in order to provide reasonable assurance that the intended functions will be maintained during the period of extended operation.	It is true that SRP-LR A.1.2.1, item 6, indicates that aging effects from abnormal events need not be postulated specifically for license renewal. However, if an abnormal event has occurred at a particular plant, its contribution to the aging effects on structures and components for license renewal should be considered for that plant. For example, if a resin intrusion has occurred in the reactor coolant system at a particular plant, the contribution of this resin intrusion event to aging should be considered for that plant. The SRP-LR was revised to address this comment.
S3.1-23	SRP-LR 3.1	Sections 3.1.3.2.2, 3.1.3.2.3, 3.1.3.2.4 and 3.1.3.2.7 need to be revised to be consistent with the equivalent revisions to the 3.1.2 sections listed above.	Conforming changes, technical justification provided above.	This is a conforming change. SRP-LR, section 3.1.3, was revised to address this comment by making it consistent with changes made in SRP-LR section 3.1.2.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-24	SRP-LR 3.1	Table 3.1-1 should be revised to include the specific GALL sections that apply to the specific component group. Merge Table 1 of GALL Volume 1 with Table 3.3-1.	See Generic comments covering all aging management program summary tables.	Table 1 of GALL Volume 1 was designed as a TOC or pointer to assist the applicant in finding the components in GALL. Table 3.1-1 was designed for easy reference to the NRC reviewer and it was determined that duplication was not desired. The SRP-LR was not revised to address this comment.
S3.1-25	SRP-LR 3.1	Table 3.1-1, BWR/PWR, Reactor vessel beltline shell and welds item (page 3.1-16): Revise "Aging Management Program" entry to be "Plant Specific." Revise "Further Evaluation Recommended" entry to be "Yes, staff review of plant reactor vessel surveillance program required (see subsection 3.1.2.2.3)."	Proposed change makes entry consistent with proposed change to subsection 3.1.2.2.3.	Table 3.1-1 was made consistent with subsection 3.1.2.2.3. The SRP-LR was revised to address this comment by making it internally consistent in Section 3.1.
S3.1-26	SRP-LR 3.1	Table 3.1-1, PWR, Primary Nozzles and Safe Ends (page 3.1-18), delete further revaluation item consistent with comments provided above.	Technical justification provided above.	Program M11, "Nickel-Alloy Nozzles and Penetrations," was placed in Chapter XI of GALL. An applicant that meets this program is not required to provide further evaluation. Tables 3.1-1 and 3.1-2 were also modified to reflect that this is an existing program. The SRP-LR was revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-27	SRP-LR 3.1	Table 3.1-1, BWR/PWR, Reactor Vessel closure studs and stud assembly item (page 3.1-18): Under the "Aging Management Programs" delete "Minimization and control of SCC" consistent with comments provided above.	Technical justification provided above.	Tables 3.1-1 and 3.1-2 were made consistent with section 3.1 verbiage and/or the GALL report. The GALL report and the SRP-LR were revised to address this comment.
S3.1-28	SRP-LR 3.1	Table 3.1-1, PWR, Upper and lower internals assembly (Westinghouse) item (page 3.1-21). Credit for neutron noise monitoring program should be deleted.	Technical justification provided above.	Tables 3.1-1 and 3.1-2 are consistent with section 3.1verbiage and/or the GALL report. The GALL report and the SRP-LR were not revised to address this comment.
S3.1-29	SRP-LR 3.1	Table 3.1-1, PWR, Upper and lower internals assembly (Westinghouse) item (page 3.1-21). Credit for loose part monitoring program should be deleted.	Technical justification provided above.	Table 3.1-1 and 3.1-2 are consistent with section 3.1 verbiage and/or the GALL report. The GALL report and the SRP-LR were not revised to address this comment.
S3.1-30	SRP-LR 3.1	Table 3.1-2, delete the "Minimization and control of SCC" program summary (page 3.1-22).	Conforming change to proposed change noted above.	Tables 3.1-1 and 3.1-2 are consistent with section 3.1 verbiage and/or GALL. The GALL report and the SRP-LR were not revised to address this comment.
S3.1-31	SRP-LR 3.1	Table 3.1-2, delete the "Loose part monitoring" program summary (page 3.1-26).	Conforming change to proposed change noted above.	Tables 3.1-1 and 3.1-2 are consistent with section 3.1 verbiage and/or the GALL report. The GALL report and the SRP-LR were not revised to address this comment.

Table B.2.12-1: Disposition of NEI Comments on Chapter 3, Section 3.1, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.1-32	SRP-LR 3.1	Table 3.1-2, delete the "Neutron noise monitoring" program summary (page 3.1-26).	Conforming change to proposed change noted above.	Tables 3.1-1 and 3.1-2 are consistent with section 3.1 verbiage and/or the GALL report. The GALL report and the SRP-LR were not revised to address this comment.
S3.1-33	SRP-LR 3.1	Table 3.1-2, delete summary of Steam Generator Tube Integrity program as this program is already required by technical specifications.	Technical specifications are part of the facility operating license and are approved and issued by the NRC staff. A description of the Steam Generator Tube Integrity program is contained in Chapter 5 of the facility technical specifications. Due to the hierarchy of regulatory documents, requirements contained in the technical specifications supercede any statements contained in the FSAR.	A tube integrity program has been added to Chapter XI of the GALL report, that includes the requirements in the Technical Specification. Tables 3.1-1 and 3.1-2 were made consistent with the wording in SRP-LR section 3.1 and/or the GALL report. The GALL report and the SRP-LR were revised to address this comment.

Table B.2.12-2: Disposition of NEI Comments on Chapter 3, Section 3.2 of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.2-1	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Bolting Integrity	GALL Section XI.M.12 applies. Refer to comments on Aging Management programs.	See NRC dispositions for NEI comments G-XIM12-1 through G-XIM12-4 in this Appendix B, Table B.2.9-2.
S3.2-2	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Boric Acid Corrosion	GALL Section XI.M.5 applies. Refer to comments on Aging Management programs.	See NRC dispositions for NEI comments G-XI-M5-1 through G-XI-M5-2 in this Appendix B, Table B.2.9-2.
S3.2-3	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Closed Cycle cooling water system	GALL Section XI.M.4applies. Refer to comments on Aging Management programs.	See NRC dispositions for NEI comments G-XI.M4-1 through G-XI.M4-2 in this Appendix B, Table B.2.9-2.
S3.2-4	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Flow accelerated corrosion (FAC) program	GALL Section XI.M.6 applies. Refer to comments on Aging Management programs.	See NRC disposition for NEI comment G-XI-M6-1 in this Appendix B, Table B.2.9-2.

Table B.2.12-2: Disposition of NEI Comments on Chapter 3, Section 3.2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.2-5	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Inservice Inspection	GALL Section I applies. The presentation of the Inservice Inspection program in the GALL is different than any other program evaluated in the GALL that is relied upon for license renewal. What specifically is an applicant supposed to do that allows this program to be credited without further review?	Applicant should refer to GALL report, Chapter XI, program M1, "ASME, Section XI, Inservice Inspection, Subsections IWB, IWC, and IWD" in NUREG-1801, Vol. 2, for the evaluation of the inservice inspection program. The SRP-LR (NUREG-1800), Sections 3.2.1.1 through 3.2.1.3 tells the basis for crediting an applicant's program by just referring to GALL report and the justifications required when the GALL report is not bounding. Chapter I of GALL, Vol. 2, "Application of the ASME Code," does not give specifics of a 10-element inservice inspection program but that is contained in the SRP-LR, Section A.1.2.3. The SRP-LR was not revised to address this comment, but the GALL report, Chapter XI, was modified by updating program M1.

Table B.2.12-2: Disposition of NEI Comments on Chapter 3, Section 3.2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.2-7	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Open-cycle cooling water system	GALL Section XI.M.3 applies. Refer to comments on Aging Management programs.	The comment on aging management program M3 was not received by the NRC along with other NEI comments on Chapter XI aging management programs. NEI in a subsequent e-mail on February 02, 2001, considered the matter closed indicating there were no comments on aging management program M3. SRP-LR was not revised to address this comment.
S3.2-8	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Protective Coating monitoring and maintenance program	GALL Section XI.S.8 applies. Refer to comments on Aging Management programs.	See NRC disposition for NEI comment G-XI.S8-1 in this Appendix B, Table B.2.9-3.
S3.2-9	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Thermal aging embrittlement of CASS AMP.	GALL Section XI.M.1 applies. Refer to comments on Aging Management programs.	See NRC disposition for NEI comment G-XIM1 in this Appendix B, Table B.2.9-2.
S3.2-10	SRP-LR 3.2	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Water Chemistry	GALL Section XI.M.11 applies. Refer to comments on Aging Management programs.	See NRC disposition for NEI comment G-XIM11-1 and G-XI.M11-2 in this Appendix B, Table B.2.9-2.
S3.2-11	SRP-LR 3.2	Section 3.2.2.2.2 Crack Initiation and Growth Due to SCC Delete this Inservice Inspection.	Inservice inspections do not include tanks within the scope of inspection so it is inappropriate to credit in this instance. See additional comments concerning the water chemistry program.	See NRC disposition of NEI comment G-VD1-3 in this Appendix B, Table B.2.4. SRP-LR was revised to address this comment by deleting Subsection 3.2.2.2.2 as in August 2000 version and modifying Tables 3.2.1 and 3.2.2 accordingly.

Table B.2.12-2: Disposition of NEI Comments on Chapter 3, Section 3.2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.2-12	SRP-LR 3.2	Section 3.2.2.2.4 Local Loss of Material Due to Pitting and Crevice Corrosion Delete this item.	No objective evidence has been provided in the GALL report Sections VA 2.1, 5.1, VC 2.1, 2.2 to support the requirement to perform additional inspections. See additional comments concerning the water chemistry program.	The one-time inspection is proposed to verify that the water chemistry program is adequately managing the aging effect - loss of material for aging mechanisms - pitting and crevice corrosion per SRP-LR 3.2.2.2.4. However, sections of the GALL report referenced do not require one-time inspection but a plant specific program. It is a reasonable check to verify that chemistry program is suitable before entering extended period of operation. This argument is supported by objective evidence in which pitting has been found on inside surface of low-alloy steel and carbon steel components exposed to secondary water (steam generator girth weld region and feedwater nozzle region). SRP-LR was not revised to address this comment.

Table B.2.12-2: Disposition of NEI Comments on Chapter 3, Section 3.2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.2-13	SRP-LR 3.2	Section 3.2.2.2.5 Local Loss of Material Due to MIC Delete this item.	No objective evidence has been provided in the GALL report Section VC.2.1 to support the requirement to perform additional inspections.	See NRC disposition to NEI comment S3.2-12 in this Appendix B, Table B.2.12-2. This proposal to do a one-time inspection to verify if evidence of microbiologically influenced corrosion is present, as in SRP-LR 3.2.2.2.5, is supported by objective evidence like IN 85-30 "MIC of Containment Service Water System" and Chapter 3 of EPRI Sourcebook for MIC in Nuclear Power Plants (Case Histories). SRP-LR was not revised to address this comment.
S3.2-14	SRP-LR 3.2	Section 3.2.2.2.6 Changes in Properties Due Elastomer Degradation	BWR item	This elastomer is considered a structural sealant and as such should be addressed by a structural aging management program on a plant -specific basis. NRC agrees that this elastomer is in the standby gas treatment system and thus a BWR component. SRP-LR was not revised to address this comment.
S3.2-15	SRP-LR 3.2	Section 3.2.2.2.7 Loss of Iodine Retention Capacity Due to Moisture Absorption Delete this item.	Charcoal absorber filter media should be considered to be a consumable. See SRP-LR Table 2.1-3.	See NRC disposition of NEI comment G-VB-2 in this Appendix B, Table B.2.4. SRP-LR was revised to address this comment by deleting section 3.2.2.2.7.

Table B.2.12-2: Disposition of NEI Comments on Chapter 3, Section 3.2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.2-16	SRP-LR 3.2	Section 3.2.2.2.8 Buildup of Deposit from Biofouling Delete this item.	No objective evidence has been provided in the GALL report Sections VC.2.1, VC.2.2 to support the requirement to perform additional inspections.	See NRC disposition of NEI comment G-VC-2 in this Appendix B, Table B.2.4. SRP-LR was revised to address this comment by deleting section 3.2.2.2.8.
S3.2-17	SRP-LR 3.2	Section 3.2.2.2.9 Local Loss of Material Due to Erosion Delete this item.	No objective evidence has been provided in the GALL report Section VD.1.2.3 to support the requirement to perform additional inspections.	Local loss of material due to erosion has been verified to occur as evidenced by LER 50-275/94-023. Because this component requires a plant specific program, the GALL report was modified under aging management program for this component's line item to show this reference. SRP-LR was not revised to address this comment but the GALL report was as stated above.

Table B.2.12-2: Disposition of NEI Comments on Chapter 3, Section 3.2 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.2-18	SRP-LR 3.2	Table 3.2-1, page 3.2-13, BWR/PWR, Closure bolting in high-pressure or high-temperature systems This component description is not consistent with the scope of the actual program. It should be "Class 2 bolting greater than 2 inches in diameter".	See generic comments concerning the Bolting Integrity Program.	See NRC disposition for NEI comments G-XIM12-1 through G-XIM12-4 in this Appendix B, Table B.2.9-2. The scope of the actual program includes volumetric inspection of bolting greater than 2-in. in diameter as mentioned by the comment. The scope also includes visual inspection of all pressure, retaining components during leakage tests. This will include visual inspection of bolting smaller than 2-in. in diameter. SRP-LR was not revised to address this comment.
S3.2-19	SRP-LR 3.2	Section 3.2-3, Tables 3.2-1 and 3.2-2, and the applicable GALL sections need to be revised as necessary to reflect changes made above.	Conforming changes	The SRP-LR was revised to address this comment by making conforming changes to Section 3.2-3, as well as Tables 3.2-1 and 3.2-2, including the applicable GALL sections, to reflect changes made in responses to the NEI comments in this Appendix B, Table B.2.12-2.

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Table B.2.12-3: Disposition of NEI Comments on Chapter 3, Section 3.3, of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.3-2	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Bolting Integrity	GALL Section XI.M.12 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XI.M12-1 through G-XI.M12-4 in this Appendix B, Table B.2.9-2.
S3.3-3	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Boraflex Monitoring	GALL Section VII A2.1.1 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment G-VII A2.1.1 in this Appendix B, Table B.2.6.
S3.3-4	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Boric Acid Corrosion	GALL Section XI.M.5 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XI.M5-1 through G-XI.M5-2 in this Appendix B, Table B.2.9-2.
S3.3-5	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Closed Cycle cooling water system	GALL Section XI.M.4 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XI.M4-1 through G-XI.M4-2 in this Appendix B, Table B.2.9-2.
S3.3-6	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Compressed air inspection and maintenance	GALL Section VII D.1.1 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment G-VIID-2 in this Appendix B, Table B.2.6.
S3.3-7	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Fire Protection	GALL Section VII.G applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-VIIG-1 through G-VIIG-12 in this Appendix B, Table B.2.6.
S3.3-8	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Fire Water System	GALL Section XI.M.10 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XI.M10-1 through G-XI.M10-2 in this Appendix B, Table B.2.9-2.
S3.3-9	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Fuel oil Chemistry	GALL Section XI.M.9 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XI.M9-1 through G-XI.M9-4 in this Appendix B, Table B.2.9-2.

Table B.2.12-3: Disposition of NEI Comments on Chapter 3, Section 3.3, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.3-10	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Inservice Inspection	GALL Section I applies. The presentation of the Inservice Inspection program in the GALL is different than any other program evaluated in the GALL that is relied upon for license renewal. What specifically is an applicant supposed to do that allows this program to be credited without further review?	Chapter 1 of GALL, Vol. 2, "Application of the ASME Code," does not give specifics of a 10-element inservice inspection program. XI.M1, "ASME, Section XI, Inservice Inspection, Subsections IWB, IWC, and IWD" in NUREG-1801, Vol. 2, does. In places where ISI is acceptable, no further evaluation is noted in the further evaluation column. The SRP-LR was not revised to address this comment.
S3.3-11	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Open-cycle cooling water system	GALL Section XI.M.3 applies. Refer to comments on Aging Management programs.	There were no NEI comments on the GALL report, chapter G-XI.M3. The SRP-LR was not revised to address this comment.
S3.3-12	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Outer surface of aboveground carbon steel tanks	GALL Section XI.M.7 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment G-XI.M7-1 in this Appendix B, Table B.2.9-2.
S3.3-13	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Outer surface of buried piping and components	GALL Section XI.M.8 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment G-XI.M8-1 in this Appendix B, Table B.2.9-2.
S3.3-14	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Overhead and gantry cranes inspection and maintenance	GALL Section VII B.1.1 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment G-VII B.1.1 in this Appendix B, Table B.2.6.

Table B.2.12-3: Disposition of NEI Comments on Chapter 3, Section 3.3, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.3-15	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Protective coating monitoring and maintenance	GALL Section XI.S.8 applies. Refer to comments on Aging Management programs.	Because the condition of the coating does not directly affect the intended function, coating degradation and the Protective Coating Monitoring and Maintenance program were deleted as an aging mechanism of concern and AMP for auxiliary systems. Coatings are covered under the maintenance rule. The SRP-LR was revised to address this comment.
S3.3-16	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Structural Monitoring	GALL Section XI.S.6 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XI.S6-1 through G-XI.S6-6 in this Appendix B, Table B.2.9-3.
S3.3-17	SRP-LR 3.3	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Water Chemistry	GALL Section XI.M.11 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments G-XI.M11-1 through G-XI.M11-2 in this Appendix B, Table B.2.9-2.
S3.3-18	SRP-LR 3.3	Section 3.3.2.2.1 Loss of Material from General, MIC, Galvanic, Pitting, and Crevice Corrosion	See generic comments concerning water chemistry program. No objective evidence has been provided in GALL VII A3.2.1 that supports this additional inspection.	See NRC disposition of NEI comments G-XI.M11-1 through G-XI.M11-2 in this Appendix B, Table B.2.9-2.

Table B.2.12-3: Disposition of NEI Comments on Chapter 3, Section 3.3, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.3-19	SRP-LR 3.3	Section 3.3.2.2.2 Hardening, and Cracking from Material Degradation	No objective evidence has been provided in GALL VII A3.3.3, F1.1.3, and F2.1.3 that supports this additional inspection.	Page 5.18-16 (Spent Fuel Cooling System) of BG&E LR states "Long term exposure of rubber to water will result in water absorbing and swelling, blistering, hardening, and eventually cracking. Exposure to radiation can result in degradation of material properties such as tensile strength, hardness etc." These are credible aging effects/mechanisms on elastomer lining as mentioned in the BG&E LR. The SRP-LR was not revised to address this comment.
S3.3-20	SRP-LR 3.3	Section 3.3.2.2.4 Crack Initiation and Growth from SCC 2nd paragraph is inconsistent with Table 3.3-1 and GALL report which also refer to "unanticipated cyclic loading" for this item. Inconsistency needs to be corrected. 3rd paragraph concerns SCC that could occur in external surfaces adhered with electrical tape. This item should be deleted.	Unanticipated cyclic loading should not be considered an aging effect that needs to be managed for the period of extended operation. This is an abnormal event per SRP-LR A.1. No objective evidence in GALL VII E1.4.1 provided to support that this is an aging effect. Also, per SRP-LR A1, abuse due to human activity is an abnormal event and aging effects from such abuse need not be postulated for license renewal.	See NRC disposition of NEI comments G-VIIE1-5, G-VIIE1-6, and G-VIIE1-11 in this Appendix B, Table B.2.6. See NRC disposition of NEI comments G-VIIE1-8 and G-VIIE1-9 in this Appendix B, Table B.2.6.

Table B.2.12-3: Disposition of NEI Comments on Chapter 3, Section 3.3, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.3-21	SRP-LR 3.3	Section 3.3.2.2.5 Loss of Material from MIC, Galvanic, Pitting, and Crevice Corrosion, Wear and Erosion/Corrosion	Moist air required. Movement required in order to have mechanical wear.	See NRC disposition of NEI comment G-VIID-2 in this Appendix B, Table B.2.6.
S3.3-22	SRP-LR 3.3	Section 3.3.2.2.6 Loss of Iodine Retention Capacity from Moisture Absorption Delete this item.	Charcoal absorber filter media should be considered to be a consumable. See SRP-LR Table 2.1-3.	See NRC disposition of NEI comment G-VIIF1-3 in this Appendix B, Table B.2.6.
S3.3-23	SRP-LR 3.3	Section 3.3.2.2.7 Loss of Material from General, Galvanic, Pitting, and Crevice Corrosion	RCP Oil Collection Tank inspection at ONS.	See NRC disposition of NEI comments G-VIIG-12 and G-VIIH2-15 in this Appendix B, Table B.2.6.

Table B.2.12-3: Disposition of NEI Comments on Chapter 3, Section 3.3, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.3-24	SRP-LR 3.3	Section 3.3.2.2.8 Induced cracking from vibration and wall thinning from Erosion/Corrosion Vibration induced cracking should be deleted. Erosion /corrosion should be deleted.	Unanticipated cyclic loading should not be considered an aging effect that needs to be managed for the period of extended operation. This is an abnormal event per SRP-LR A.1. Vibration induced cracking is a design problem not an aging management issue. GALL Section VII H2.1.1 and H2.1.2 apply. No objective evidence is provided that supports the determination that either of these aging effects is of concern for the period of extended operation. Erosion / corrosion is plant specific and can be managed by the Flow Accelerated Corrosion program. However, the operating experience described in GALL XI.M6 does include any incidents with Diesel engine cooling water systems.	See NRC disposition of NEI comment G-VIIH2-6 in this Appendix B, Table B.2.6. See NRC disposition of NEI comment G-VIIH2-12 in this appendix, Table B.2.6.
S3.3-25	SRP-LR 3.3	Section 3.3.2.2.9 Loss of Material from corrosion or Buildup of Deposits from Biofouling Delete this item.	No objective evidence in GALL H1.4.1 provided to support that this is an aging effect.	See NRC disposition of NEI comment G-VIIH1-6 in this Appendix B, Table B.2.6.

Table B.2.12-3: Disposition of NEI Comments on Chapter 3, Section 3.3, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S3.3-26	SRP-LR 3.3	Table 3.3-1, page 3.3-13, Diesel engine cooling water system item Delete entire line item.	Unanticipated cyclic loading should not be considered an aging effect that needs to be managed for the period of extended operation. This is an abnormal event per SRP-LR A.1. Vibration induced cracking is a design problem not an aging management issue. Consistent with comments made on SRP-LR 3.3.2.2.8.	See NRC disposition of NEI comment G-VIIH2-6 in this Appendix B, Table B.2.6.
S3.3-27	SRP-LR 3.3	Table 3.3-1, page 3.3-14, BWR, Closure Bolting item. The Bolting integrity program as written cannot manage the effects of aging identified in this item. Another program or activity must be provided.	The bolting integrity program only includes ASME Class 1 bolting and ASME Class 2 bolting greater than 2 inches in diameter.	See NRC disposition of NEI comment S3.2-18 in this Appendix B, Table B.2.12-2.
S3.3-28	SRP-LR 3.3	Table 3.3-2, page 3.3-18, Fuel Oil Chemistry Delete the statement concerning ASTM Standards.	Required ASTM Standards are also in ITS Section 5.5, Programs.	See NRC disposition of NEI comments G-XI.M9-1 through G-XI.M9-4 in this Appendix B, Table B.2.9-2.

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Table B.2.12-4: Disposition of NEI Comments on Chapter 3, Section 3.4, of SRP-LR

Comment Number	Item Number	Proposed Change	Justification For Proposed Change	NRC Disposition
S3.4-1	SRP-LR 3.4	Section 3.4.1 Areas of Review For PWRs, the boundary between the secondary side systems and the steam generator needs to be clearly defined.		SRP-LR, Section 3.4.1 was revised to state "The aging management for the steam generator is reviewed following the guidance in Section 3.1 of this Standard Review Plan." Section 3.4 of the SRP-LR reviews the secondary piping from the steam generator. SRP-LR,Section 3.4.1 was revised to address this comment.
S3.4-2	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Bolting Integrity	GALL Section XI.M.12 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments for G-XIM12-1 through G-XIM12-4 in this Appendix B, Section B.2.9-2.
S3.4-3	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Boric Acid Corrosion	GALL Section XI.M.5 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments for G-XI-M5-1 through G-XI-M5-2 in this Appendix B, Section B.2.9-2.
S3.4-4	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Closed Cycle cooling water system	GALL Section XI.M.4 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments for G-XI.M4-1 through G-XI.M4-2 in this Appendix B, Section B.2.9-2.
S3.4-5	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Flow accelerated corrosion (FAC) program	GALL Section XI.M.6 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment for G-XI-M6-1 in this Appendix B, Section B.2.9-2.
S3.4-6	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Open-cycle cooling water system	GALL Section XI.M.3 applies. Refer to comments on Aging Management programs.	No comments were received for GALL Section G-XI.M.3, Open-cycle cooling water system. No NRC disposition for this item.
S3.4-7	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Outer surface of above ground carbon steel tanks	GALL Section XI.M.7 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment for G-XI.M7-1 in this Appendix B, Section B.2.9-2.

Table B.2.12-4: Disposition of NEI Comments on Chapter 3, Section 3.4, of SRP-LR (continued)

Comment Number	Item Number	Proposed Change	Justification For Proposed Change	NRC Disposition
S3.4-8	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Outer surface of buried piping and components	GALL Section XI.M.8 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment for G-XI.M8-1 in this Appendix B, Section B.2.9-2.
S3.4-9	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Protective coating monitoring and maintenance	GALL Section XI.S.8 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment for G-VIII.H-4 in this Appendix B, Section B.2.7.
S3.4-10	SRP-LR 3.4	AMPs Evaluated in the GALL Report that are Relied on for License Renewal – Water Chemistry	GALL Section XI.M.11 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comments for G-XIM11-1 through G-XI.M11-2 in this Appendix B, Section B.2.9-2.
S3.4-11	SRP-LR 3.4	Table 3.4-1, page 3.4-9, BWR/PWR, Closure bolting in high-pressure or high-temperature systems This component description is not consistent with the scope of the actual program. It should be "Class 2 bolting greater than 2 inches in diameter."	GALL Section XI.M.12 applies. Refer to comments on Aging Management programs.	See NRC disposition of NEI comment for S3.2-18 in this Appendix B, Section B.2.12-2.
S3.4-12	SRP-LR 3.4	Table 3.4-2, page 3.4-12, the summary for Inservice Inspection should be deleted.	Inservice Inspection is not relied upon to manage the effects of aging summarized in table 3.4-1.	The Inservice Inspection program is not relied on to manage aging effects in SRP-LR section 3.4. The SRP-LR was revised to address this comment by deleting Inservice Inspection from Table 3.4-2.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-1	B.3.8 S3.5 Generic Comment	Since this section deals with AMR, a discussion needs to be included on determining aging effects. If a discussion is not provided, include a pointer to A1.2.1.	Editorial clarification.	Aging effects are discussed under aging management review in Appendix A, Section A1.2.1. The addition of pointers can be extended to other topics, which would increase the details required and may lend itself to heightened confusion. The license renewal guidance documents were not revised to address this comment.
S-3.5-2	B.3.8 S3.5 Generic Comment	This section contains a lot of information from the GALL. Many changes have been recommended to the information in the GALL. The GALL should be corrected first, and then the changes to this section should be made accordingly. For example, 3.5.2.2.1.2, discusses porous concrete sub foundations. The industry has recommended that this information be deleted from GALL since it is not generic to all sites and was not applicable to the two sites, which have received, extended licenses. Therefore, the GALL should change and this section should change.	The information in the GALL and this section need to be consistent. Editorial.	This is an editorial comment on consistency of license renewal documents. The license renewal guidance documents were revised to address this comment as appropriate to ensure consistency among them.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-3	B.3.8 3.5.1	Suggest adding the following sentence next to last paragraph: "Where GALL report has referenced a code (e.g. ACI 201.2R-77) as a technical basis for concluding that aging management is not required if it was constructed in accordance with that particular code, the staff will accept the deviation as long as the intent of that code has been satisfied and that referenced code is not the code of record for that particular plant".	Older plants, which were not constructed per referenced code, should be able to reference a code if the intent of the code has been satisfied.	See NRC disposition of comments NMC-1 and ACRS-2 in Table C of this NUREG.
S-3.5-4	B.3.8 3.5.1 Page 3.5-1	Add a sentence to the paragraph to address older vintage plants. Proposed wording: For older vintage plant, the information related to the structures and component supports is plant specific, and is contained in various Sections and Appendices of the UFSAR.	Second sentence of the first paragraph states: "for a recent vintage plant, the information related to the structures and component supports is contained in Chapter 3". The rest of the paragraph does not address older vintage plants.	See NRC disposition of comment ACRS-Chen-1 in Table E of this NUREG.
S-3.5-5	B.3.8 S3.5.1.3 Generic Comment	The second sentence states that "If an applicant does not rely on a particular program for license renewal, or if the staff should review each such aging management program to which the GALL report does not apply". The statement should begin with: If an applicant does not rely on a program in GALL.	Provide clarification to address program not in GALL.	See NRC disposition of comments NMC-2 and NMC-3 in Table C of this NUREG.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-6	B.3.8 S3.5.1.4 Generic Comment	The second sentence states that: "If an applicant has identified particular components subject to aging management review for its plant, …" The statement should begin with: If an applicant has identified particular components subject to aging management review for its plant which are not addressed in GALL.	Provide clarification for components not addressed in GALL.	The SRP-LR was revised to address this comment. Similar changes were also made to the other sections of chapter 3 of SRP-LR to ensure consistency.
S-3.5-7	B.3.8 S3.5.1.4 Generic Comment	Add statement: Not all aging effects in GALL require aging management at all plants.	Provide clarification. What happens if an applicant does not identify an aging effect that is in GALL?	See NRC disposition of this comment NMC-8 in Table C of this NUREG.
S-3.5-8	B.3.8 S3.5.2.1 Generic Comment	Provide more guidance so that an applicant or reviewer will know what is required.	The second sentence in this section states that the applicant should "… provide the information necessary to adopt the finding…" There is not enough guidance provided in this section for an applicant or a reviewer to know what is required.	See NRC dispositions of comments NMC-2 in Table C of this NUREG and also NEI-5 of this Appendix B, Table B.2.15.
S-3.5-9	B.3.8 S3.5.2.1 Generic Comment	Provide more guidance so that an applicant or reviewer will know what is required.	The third sentence in this section states that the applicant should "…also verify that the approvals set forth in the GALL report for generic programs apply to the applicant's programs". There is not enough guidance provided in this section for either an applicant or reviewer to know what is required.	See NRC disposition of comment NMC-2 in Table C of this NUREG.
S-3.5-10	B.3.8 S3.5.2.2 Generic Comment	Information included in this section should be compared to the final GALL report to ensure that any changes are incorporated.	The industry has recommended several changes to the GALL. These changes should be incorporated in both the GALL and SRP-LR.	See NRC disposition of NEI comment S.3.5-2 of this Appendix B, Table B.2.12-5.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-11	B.3.8 3.5.2.1 Pg. 3.5-3 Generic Comment	This paragraph requires the applicant to provide information such that the Staff can establish acceptability of the program as described and evaluated in GALL. According to GALL Volume 1 and paragraph 3.5.1.1, if the applicant's program corresponds to GALL evaluated GALL Generic Program no further staff review is required. Clarify the requirement of paragraph 3.5.2.1.	If the applicant's program corresponds to the GALL evaluated Program, then any information required in the LRA is a duplication. It should suffice to reference GALL as stated in Volume 1. The Staff can audit the credited program to confirm it corresponds to GALL.	See NRC disposition of comment NMC-2 in Table C in this NUREG.
S-3.5-12	B.3.8 3.5.2.2.2.1 Pg. 3.5-4	The title "Aging of Supports not covered". should be "Aging of Structures not covered".	Paragraph content discuss structures. Supports are discussed in 3.5.2.2.3.	Section 3.5.2.2.2.1 of SRP-LR concerns structures not supports so the title should be revised. The SRP-LR, Section 3.5.2.2.2.1, was revised to address this comment by revising its title appropriately. Other license renewal guidance documents were revised to ensure consistency.
S-3.5-13	B.3.8 3.5.2.2.2.2 Pg. 3.5-5	Aging management of Inaccessible Areas. This paragraph requires further evaluation of Class 1 structures, concrete and structural steel, in inaccessible areas. GALL only requires further evaluation of structural steel and not concrete. Revise the paragraph to be consistent with GALL.	Aging management of concrete structures is not required if the evaluation and technical basis described in GALL are met.	See NRC disposition of NEI comments G-IIIA1-1and G-IIIA1-6 in this Appendix B, Table B.2.2.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-14	B.3.8 3.5.2.2.3.2 Pg. 3.5-5	The paragraph states fatigue is a TLAA for Groups B1.1, B1.2, & B1.3 components supports. Delete B1.2 & B1.3.	ANSI B31.1-B31.7 requires no fatigue analyses for supports. ASME III fatigue requirements apply to supports ASME class 1 piping.	If the code of record requires a fatigue analysis, then this fatigue analysis is a TLAA, which may apply to B1.1, B1.2, and B1.3. The SRP-LR, Section 3.5.2.2.3.2, was revised to address this comment by inserting a sentence " only if a CLB fatigue analysis exists".
S-3.5-15	B.3.8 S3.5.3.1 Generic Comment	Provide more guidance.	The third sentence of the first paragraph of this section states: "If the applicant has provided the information necessary to adopt the finding of program acceptability…" There is not enough guidance provided in this document for either an applicant or review to know what is required.	See NRC disposition of comment NMC-2 in Table C of this NUREG.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-16	B.3.8 S3.5.3.1 Generic Comment	The fifth sentence states that the "The reviewer also verifies that the applicant has stated that the applicable aging effects and industry and plant-specific operating experience had been reviewed by the applicant and are evaluated in the GALL report". Since the GALL did not necessarily evaluate plant-specific operating experience, the sentence should be changed to the following: The reviewer also verifies that the applicant has stated that the applicant had reviewed the applicable aging effects and are evaluated in the GALL report. The reviewer verifies that the applicant stated that industry and plant-specific operating experience had been reviewed and no additional aging effects were identified beyond those evaluated in the GALL report.	Provides clarification on how to handle plant-specific operating experience and industry experience.	See NRC disposition of comment NMC-8 in Table C of this NUREG. Also see additional guidance for evaluating elements of an aging management program in SRP-LR, Appendix A.1, "Aging Management Review."
S-3.5-17	B.3.8 3.5.3.1 Pg. 3.5-6 Generic Comment	This paragraph requires the applicant to provide information such that the Staff can establish acceptability of the program as described and evaluated in GALL. According to GALL Volume 1 and paragraph 3.5.1.1, if the applicant's program corresponds to GALL evaluated GALL Generic Program no further staff review is required. Clarify the requirement of paragraph 3.5.3.1.	If the applicant's program corresponds to the GALL evaluated program, then any information required in the LRA is a duplication. It should suffice to reference GALL as stated in Volume 1. The Staff can audit the credited program to confirm it corresponds to GALL.	See NRC disposition of comment NMC-2 in Table C in this NUREG.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-18	B.3.8 S3.5.3.1 Generic Comment	Add statement: Not all aging effects in GALL require aging management at all plants.	The next to last sentence in the first paragraph states that "the reviewer verifies that the applicant has identified those aging effects for the structures and component supports that are contained in the GALL report as applicable to its plant". Not all aging effects are applicable to all plants. For example, settlement is not applicable for sites located on bedrock.	See NRC disposition of comment NMC-8 in Table C in this NUREG.
S-3.5-19	B.3.8 S3.5.3.2.1.1	Delete the information on inaccessible areas.	The requirement for inaccessible areas goes beyond what is required by ASME and 50.55a.	See NRC disposition of NEI comment G-IIA1-1 in this Appendix B, Table B.2.1.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-20	B.3.8 S3.5.3.2.1.7	Information in this section disagrees with information in the GALL. The SRP-LR states that, "However, the report notes that VT-3 inspection may not be sufficient to detect cracks". The GALL states, "For cracking due to cyclic loading of penetration sleeves and penetration bellows, VT-3 visual inspection may not detect fine cracks (one option may be to perform VT-1 visual inspections". In both documents, the conclusions should be changed to determine that VT-3 is adequate. In this section and throughout both documents, the adequacy of visual VT-3 examination is called into question for the detection of cracking. In particular, GALL Section III.B1.1.1 determines that VT-3 is inadequate for detection of cracking in Class 1 piping and component supports and GALL Section III.B1.2.1 finds this to be true for Class 2 and 3 piping and component supports, as well.	The conclusions reached in this section go beyond what is current in the code. Licensee should not have to go beyond Code requirements without justification. VT-3 should be found to be adequate for detection of "crack-life indications" in at least three circumstances: When the structure or component can tolerate "mature cracks". This should be the case for Class 1, 2, and 3 component supports, where mature cracks are needed to jeopardize the load-carrying function of the component or support. When pressure-containing component is subject to both visual examination and pressure testing capable of detecting localized, small-capacity leakage. This should be the case for bellows, sleeves, and penetrations subjected to Appendix J Type B and C tests. Situations where proximity to the component or structure surface is not an issues, so that visual acuity, lighting, and character recognition is essentially identical for VT-1 and VT-3.	See NRC disposition of NEI comments G-IIIA3-5 and G-IIIB1-6 in this Appendix B, Table B.2.1.
S-3.5-21	B.3.8 3.5.3.2.2.1 Pg. 3.5-9	The title "Aging of Supports not covered". should be "Aging of Structures not covered".	Paragraph content discuss structures. Supports are discussed in 3.5.3.2.3.	See NRC disposition of NEI comment S-3.5-12 in Appendix B, Table B.2.12-5.

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-22	B.3.8 3.5.3.2.2.2 Pg. 3.5-10	Aging management of Inaccessible Areas. This paragraph requires further evaluation of Class 1 structures, concrete and structural steel, in inaccessible areas. GALL only requires further evaluation of structural steel and not concrete. Revise the paragraph to be consistent with GALL.	Aging management of concrete structures is not required if the evaluation and technical basis described in GALL are met.	See NRC disposition of NEI comment S-3.5-13 in this Appendix B, Table B.2.12-5.
S-3.5-23	B.3.8 3.5.3.2.3.2 Pg. 3.5-11	The paragraph states fatigue is a TLAA for Groups B1.1, B1.2, & B1.3 components supports. Delete B1.2 & B1.3.	ANSI B31.1-B31.7 requires no fatigue analysis for supports. ASME III fatigue requirements apply to supports ASME Class 1 piping.	See NRC disposition of NEI comment S-3.5-14 in this Appendix B, Table B.2.12-5.
S-3.5-24	B.3.8 3.5.3.2.3.1	The industry disagrees with the conclusions reached in GALL on reduction in concrete capacity due to vibration loads. This information should be deleted.	Vibration induced cracking is not a license renewal aging effect and should be deleted. Vibration induced cracking is expected to occur during the current term and be corrected. This type of aging is random and is corrected as discovered with inspections of similar locations and configurations to ensure the event is location specific or a one-time event.	See NRC disposition of NEI comment G-IIIB1-2 in this Appendix B, Table B.2..

Table B.2.12-5: Disposition of NEI Comments on Chapter 3, Section 3.5, of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
S-3.5-25	B.3.8 Table 3.5-1 Generic Process Issue	Delete Table 3.5-1.	This table adds no value. In addition, there are now 4 places where information would have to be changed if it was determined that the conclusions in GALL were not correct. For example, the industry disagrees with the conclusion for aggressive chemical attack on PWR containments. This information is incorrect in (1) the GALL, (2) SRP-LR Section 3.5.2.2.1.1, (3) SRP-LR Section 3.5.3.2.1.1, and (4) Table 3.5-1.	The purpose of Table 3.5-1 is to provide a summary of the conclusions from the detailed GALL report to help the staff focus its review. Without this table, the reviewer would use the GALL report and may develop a similar summary for each review. It is more efficient and consistent to provide one summary as guidance in the SRP-LR. There are six such Tables (3.1-1, 3.2-1, 3.3-1, 3.4-1, 3.5-1, and 3.6-1) in SRP-LR Chapter 3. Thus, the requested removal of Table 3.5-1 is not consistent with the intent of these existing tables in SRP Chapter 3. The SRP-LR was not revised to address this comment.
S-3.5-26	B.3.8 Table 3.5-	Dissimilar metal welds should be deleted from the component column.	Dissimilar metal welds are optional per 50.55a.	See NRC disposition of NEI comment G-IIA3-1 in this Appendix B, Table B.2.1.
S-3.5-27	B.3.8 Table 3.5-2 Page 3.5-20	In Table 3.5-2 (referenced in Section 3.5.3.5), on page 3.5-20, replace the “Monitoring of Leak in Fuel Storage Facility” with “Liner Integrity” and revise the Program Description to describe the Water Chemistry Program.	Make SRP-LR consistent with proposed GALL revision of comment in GALL section IIIA, page IIIA5-9.	See NRC disposition of NEI comment G-IIIA5-1 in this Appendix B, Table B.2.2.

APPENDIX B, TABLE B.2.13

DISPOSITION OF NEI COMMENTS ON CHAPTER 4 OF SRP-LR

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Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.1-1	SRP-LR 4.1-4.7	Delete qualifying term "plant-specific". This comment should be noted throughout Chapter 4 of the SRP-LR.	In the first paragraph of section 4.1, the second sentence, and the second paragraph, first sentence, use of the term "plant-specific" incorrectly limits the scope of TLAAs, and adds nothing to the discussion. For example, a CE-generic surge line fatigue calc. (most certainly not plant-specific) was determined to be a TLAA for CCNPP. It may be correct to say, "the list of TLAAs is plant specific".	NEI comment is to revise the term "plant-specific" to read, "the list of TLAAs is plant specific." A TLAA may not be plant-specific. It is more proper to say that, "the list of TLAAs is plant-specific." This proposed change makes this issue clearer. The SRP-LR was revised to address this comment.
S 4.1-2	SRP-LR 4.1.1	Delete the last sentence in the first paragraph.	The last sentence in paragraph 1 states, *"The listing of TLAAs should provide sufficient detail to identify the type of calculations and a summary result of calculations."* Providing a summary result of a calculation that is a TLAA goes beyond the listing requirements of 10 CFR 54.21(c)(1). Details of an analysis would only be necessary for the demonstration portion if demonstration methods (i) or (ii) were chosen for a TLAA. No such details as the type of calculation or a summary of results are required if demonstration method (iii) is chosen. The information reviewed in SRP-LR 4.1.1 should at most be no more than a table of contents of the	NEI comment is to delete the sentence, "The listing of TLAAs should provide sufficient detail to identify the type of calculations and a summary result of calculations." The results of analysis and calculation is necessary when demonstration methods (i) or (ii) is chosen and that, the details of the results of anlayis and calculations are not required if demonstration method (iii) is chosen. The SRP-LR was revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.1-2 (cont.)			TLAA Chapter. Each TLAA will be addressed in its own Chapter 4 section. The last sentence of paragraph 1 is just not needed.	
S 4.1-3	SRP-LR 4.1.1	In the first paragraph of the section add a sentence to the end as follows, "A listing of specific calculation numbers is not required."	A specific listing of the individual calculations will not be provided. Rather, a listing of the categories of calculations identifying a topical area will be identified. Sufficient information as requested for each category of calculations will be provided. For example, containment liner fatigue is a 'category' of calculations. Several calc numbers may have been used for this category.	See NRC disposition of NEI comment S 4.1-2 in this Appendix B, Table B.2.13.
S 4.1-4	SRP-LR 4.1.1	SRP-LR Section 4.1.1, 3rd paragraph should be revised to read: "an applicant must provide a list of plant-specific exemptions granted under 10 CFR 50.12 that are based on TLAA."	Part 54 limits exemptions to only those granted under 50.12.	NEI commented that SRP-LR Section 4.1.1, third paragraph should be revised to read, "an applicant must provide a list of plant-specific exemptions granted under 10 CFR 50.12 that are based on TLAA." According to 10 CFR 54.21(c)(2), a list of plant-specific exemptions that is granted pursuant to 10 CFR 50.12 must be provided. This proposed change makes this issue clearer. The SRP-LR was revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.1-5	SRP-LR 4.1.3	In the paragraph that starts "The reviewer should use the plant Updated Final Safety Analysis Report ---" add two sentences as follows, "Sections 4.2 through 4.6 identify typical types of TLAAs for most plants. Information on the licensee's methodology for identifying TLAAs may also be useful in identifying calculations that did not meet the six criteria below."	The reviewer should start with the plant CLB as stated. The use of Tables 4.1-2 and 4.1-3 may start the reviewer on the wrong track as stated in the next comment. Inserting this wording allows the reviewer to quickly retrace the efforts of the licensee in identifying TLAAs so the reviewer may discover potential omissions.	NEI comment is to add two sentences in the paragraph that starts "The reviewer should use the plant Updated Final Safety Analysis Report ---" to read, "Sections 4.2 through 4.6 identify typical types of TLAAs for most plants. Information on the licensee's methodology for identifying TLAAs may also be useful in identifying calculations that did not meet the six criteria below." This comment is helpful in the sense that the staff review should start with the plant current licensing bases (CLB.) The SRP-LR was revised to address this comment.
S 4.1-6	SRP-LR 4.1.3	In the paragraph that starts "The number and type of TLAAs vary ---," delete the remainder of the paragraph that starts with the sentence, "Table 4.1-2 provides a list ---." Also, delete Tables 4.1-2 and 4.1-3.	The use of Tables 4.1-2 and 4.1-3 start the reviewer from the wrong place. The search for possible TLAAs should start from the licensees CLB and the reviewer's knowledge of the six criteria. Of particular concern in retaining these SRP-LR tables, would be the need for each licensee to address each of the items in the tables to preclude questions on the topics listed. The licensee's efforts start from the CLB, not from the tables. The reviewer should have a reasonable basis for believing that a TLAA exists. This will come from a review of the CLB, not from a review of these tables.	NEI recommends deleting Tables 4.1-2 and 4.1-3 because these tables may mislead the staff reviewer. Examples listed in the Tables 4.1-2 and 4.1-3 are just examples and are not a list of required TLAAs. These tables may help reviewers to get on the right track, instead of misleading. The SRP-LR was not revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.1-7	SRP-LR 4.1.3	SRP-LR Section 4.1.3, page 4.1-3, statements in the first two examples on the page should be revised to read as follows: "A review of the code and standard reveals that an analysis or calculation is required**.** Some of these calculations or analyses will be TLAAs." Similarly, revise the statement in the 2nd example to read: "In response to a generic letter, licensee submitted a letter to the NRC committing to perform an analysis or calculation…"	TLAA is a term that is unique to Part 54. Codes and standards do not in and of themselves require a TLAA. Codes and standards often require an analysis or calculation which if the criteria of §54.3 are met then a TLAA exists. Commitments in response to generic letters would not necessarily be a TLAA unless all criteria contained in §54.3 were met.	The proposed change in the first paragraph is helpful in order to clarify the intent of the sentence. The SRP-LR was revised to address this comment. However, in the second paragraph, the sentence is clear that the calculation or analysis should be related to time-limited aging analyses. The SRP-LR was not revised to address this comment.
S 4.2-1	SRP-LR 4.2, 4.3, 4.4, 4.5, 4.6, 4.7	In each of these SRP-LR Sections, there is a statement in the Review Procedures section, FSAR Supplement discussion that begins with: "The staff expects to impose a license condition in the renewed license, if granted, …"	It is not clear why this statement is included in the review procedure section. It is true information but does not seem to have anything to do with the FSAR summary review. Perhaps it should be relocated or deleted. This statement begins a new thought and if it needs to stay in this section of the SRP-LR, then it should be a new paragraph. Please note that this comment also applies to Chapter 3 of the SRP-LR.	NEI suggests starting the statement as a new paragraph. This proposed change makes the issue clearer. Chapter 3 and 4 of the SRP-LR regarding the FSAR were revised to introduce a new paragraph as suggested. The SRP-LR was revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.2-2	SRP-LR 4.2.2.1.5 and 4.2.3.1.5	Delete these sections from the SRP-LR.	The BWRVIP analysis referred to was to demonstrate the difference between the axial and circumferential welds in a BWR vessel for the purpose of eliminating circumferential weld examinations. The fluence experienced by BWRs is significantly less than PWRs and does not pose a threat to the integrity of the reactor vessel. The axial welds are examined periodically in accordance with ASME Section XI. Finally, the reactor material surveillance program and the assessment of the data monitor the level of embrittlement by evaluating the impact on upper shelf energy. See IV.A1.2.4 of GALL.	NEI recommends deleting Sections 4.2.2.1.5 and 4.2.3.1.5 from the SRP-LR. According to 10 CFR Part 54, the analyses must be performed for a 60-year period and not for 40-year period. SRP-LR sections 4.2.2.1.5 and 4.2.3.1.5 were revised to identify that embrittlement of axial beltline welds need to be monitored and that plant-specific information or a program for monitoring embrittlement is necessary. The SRP-LR was revised to address this comment.
S 4.3-1	SRP-LR 4.3.1.2	Insert the language previously provided with regard to the environmental effects of fatigue. Also include conforming changes throughout section 4.3 including deleting sections 4.3.2.2, 4.3.3.2 and the second paragraph of Table 4.3-2. Note that the previous comments suggested that this issue be addressed in Section 3 under the RCS. NOTE: Conforming changes will need to be made to the GALL report sections that reference this section and GALL Chapter X. For example, refer to GALL IV C2.1.1, C2.1.2	None of the industry comments pertaining to GSI-190 were included in the August 2000 version of the SRP-LR. The alternative method to address EAF was not included. Chapter X of the GALL now contains a Fatigue Management Program description (comments are provided below in comments labeled G X.M1-1). Environmental effects are not a TLAA and should not be addressed in the TLAA section. The industry has not closed on a long-term strategy for dealing with environmental effects so the language proposed in the original comments provides the flexibility for	NEI states that environmental effects are not a TLAA and should not be addressed in the TLAA. Environmental concerns relate to conservatism of the fatigue calculation, which is a TLAA. These issues are related and should not be separated. The SRP-LR was not revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.3-1 (cont.)		Fatigue. The language related to environmental effects should be deleted. A new line item related to environmental effects should be added and a site-specific program should be identified with further evaluation set to yes.	applicants to propose methods for addressing the issue.	
S 4.3-2	SRP-LR 4.3.1.2	SRP-LR Section 4.3.1.2 Generic Safety Issue, in the opening paragraph describes the concern that the effects of reactor coolant environment on the fatigue life of components were not adequately addressed by the code of record. This statement is in contrast to the 12/26/99 Thadani letter (Reference 11, SRP-LR Section 4.3) that allows the use of the same code of record for advanced reactor designs, but questions its validity for currently licensed plants. Because Reference 11 provides a confident foundation for the fatigue design basis of the next generation of nuclear plants, it is unclear how this same basis is a cause for concern for the existing plants. Resolution o f this disagreement needs to be clearly articulated.	The concern over the fatigue design of the existing plants casts a shadow on the viability of the fatigue design in the next generation of plants. Metal fatigue is a physical issue for both existing and future designs. The apparent conflict in NRC positions should be resolved to assure continuity in plant design.	This comment does not provide any specific recommendation for a change to the SRP-LR. The staff will address ALWRs when it receives an application for an initial operating license. The SRP-LR was not revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.3-3	SRP-LR 4.3.1.2	SRP-LR Section 4.3.1.2 Generic Safety Issue, in the last full paragraph, uses the phrase "the nature of age-related degradation" to indicate the potential for an increase in the frequency of pipe leaks. Please define "nature of age-related degradation."	The phrase "nature of age-related degradation" has no meaning in the context written. Since it is being used as a justification for further action, the phrase needs to be more fully defined to assist the reviewer.	NEI recommends deleting the phrase; "nature of age-related degradation" from Section 4.3.1.2. The phrase is contained in the GSI-190 closeout letter. There is no objection to eliminating the phrase from the SRP-LR. The SRP-LR was revised to address this comment.
S 4.3-4	SRP-LR 4.3.1	SRP-LR Section 4.3.1, "Areas of Review" does not seem to include fatigue analyses associated with the RCP Flywheel.	Confirm that the RCP flywheel fatigue analyses should not be included under Section 4.3 and that it will be considered plant specific and included under Section 4.7.	NEI indicated that the SRP-LR does not discuss the fatigue analysis of the RCP flywheel. According to NEI letter dated June 15, 2000, the following paragraph was added to Section 4.3.1, "The metal fatigue analysis review includes, as appropriate, a review of in service flaw growth analyses, reactor vessel underclad cracking analysis, reactor vessel internals fatigue analysis, postulated high energy line break, leak-before-break, RCP fly wheel, and metal bellows." This information should be helpful to the reviewer. The SRP-LR was revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.3-5	SRP-LR 4.3.1.1.3	SRP-LR Section 4.3.1.1.3 lists metal bellows designed to ASME NC-3649.4 (e)(3). SRP-LR Section 4.6.1 also lists penetration bellows as within the "Area of Review" for Section 4.6. Bellows should be addressed in only one section.	Clarify which section of the SRP-LR addresses metal bellows.	SRP-LR addresses metal bellows in two separate sections. NEI stated that metal bellows should only be addressed in one section. See NRC disposition of NEI comment S 4.3-4 in this Appendix B, Table B.2.13. The SRP-LR was revised to address this comment.
S 4.3-6	SRP-LR 4.3.2.1.1.2 (Typical for other sections)	The last sentence should be revised to read "The resulting CUF remains less than unity for the period of extended operation."	There is a Code requirement to design for a CUF below one, but a CUF below one during operation is not a Code requirement. This comments applies throughout Section 4.2 where the Code is tied with the period of extended operation.	NEI recommends rewording statement regarding CUF to "The resulting CUF remains less than unity for the period of extended operation" in several sections of the SRP-LR. The proposed change is clear and helpful. The SRP-LR was revised to address this comment.
S 4.3-7	SRP-LR 4.3.2.1.2.1 4.3.2.1.2.2	These two paragraphs should be revised to read as follows: 4.3.2.1.2.1 The existing fatigue strength reduction factors remain valid because the number of cycles would not be exceeded during the period of extended operation. 4.3.2.1.2.2 The fatigue strength reduction factors have been re-evaluated based on an increased number of assumed thermal cycles and	The allowable full cycle thermal stresses calculated during design are adjusted based on fatigue strength reduction factors. If the actual number of full range thermal cycles (e.g. 7000 cycles) remains valid for the 60-year term, then (i) is satisfied. If the fatigue strength reduction factor is increased but the design basis allowable is still met, then (ii) is satisfied.	NEI recommends modification of Sections 4.3.2.1.1.2 and 4.3.2.1.2.2 to address fatigue strength reduction factors instead of allowable stresses. The proposed change makes the issue clearer and it is helpful. The SRP-LR was revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.3-7 (cont.)		Table 4.3-1 to bound the period of extended operation. The adjusted fatigue strength reduction factors are such that the component design basis remains valid during the period of extended operation.		
S 4.3-8	SRP-LR 4.3.2.1.2.3 Also, conforming changes with 4.3.3.1.2.3	Replace the existing text with the text presented in Section 4.3.2.1.1.3.	Piping that was designed to B31.1 can be managed by cycle counting the same as piping designed to ASME Section III. If this change is not accepted as proposed, then delete the second sentence of the first paragraph because there is no requirement to replace piping when the design cycles are reached. ASME XI can be applied the same as if CUF exceeds one. Also, there should be no requirement that if the pipe is replaced it be designed to last until the end of the extended period of operation. It may be economically better to replace the pipe several times during plant lifetime rather than design such that the pipe will last for the entire plant lifetime.	NEI suggests replacing the existing text in 4.3.2.1.2.3 with the text presented in Section 4.3.2.1.1.3. NEI states that, "the piping that was designed to B31.1 can be managed by cycle counting the same as piping designed to ASME Section III." Staff believes the existing wording does not preclude B31.1 plants from cycle counting. However, the staff is not aware of any instances where applicants plan to monitor cycles for the B31.1 cycle limits. Therefore, the staff has not developed an AMP similar to the AMP used for plants with fatigue analyses (ASME Section III, Class I designs). The SRP-LR was not revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.3-9	SRP-LR 4.3.3.1.1.3 (typical for other sections)	Insert a second sentence as follows, "Cycle counting can be used by the applicant in one of two ways. First, it may be implemented as a confirmation of design assumptions in support of options (i and ii). Secondly, it may be used as an aging management program in support of an option (iii) solution."	This may not be a disposition of fatigue TLAAs (option iii). The only time one would apply (iii) is if a CUF of 1.0 had been exceeded during the period of extended operation, or in the case of monitoring existing flaws. In that case the program could be one, which manages cracking or might involve cycle counting. Cycle counting can also be used to confirm that you are remaining within your design cycle assumptions and supports the (i) and (ii) alternatives.	NEI recommends that cycle counting can be used to satisfy options (i) or (ii) for the fatigue TLAA. However, the staff considers options (i) and (ii) calculations that should be performed prior to the period of extended operation to verify the fatigue analysis remain valid. The intent of cycle counting in option (iii) is to monitor the usage during the extended period of operation to assure that the CUF does not exceed its allow limit. The SRP-LR was not revised to address this comment.
S 4.3-10	SRP-LR Table 4.3-2	The first sentence should begin with "The aging management program…" The phrase "In order to not exceed the design limit on fatigue usage and the number of design cycles" should be deleted.	The fatigue-monitoring program does not have to prevent exceeding the number of design cycles. The purpose of the AMP is to monitor thermal fatigue to identify before the plant exceeds the limit on cycles of CUF, so that appropriate action can be taken. This can include revising the CUF calculations, inspection of the piping per ASME Section XI, or replacement of the pipe.	NEI recommends changing the first sentence in Table 4.3-2 to indicate that the fatigue-monitoring program does not have to prevent exceeding the number of design cycles. This proposed change makes it clearer that the program should prevent exceeding the fatigue design limit. The SRP-LR was revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.4-1	SRP-LR 4.4	EQ Component Reanalysis Attributes section of GALL X.E.1 is identical to the information provided in SRP-LR Section 4.4.3.1.2 and Table 4.4-1. Suggest deleting the information from SRP-LR 4.4.3.1.2 and simply referencing the GALL report	From an administrative perspective, it makes sense to only have this information in one location. Future changes would then need to be made to only one location. It also fits the objective of the overall GALL report. The story in the GALL report makes sense as told and it should remain as is and revise the SRP-LR.	NEI recommends deleting the information from SRP-LR 4.4.3.1.2. However, the staff considers the information from SRP-LR 4.4.3.1.2 regarding reanalysis is too important relative to 10 CFR 54.21(c)(1)(ii) to be deleted. The SRP-LR is considered to be a stand-alone document. The SRP-LR was not revised to address this comment.
S 4.4-2	SRP-LR 4.4.1	At the end of the paragraph on "Areas of Review" add a new sentence as follows, "For the purposes of license renewal only those components with a service life of 40 years or greater would be TLAAs."	Please provide a statement that clarifies that only equipment qualified for 40 years or greater meets the 6 TLAA criteria. This statement was included in Chapter X of the GALL	NEI states that for license renewal, only those components with a "qualified" life of 40 years or greater require evaluation as a TLAA. The proposed change is helpful as long as it addresses the "qualified" life of 40 years or greater vs. "service" life of 40 years or greater. The SRP-LR was revised to address this comment.
S 4.4-3	SRP-LR 4.4.1.2	Delete the first sentence of Section 4.4.1.2	The first sentence is a true statement, but there are a variety of other reasons that GSI-168 was generated. Highlighting this one reason and not the others implies that it is of most importance. In actuality the difference in EQ requirements between newer and older plants was eliminated as an in issue in a letter from the NRC dated 2-5-98.	NEI comments that the first sentence in SRP-LR 4.4.1.2 regarding "older" vs. "newer" requirements was resolved in the staff EQ Task Action Plan and need not be highlighted in the SRP-LR. This proposed change is helpful and clear. The SRP-LR was revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.5-1	SRP-LR Chapter 4.5	Replace Chapter 4.5 with the previously submitted NEI version of Chapter 4.5. NOTE: Conforming changes will also need to be made to the GALL report. For example, in GALL section II A1.3 Loss of Prestress, the evaluation and technical basis description should be revised as follows: Delete the second sentence of the first paragraph. Revise the sentence in the second paragraph to read "…see Chapter XI.S2 *and XI.Sx*." where "*x*" refers to the new number for the tendon surveillance program	The latest version of this SRP-LR chapter remains based on a fundamental misconception of what constitutes a TLAA. Based strictly on the definition of a TLAA presented in the Rule, the TLAA for Containment Tendon Prestress consists ONLY of the PLL curves that currently are calculated out to 40 years. The trend lines of the actual measurements, and any comparison of these trend lines to the PLL curves, DO NOT constitute a TLAA, because they are in no way based on the forty-year operating life of the plant. The trend line is based on data taken at individual points in time that have no relation to a forty year life, and the trend line is compared to whatever point on the PLL curve it intersects, not to the point on the PLL curve representing 40 years. In actuality, since the TLAA for Containment Tendon Prestress consists only of the PLL curves, the only options for dispositioning this TLAA should be (i), the PLL curves are already calculated to 60 years, or (ii), we will project the PLL curves to 60 years. The activities described in the SRP-LR under option (iii), with the	NEI recommends replacing Chapter 4.5 of the SRP-LR with the NEI version of the Chapter 4.5. NEI states that based on its interpretation of a TLAA presented in the Rule, the TLAA for Containment Tendon Prestress consists only of the PLL curves that currently are calculated out to 40 years. The trend lines of the actual measurements, and any comparison of these trend lines to the PLL curves, do not constitute a TLAA, because they are in no way based on the forty-year operating life of the plant. The trend line is based on data taken at individual points in time that have no relation to a forty year life, and the trend line is compared to whatever point on the PLL curve it intersects, not to the point on the PLL curve representing 40 years. The estimation of PLLs and MRVs are parts of the basic design calculations, that are required whether the license renewal application is made or not. The purpose of this TLAA is to demonstrate that the time-dependent characteristics of the actually measured prestressing forces remain above the corresponding PLLs and MRVs. As

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.5-1 (cont.)			exception of projecting the PLL curves, have nothing to do with any TLAA. Rather, they constitute the Aging Management Program that the applicant will have to credit after performing the AMR of the Containment Tendons. The industry does not dispute that these activities will be required, only that they have nothing to do with dispositioning the TLAA for Containment Tendon Prestress. The Aging Management Program aspects of Containment Tendon Prestress, including comparison of the slope of the trend line to the PLL curves, will be considered in the aging management review for the Containment structure, not in this TLAA. With the current version of this SRP-LR chapter, the NRC has presented two options for disposition, (i) and (ii) that will almost certainly be rejected by applicants. This is because they require making conjectures about future equipment performance. Also, option (iii) consists of first, extending the PLL curves to 60 years (which as described above should be listed as option (ii) in its entirety and must be done anyway) and then proceeding with the Tendon Prestress activities that every	a result of an earlier NEI comment on GALL IIA1.3, the staff had agreed to make the trend line comparison with the corresponding MRVs rather than PLLs, as that is required by 10 CFR 50.55a(b)(2)(ix)(B) [August 1996]. The SRP-LR was not revised to address this comment.

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.5-1 (cont.)			licensee is required to perform already. For option (ii), the staff is requiring an extrapolation of data for a time-period that is in excess of the current regulatory requirement in 50.55a. In 50.55a(b)(viii)(B), the trend of data needs to be made out only through the next inspection interval (5 years). With data scatter, there is a large degree of uncertainty in extrapolating out upwards of 40 years. Developing a retensioning plan based on a lengthy extrapolation of data adds no value towards assuring the intended function of the tendons is maintained above and beyond existing regulatory requirements. In the absence of any additional TLAA considerations, licensees would continue to treat the prestress trend results in accordance with the existing regulatory requirements. The industry and NRC are not in disagreement as to the complete set of activities that must be performed for aging management and for TLAA disposition for Containment Tendons. The previous industry rewrite of this SRP-LR chapter intended to allocate those activities that, by the Rule, actually pertain to	

Table B.2.13: Disposition of NEI Comments on Chapter 4 of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S 4.5-1 (cont.)			the TLAA aspects of this issue, and relegate the remainder to the appropriate aging management review process.	

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APPENDIX B, TABLE B.2.14

DISPOSITION OF NEI COMMENTS ON APPENDIX A OF SRP-LR

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Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-A.1-1	A.1.1	Under background, the statement is made that "In many instances, more than one type of aging management programs are implemented to ensure that aging effects are managed." The sentence should be changed to: "More than one type of aging management program may be implemented to ensure that aging effects are managed."	This is not true and has not been the case with the first two approved licenses.	The intent of this sentence was to inform the reviewer that more that one aging management program may be used to manage an aging effect. The proposed sentence more clearly states this fact. The SRP-LR, Section A.1.1, third paragraph was revised to address this comment by revising the sentence referred to in the comment from "In many instances, more than one type of aging management programs are implemented to ensure that aging effects are managed" to "More than one type of aging management program may be implemented to ensure that aging effects are managed."
SA.1 –2	SRP-LR App A.1	Currently, A.1.2.1, Applicable Aging Effects, paragraph 1 states: The determination of applicable aging effects is based on the degradations that have actually occurred and those that potentially could cause structure and component degradation. The materials, environment, stresses, service conditions, operating experience, and other relevant information should be considered in identifying applicable aging effects. The effects of aging on the structure and component intended function(s) should also be considered.	The threshold for when an aging effect needs to be managed for the period of extended operation needs to be clearly defined and have a technical basis that supports the conclusion. The statement that an aging effect that needs to be managed is one that "potential could" is too vague and ambiguous and subject to too much judgement.	The threshold for when an aging effect needs to be managed for the period of extended operation cannot always be clearly defined. An example of this is void swelling in reactor vessel components. Void swelling has not occurred and there is no definite evidence that it would result in loss of component function during the period of extended operation but there is a potential for it to cause structure or component degradation. Based on aging effects such as this, the NRC position is that aging management programs are to be implemented for degradations that have occurred

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.1-2 (cont.)		This paragraph should be revised to read as follows: The determination of aging effects that require management during the period of extended operation is based degradations that have actually occurred and those that would result in loss of component function during the period of extended operation if left unmanaged. The materials, environment, stresses, service conditions, operating experience, and other relevant information should be considered in identifying applicable aging effects. The effects of aging on the structure and component intended function(s) should also be considered.		and for those that potentially could cause structure and component degradation. Potentially applicable aging effects would include aging effects such as void swelling which requires aging management. The SRP-LR was not revised to address this comment.
SA.1-3	SRP-LR App A.1	Section A1.2.3.2 Preventive Actions, paragraph 2 currently states: "However, in many instances, more than one type of aging management programs should be implemented to ensure that effects are managed."	In many instances, reasonable assurance has been provided by programs that prevent or mitigate the effects of aging during the current term of the operating license. Only if there is a recognized deficiency in the existing program should there be a need to augment the program with an inspection program.	See disposition of NRC comment SA.1-1 in this Appendix B, Table B.2.14. The GALL report evaluates recognized deficiencies in existing programs and augments program with an inspection. An example of this is the water chemistry program where the program may not be effective in low flow or stagnant flow areas, the program needs to be augmented with an inspection to verify the effectiveness of water chemistry control and confirm the absence of an aging effect. If an

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.1-3 (cont.)				aging effect is detected, the results are evaluated to determine the appropriate corrective actions. The SRP-LR was not revised to address this comment.
SA.1-4	SRP-LR App A.1	Section A.1.2.3.4 Detection of Aging Effects This section should focus on what is needed to do the aging management program or activity. This section should be revised to discuss the method by which the aging effect will be detected; how often the activity will be performed, and how large the sample size should be. In addition, for new activities, the timing of when the new activity will be implemented. Appropriate industry codes and standards may be included to support the program. The "Detection of Aging Effects" attribute should be revised to read as follows: This program element describes "when", "where" and "how" program data is collected; i.e., all aspects of activities to collect data as part of the program. This includes aspects such as method or technique (e.g.,	This section does not currently provide enough guidance to the applicant or the reviewer relative to the information that should be discussed within this attribute. The guidance needs to address the expectations for the 'Detection of Aging Effects' attribute for all four types of aging management programs and activities: prevention, mitigation, condition monitoring, and performance monitoring.	The proposed program attributes provide detailed guidance to the reviewer and the applicant describing how the aging effect will be detected. The attributes also provide expectations that are relevant to the four types of aging management programs. The SRP-LR was revised to address this comment by revising item 1 and adding three new items (3, 4, and 5) in Section A.1.2.3.4 Detection of Aging Effect: "1. Detection of aging effects should occur before there is a loss of the structure and component intended function(s). The parameters to be monitored or inspected should be appropriate to ensure that the structure and component intended function(s) will be adequately maintained for license renewal under all CLB design conditions. This includes aspects such as method or technique (e.g., visual, volumetric, surface inspection), frequency, sample size, data collection and timing of new/one-time inspections to ensure timely

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA. 1-4 (cont.)		visual, volumetric, surface inspection), frequency, sample size, and timing of new/one-time inspections. Provide information that links the parameters to be monitored or inspected to the aging effects being managed. The method or technique and frequency may be linked to plant specific or industry wide operating experience. Provide justification, including codes and standards referenced, that the technique and frequency are adequate to detect the aging effects prior to a loss of SC intended function. The NRC staff position is that a program based solely on detecting SC failures is not considered an effective aging management program. When sampling is used to inspect a group of SCs, provide the basis for the inspection population and sample size. The inspection population should be based on aspects of the SCs such as a similarity of materials of construction, fabrication, procurement, design, installation, operating environments or aging effects. The sample size should be based on aspects of the SCs such as the specific aging effect, location, existing technical information,		detection of aging effects. Provide information that links the parameters to be monitored or inspected to the aging effects being managed. 3. This program element describes "when," "where," and "how" program data is collected (i.e., all aspects of activities to collect data as part of the program). 4. The method or technique and frequency may be linked to plant specific or industry wide operating experience. Provide justification, including codes and standards referenced, that the technique and frequency are adequate to detect the aging effects prior to a loss of SC intended function. A program based solely on detecting SC failures is not considered an effective aging management program. 5. When sampling is used to inspect a group of SCs, provide the basis for the inspection population and sample size. The inspection population should be based on aspects of the SCs such as a similarity of materials of construction, fabrication, procurement, design, installation, operating environments or aging effects. The sample size should be based on aspects of the SCs such as the specific aging effect, location, existing technical information,

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA. 1-4 (cont.)		system and structure design, materials of construction, service environment or previous failure history. The samples should be biased towards locations most susceptible to the specific aging effect of concern in the period of extended operation. Provisions should also be included on expanding the sample size when degradation is detected in the initial sample.		system and structure design, materials of construction, service environment or previous failure history. The samples should be biased towards locations most susceptible to the specific aging effect of concern in the period of extended operation. Provisions should also be included on expanding the sample size when degradation is detected in the initial sample." To be consistent with above program description, additional changes were made to SRP-LR and GALL. A sentence was added after the first sentence in the description for element "Detection of Aging Effects" in both SRP-LR,Table A.1-1, and GALL Volume 1, page 2: "This includes aspects such as method or technique (i.e., visual, volumetric, surface inspection), frequency, sample size, data collection,and timing of new/one-time inspections to ensure timely detection of aging effects." To be consistent with the above changes, the second sentence in SRP-LR section A.1.2.3.5 for Monitoring and Trending, Item 1 was deleted. Also, the second

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.1-4 (cont.)				sentence in the description for element "Monitoring and Trending" in the SRP-LR, Table A.1-1 and GALL Volume 1, page 2 was deleted. The deleted statement read, "The monitoring, inspection, testing frequency, and sample size should be appropriate for timely detection of aging effects."
SA.1-5	SRP App A.1	Section A.1.2.3.5 Monitoring and Trending This section should focus on what evaluations are performed after the results from performing the aging management program or activity are obtained. This section could be re-titled to be 'Evaluation and Trending." The use of the term 'monitoring' is ambiguous and confusing, because it relates to actually doing the aging management activity. This section should focus on the review or evaluation of the data obtained from the aging management program or activity described in the previous section. Quantitative results can be trended if appropriate. Past inspection results can be reviewed in preparation for a forthcoming inspection.	This section does not currently provide enough guidance to the applicant or the reviewer relative to the information that should be discussed within this attribute. The guidance needs to address the expectations for the 'Monitoring and Trending' attribute for all four types of aging management programs and activities: prevention, mitigation, condition monitoring, and performance monitoring.	Changing the title of "Monitoring and Trending" was not appropriate. The proposed change to information contained under "Monitoring and Trending" provides useful guidance to both the applicant and the reviewer describing what is done with data collected in the Detection of Aging element. The attributes also provide expectations that are relevant to the four types of aging management programs. The SRP-LR was revised to address this comment by revising element #2 in section A.1.2.3.5 on page A-1.4 as follows: "2. This program element describes "how" the data collected is evaluated and may also include trending for a forward look. This includes an evaluation of the results against the acceptance criteria and a prediction regarding the rate of degradation in order to confirm that timing of the next scheduled

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.1-5 (cont.)		The evaluation confirms that the structure or component will continue to meet its acceptance criteria through the next planned inspection. The "Evaluation and Trending" attribute should be revised to read as follows: This program element describes "how" the data collected is evaluated and may also include trending if a forward look is required. This includes an evaluation of the results against the acceptance criteria and a prediction regarding the rate of degradation in order to confirm that timing of the next scheduled inspection will occur prior to a loss of SC intended function. Although aging indicators may be quantitative or qualitative, aging indicators should be quantified, to the extent possible, to allow trending. Explain how the parameter or indicator will be trended. If not straightforward, describe the methodology for analyzing the inspection or test results against the acceptance criteria. This attribute is used for condition or performance monitoring programs that trend the results of the monitoring activities. Trending is a comparison of the current		inspection will occur prior to a loss of SC intended function. Although aging indicators may be quantitative or qualitative, aging indicators should be quantified, to the extent possible, to allow trending. The parameter or indicator trended should be described. The methodology for analyzing the inspection or test results against the acceptance criteria should be described. Trending is a comparison of the current monitoring results with previous monitoring results in order to make predictions for the future."

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.1-5 (cont.)		monitoring results with previous monitoring results in order to make predictions for the future.		
SA.1-6	SRP-LR A.1	Section A.1.2.3.6 The statement in the first paragraph that reads: "The program should include a methodology for analyzing the results against applicable acceptance criteria." May be deleted if the changes noted in the previous section are made. Acceptance criteria can also be qualitative such as that used during a visual inspection.	The specific feature of analyzing results is more appropriately included within the "Evaluation and Trending" attribute. Acceptance criteria can be both quantitative and qualitative and expectations for both need to be addressed.	Analyzing results of data against acceptance criteria can occur in both the "Monitoring and Trending" and the "Acceptance Criteria" elements. Acceptance criteria can be qualitative such as that used during a visual inspection. The SRP-LR was revised to address this comment by adding a fourth item to Section A.1.2.3.6 as follows: "4. Qualitative inspections should be performed to same predetermined criteria as quantitative inspections by personnel in accordance with ASME Code and through approved site specific programs."
SA.1-7	SRP-LR A.1	Revise A.1.2.3.10, paragraph 1 to add the following statement: By providing the objective evidence, the demonstration required by §54.21(a)(3) is satisfied.	In the checklist provided in SRP-LR Chapter 1, the staff is required to determine if the demonstration requirements of §54.21(a)(3) have been met. This additional statement is recommended in order to clearly establish what is meant by demonstration.	The proposed change implies that operating experience by itself would be sufficient to demonstrate that the effects of aging will be adequately managed and based on this, the applicant need not address elements 1-9 of the 10 element aging management program. The SRP-LR was not revised to address this comment.

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-A.1-8	A.1.2.1	Applicable and potential aging effects needs to be defined if it is determined that these are the correct terms to use. NEI 95-10 uses the term "aging effects requiring management." Suggest using this term to be consistent with industry guidance.		During the NRC/NEI meeting dated 31 January 2001, NEI's concern was that the term potential aging effect does not provide a definite threshold for when an aging effect requires management. Staff and NEI agreed that since there is no certainty when an unseen aging effect becomes likely to warrant aging management, this determination will have to involve engineering judgment. The SRP-LR was not revised to address this comment.
S-A.1-9	A.1.2.1	Item No. 3 should be deleted.	The rule only requires an applicant to demonstrate that the aging effects are managed. The applicant does not have to identify aging effects that it does not have to manage or justify why it does not have to manage those effects.	NRC agrees that the applicant does not have to identify aging effects that it does not have to manage or justify why it does not have to manage those effects. The SRP-LR, Section A.1.2.1, was revised to address this comment by rewriting the third item as follows to provide the reviewer with guidance in questioning the applicant concerning aging effects not listed in the application: "If operating experience or other information indicates that a certain aging effect may be applicable and an applicant determines that it is not applicable to its plant, the reviewer may question the absence of this aging effect unless the applicant has provided the basis for this

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-A.1-9 (cont.)				determination in its license renewal application. However, in questioning the absence of the aging effect, a reference and/or basis which provides relevance to aid the applicant in addressing the question should be provided. For example, the question could cite a previous application review, NRC generic communications, engineering judgment, relevant research information, or other industry experience as the basis for the question. Simply citing that the aging effect is listed in the GALL report is not a sufficient basis. For example, the aging effect is applicable to a PWR component, but the applicant's plant is a BWR and does not have such a component. In this example, using the GALL report merely as a checklist is not relevant."
S-A.1-10	A.1.2.3.2	The second sentence under Item 2 states that "However, in many instances, more than one type of aging management programs are implemented to ensure that aging effects are managed." This should be changed to: However, more than one type of aging management program may be implemented to ensure that aging effects are managed.	This is not true and has not been the case with the first two approved licenses.	See NRC disposition of NEI comment for SA.1-1 in this Appendix B, Table B.2.14.

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
S-A.1-11	A.1.2.3.6	Delete the second sentence under Item 3 that discusses CLB design loads.	Acceptance criteria, which do permit degradation, are based on maintaining the intended function under all CLB design loads. Therefore, this comment is irrelevant.	Section A.1.2.3.6 Acceptance Criteria, item 3 provides the reviewer guidance on acceptance criteria for CLB design loads. Acceptance criteria, which do permit degradation, are based on maintaining the intended function under all CLB design loads. The SRP-LR, Section A.1.2.3.6, Item 3, was revised to address this comment as follows: "3. It is not necessary to justify any acceptance criteria taken directly from the design basis information that is included in the FSAR because that is a part of the CLB. Also, it is not necessary to discuss CLB design loads if the acceptance criteria do not permit degradation because a structure and component without degradation should continue to function as originally designed. Acceptance criteria, which do permit degradation, are based on maintaining the intended function under all CLB design loads."

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.2-1	SRP-LR App A.2	SRP-LR Appendix A.2, Section A.2.2, Item 2 contains that following statement that should be deleted: "The applicant should document such a commitment in the final safety analysis report (FSAR) supplement in accordance with 10 CFR 54.21(d)."	In general, the SRP-LR contains guidance for the staff reviewers. Including a specific applicant requirement such as this should not be in the SRP-LR. The specific content of the FSAR supplement is already provided by examples contained in all appropriate sections of the SRP-LR. This issue of documenting this commitment should be contained in each example FSAR summary description. If necessary, it can be placed in brackets to indicate that whether or not to include the statement is a plant specific decision.	The intent of SRP-LR Appendix A.2, Section A.2.2, Item 2 was to provide guidance to NRC staff reviewers in performing safety reviews of applications and not to impose applicant requirements. The SRP-LR contains example FSAR summary descriptions and the decision to include these statements is a plant specific decision. Revising the SRP-LR tables to include brackets indicating that this is a plant specific decision would complicate the tables. The SRP-LR FSAR summary tables were not updated. The SRP-LR, Section A.2.2, Item No.2, was revised to addressed this comment by clarifying the second sentence from "The applicant should document such a commitment in the final safety analysis report (FSAR) supplement in accordance with 10 CFR 54.21(d)" to "The reviewer should verify that the applicant has documented such a commitment in the FSAR supplement in accordance with 10 CFR 54.21(d)."
SA.3-1	SRP-LR App A.3	SRP-LR Appendix A.3, Section A.3.2.1, Item 2, states that "the version of NUREG-0933 that is current on the date 6 months before the date of the license renewal	There is routinely several weeks delay from the time the revision is finished until the time it is published and available to the public.	Updates of NUREG-0933 are planned approximately every 6 months and, as such, NUREG-0933 is a more current source of information than the annual report to

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.3-1 (cont.)		application…" Revise this review process to include as a viable alternative an applicant's review of the annual staff report to the Commission of the activities related to Generic Safety Issues.	An approach needs to be developed to address any new issues that reveal themselves over the course of the review of license renewal applications. In SECY-98-030, the Commission directed the staff to provide an annual summary of activities related to open reactor and non-reactor GSIs. These annual summaries of activities have been recently provided in SECY-98-166, July 6, 1998; SECY-99-185, dated July 16, 1999; and most recently in SECY-00-0149, dated June 30, 2000. It appears that these annual reports from the staff and to the Commission may be a reliable alternative to the actual release of supplements to NUREG-0933 and more useful to applicants in determining the current status of open GSIs.	the Commission. Additionally, NUREG-0933 contains the detailed discussion of the generic issue and would still need to be referenced if the annual report was used. If an applicant is preparing a license renewal application during a NUREG-0933 supplement issue period, the NRC should be contacted for the supplement issue status. The approach used by the NRC to determine the need for a renewal applicant to address an emerging generic issue was discussed between the NRC's License Renewal Steering Committee and the NEI License Renewal Working Group on December 9, 1999. If an issue is identified, its significance is evaluated by both staff and management with respect to the ability of the NRC to make its reasonable assurance finding that actions have been or will be taken to manage the effects of aging during the period of extended operation on the functionality of structures and components that are subject to review. If that finding cannot be made, the applicant must address the issue before a renewed license can be issued. The SRP-LR, Section A.3.2.1,

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.3-1 (cont.)				Item 2, was revised to address this comment regarding use of NUREG-0933.by adding the following sentence: "Prior to SER completion, any new issues contained in later versions of NUREG-0933 should be reviewed and resolved if determined to be applicable to the applicant's plant."
SA.3-2	SRP-LR App A.3	SRP-LR Appendix A.3, Section A.3.2.1, Item 3, states that "the amendment to the license renewal application identifying current licensing basis (CLB) changes, as required by 10 CFR 54.21(b), should address any additional USI, HIGH-, or MEDIUM- priority issues designated after the application has been submitted…"	§54.21(b) requires an applicant to submit an amendment to the application that addresses and changes to the CLB that materially affect the contents of the application. Changes to NUREG-0933 are not considered to be changes to the plant CLB. Therefore, it is inappropriate to include them within the §54.21(b) amendment to the application. An approach needs to be developed to address any new issues that reveal themselves over the course of the review of license renewal applications.	New GSIs identified during the review of a license renewal application are not CLB changes. This is consistent with the Commission's intent in the Statements of Consideration for 10 CFR Part 54 when amended in 1995 (60 FR 22484) a generic issue identified involving an aging concern or a time-limited aging analysis needs to be evaluated and should be submitted as an update to the application. The approach used by the NRC to determine the need for a renewal applicant to address an emerging generic issue was discussed between the NRC's License Renewal Steering Committee and the NEI License Renewal Working Group on December 9, 1999. If an issue is identified, its significance is evaluated by both staff and management with respect to the ability of the NRC to make its reasonable assurance finding that

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.3-2 (cont.)				actions have been or will be taken to manage the effects of aging during the period of extended operation on the functionality of structures and components that are subject to review. If that finding cannot be made, the applicant must address the issue before a renewed license can be issued. The SRP-LR Section A.3.2.1, Iitem 3, was revised to address this comment by changing paragraph to read "New generic safety issues, designated as USI, HIGH-, or MEDIUM- priority after the application has been submitted, that involve aging effects for structures and components subject to an aging management review or TLAA should be submitted in the annual update of the application."
SA.3-4	SRP-LR App A.3	SRP-LR Appendix A.3, Section A.3.2.1, Item 4, states that "During the preparation and review of a license renewal application, an applicant or the NRC may become aware of an aging management or TLAA issue that may be generically applicable to other nuclear units. If issues may have generic applicability (but are not yet part of the formal generic safety issues resolution process as identified in NUREG-0933), an applicant should still address the issue to	In general, the SRP-LR contains guidance for the staff reviewers. Including a specific applicant requirement such as this should not be in the SRP-LR. An approach needs to be developed to address any new issues that reveal themselves over the course of the review of license renewal applications. The threshold of when an issue becomes of concern during the license renewal application review needs to be clearly defined.	See NRC disposition of NEI comment SA.3.2 in this Appendix B, Table B.2.14, regarding the approach used by the NRC for identifying new issues. Because of the variety of potential issues that may arise, both technical and process, it is not possible to establish specific thresholds for all possible issues that may become of concern for license renewal. Each issue will be evaluated by NRC staff and management using the process discussed in the NRC disposition

Table B.2.14: Disposition of NEI Comments on Appendix A of SRP-LR (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
SA.3-4 (cont.)		demonstrate that the effects of aging are or will be adequately managed or that TLAAs have been evaluated for the period of extended operation."		referred to in this paragraph. The SRP-LR was not revised to address this comment.
SA.3-5	SRP-LR App A.3	SRP-LR Appendix A.3.3 References indicates that the current version of NUREG-0933 is Supplement 23, April 1999. The SRP-LR should be revised to reflect the actual current version - Supplement 24, June 2000. Table A.3-1 should be updated to include issues are not in NUREG-0933 but have been identified to be addressed during the initial applicant reviews.	As of September 19, 2000, the NRC web site also lists Supplement 23 as the current version of NUREG-0933. The SRP-LR may not be updated as often as NUREG-0933 is revised. Specification of a specific supplement of NUREG-0933 in the SRP-LR may be counterproductive. In addition, the NRC web site needs to also be kept current with respect to NURG-0933, and its most recent supplement issued. As an aid to both applicants and staff reviewers, Table A.3-1 should be updated annually to reflect the emerging issues that need to be reviewed during license renewal.	See NRC disposition of NEI comment SA.3.1 in this Appendix B, Table B.2.14. The Office of Nuclear Reactor Regulation will coordinate with the Office of Regulatory Research regarding updating the version of NUREG-0933 maintained on the NRC's Web site. Table A.3-1 is provided as an illustration of the evaluation process used to determine whether a GSI needs to be addressed in a license renewal application and was not intended to be a complete list of applicable issues for a renewal applicant. The current list of generic issues that an applicant needs to address can be found by review of NUREG-0933, review of recent renewal applications, and discussions with the NRC staff. The SRP-LR, Appendix A.3.3, Reference 1 was revised to address this comment by deleting the supplement (current version) from NUREG-0933.

APPENDIX B, TABLE B.2.15

DISPOSITION OF WRITTEN GENERIC NEI COMMENTS

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Table B.2.15: Disposition of Written Generic NEI Comments

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NEI-1	B.3.2	Based on the lessons learned from the review of the first few renewal applications, the GALL provides sufficient credit for existing programs. As renewal applications continue to be submitted and reviewed, the NRC should consider future revisions to GALL to capture any additional lessons learned.	The GALL report is somewhat limited in that the existing programs must be generic. Obviously, renewal applicants will credit existing programs that are plant specific but at this time it seems that the focusing GALL on the generic programs is appropriate.	See NRC disposition of comment ACRS-2 in Table C of this NUREG.
NEI-2	B.3.2	The GALL report does not provide too much credit for existing programs. The programs credited in GALL are a reflection of the programs credited in the first few renewal applications. The technical detail is sufficient. The GALL evaluates the existing programs against ten attributes that are typically found in adequate aging management programs.		The comment is NEI's opinion on the GALL report's credit of existing programs. The GALL report was not revised to address this comment.

Table B.2.15: Disposition of Written Generic NEI Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NEI-3	B.3.2	While we do not agree that all ten elements need to exist for a program to be found adequate, the fact that GALL uses all them is a testament to the robustness of the technical evaluation.		The GALL report is not a regulatory requirement, but a guidance document; therefore, each AMP proposed will be evaluated to determine whether it meets the requirements specified in the license renewal rule. The 10-element evaluation approach has worked well in the GALL report and the staff review of the initial license renewal applications. See NRC disposition of comment NMC-3 in Table C of this NUREG for a discussion on how NRC staff will use the SRP-LR (NUREG 1800) to evaluate proposed AMPs. The GALL report was not revised to address this comment.
NEI-4	B.3.2	If a specific revision of a code - say those published by the American Concrete Institute (ACI), is referenced and evaluated in GALL a renewal applicant can indicate that they use the same program at their facility and rely on the GALL evaluation. If the ACI standard used by an applicant is different from that in the GALL then the applicant must demonstrate that its program is adequate in the areas which differ between the standard revision contained in GALL and the revision of the standard which the applicant uses.		See NRC disposition of comment ACRS-2 in Table C of this NUREG.

Table B.2.15: Disposition of Written Generic NEI Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NEI-5	B.3.2	This question addresses the staffs desire for an applicant to discuss, in its application, any aging effects identified in the draft GALL report for a particular structure or component that the applicant has determined to be not applicable to its plant. It appears that the GALL identified aging effects are to be used by the staff as a checklist of those that require management. This implies that it would be acceptable for an applicant to use the GALL to determine which aging effects require management. Is this the staffs intent? Is it acceptable for an applicant to refer to the GALL for a particular system or structure with the same materials and environments as those identified in the GALL, and use it as a basis for conclusions regarding the aging effects requiring management? If the GALL is intended to provide guidance regarding the need to manage certain aging effects as well as guidance on the adequacy of existing plant programs, then this appears to be an acceptable approach.		See NRC disposition of comment NMC-8 in Table C of this NUREG.

Table B.2.15: Disposition of Written Generic NEI Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NEI-6	B.3.3	It is not clear what type of certification is acceptable nor is it clear what the NRC staff will look for if they examine the on-site verification documents.	Some insight into the certification question is found in the Standard Review Plan. We believe the language in Subsection 3.1.3.1 is the appropriate language if an applicant is relying in a program evaluated in the GALL report. We recommend the other sections and subsections in the SRP-LR be revised to be consistent with subsection 3.1.3.1.	See NRC disposition of comment NMC-2 in Table C of this NUREG.
NEI-7	B.3.3	When a program evaluation in GALL concludes that no further evaluation is necessary, there should be a statement that the program is adequate and demonstrably effective in managing aging in the period of extended operation.		See NRC disposition of comment NMC-2 in Table C of this NUREG.
NEI-8	B.3.3	We would appreciate the opportunity to discuss with NRC staff the possibility of a program evaluation for IWB-2500 with the NRC staff. We are willing to provide draft evaluations for the NRC staff review but believe it's important to reach agreement with the NRC staff on how that evaluation will be partitioned.		The GALL report, Chapter XI evaluates aging management program XI.M1 "ASME Section XI Inservice Inspection, Subsections IWB-2500, IWC-2500, and IWD-2500." The GALL report was revised to address this comment by providing an evaluation of IWB-2500 in AMP XI.M1.
NEI-9	B.3.4 Reg. Guide	Does the Reg. Guide need to address the issue of electronic submittal.	None Provided	See NRC disposition of comment DG-1104-2 in Table C of this NUREG.

Table B.2.15: Disposition of Written Generic NEI Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NEI-10	B.3.5 NEI 95-10	Make changes to NEI 95-10	None Provided	Appropriate changes were incorporated into NEI 95-10. The GALL report was not revised to address this comment.
NEI-11	B.3.5 NEI 95-10	Incorporating guidance on the use of GALL	None Provided	See NRC disposition of comment NMC-2 in Table C of this NUREG.
NEI-12	B.3.5 NEI 95-10	Updating Appendix B consistent with the comments provided on GALL	None Provided	Appropriate changes were incorporated into NEI 95-10. The GALL report was not revised to address this comment.
NEI-13	B.3.5 NEI 95-10	Refinements to the standard applicant format guidance in chapter 6	None Provided	Appropriate changes were incorporated into NEI 95-10. The GALL report was not revised to address this comment.
1	B.3.9 NEI 95-10 Sect. 1.5	NEI 95-10, Section 1.5 discusses resolution of current safety issues. SRP-LR Appendix A.2 provides a similar discussion. The current descriptions are not consistent and the threshold for addressing new issues may be too low.	An approach needs to be developed to address any new issues that reveal themselves over the course of the review of license renewal applications.	See NRC disposition of SA3.1 in this Appendix B, Table B.2.14. The SRP-LR was revised to address this comment by providing clear and specific guidance for reviewing and resolving current generic safety issues.
2	B.3.9 NEI 95-10 Sect. 5.1.3	NEI 95-10, Section 5.1.3 should be revised to delete the following statement: " For example, poisons in the high density spent fuel racks have coupons that are periodically removed and tested to verify that the rack continues to be capable of performing its intended function."	Aging of neutron absorber in the spent fuel rack is no longer considered to be a generic TLAA. Note that Section X of the SRP-LR contains several TLAA program descriptions	NEI 95-10, Rev. 3 incorporates changes as appropriate to be consistent with license renewal guidance documents.

Table B.2.15: Disposition of Written Generic NEI Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
3	B.3.9 NEI 95-10 Sect. 6.2	NEI 95-10, Section 6.2, Table 6.2-1 should be revised to delete Section 3.1 of the Application Table of Contents and renumber the remaining Chapter 3 sections to align with equivalent sections of the SRP-LR.	Alignment of the documents. NRC SRP-LR no longer has a section 3.1 describing common aging management programs	NEI 95-10, Rev. 3 incorporates changes as appropriate to be consistent with license renewal guidance documents.
4	B.3.9 NEI 95-10 Sect. 6.2	NEI 95-10, Section 6.2, Table 6.2-1 should be revised to delete Section 4.7 of the Application Table of Contents and renumber the remaining Chapter 4 section to align with equivalent sections of the SRP-LR.	Alignment of the documents – As noted above, aging of neutron absorber in the spent fuel rack is no longer considered to be a generic TLAA.	NEI 95-10, Rev. 3 incorporates changes as appropriate to be consistent with license renewal guidance documents.
5	B.3.9 NEI 95-10 Sect. 6.2	NEI 95-10, Section 6.2, Table 6.2-2 should be revised to delete Section 4.7 of the Application Table of Contents and renumber the remaining Chapter 4 section to align with equivalent sections of the SRP-LR.	Alignment of the documents – As noted above, aging of neutron absorber in the spent fuel rack is no longer considered to be a generic TLAA.	NEI 95-10, Rev. 3 incorporates changes as appropriate to be consistent with license renewal guidance documents.
6	B.3.9 NEI 95-10 Sect. 6.2	NEI 95-10, Section 6.2, Table 6.2-2 should be revised to delete Section 3.7 of the Application Table of Contents and renumber the remaining Chapter 3 section to align with equivalent sections of the SRP-LR.	Alignment of the documents. NRC SRP-LR no longer has a section 3.1 describing common aging management programs	NEI 95-10, Rev. 3 incorporates changes as appropriate to be consistent with license renewal guidance documents.
7	B.3.9 NEI 95-10 Sect. 6.2	NEI 95-10, Section 6.2, Table 6.2-2 should be revised to offer guidance to applicants for using the GALL report as part of the aging management review.	*TBD*	See NRC disposition of NEI comment 1 in this Appendix B, Table B.2.15.

APPENDIX B, TABLE B.2.16

DISPOSITION OF NEI COMMENTS SUBMITTED AT MEETING BETWEEN NEI AND NRC ON NOVEMBER 8, 2000

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Table B.2.16: Disposition of NEI Comments Submitted at Meeting between NEI and NRC on November 8, 2000

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
NEI-14	B.3.10 Chapters V and VII	The Refueling Water System is in Auxiliary Systems in NUREG-0800 and in Engineered Safety Features in GALL/SRP-LR.	GALL/SRP-LR states that it is consistent with NUREG-0800 in the placement of items in systems.	The refueling water storage tank is located in ESF in GALL/SRP-LR because its main function is to supply water to the ECCS in PWRs. The RWST is a component connected to both CVCS 9.3.4 (NUREG-0800 Auxiliary Systems) and ESF 6.3 (NUREG-0800 Engineered Safety Features). The SRP-LR, Sections 3.2 and 3.3, was revised to address this comment by stating that each of these SRP-LR sections and NUREG-0800 are generally consistent except for the stated systems.
NEI-15	B.3.10 Chapters V and VII	The Control Area Ventilation and Chilled Water are in Engineered Safety Features in NUREG-0800 and in Auxiliary Systems in GALL/SRP-LR.	GALL/SRP-LR states that it is consistent with NUREG-0800 in the placement of items in systems.	The control room habitability system is located in ESF 6.4 in NUREG-0800. However, all other ventilation systems are located in NUREG-0800 Auxiliary Systems in Chapter 9. Sections 9.4.1 through 9.4.5 cover ventilation systems, and 9.4.1 is for the control room area ventilation system. All ventilation systems were kept together in Chapter VII (AUX) of GALL. The SRP-LR, Sections 3.2 and 3.3, was revised to address this comment by stating that each of these SRP-LR sections and NUREG-0800 are generally consistent except for the stated systems.

Table B.2.16: Disposition of NEI Comments Submitted at Meeting between NEI and NRC on November 8, 2000 (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
NEI-16	B.3.10 Chapters V and VII	Residual Heat Removal is in Engineered Safety Features in NUREG-0800 and in Auxiliary Systems and Engineered Safety Features in GALL/SRP-LR.	GALL/SRP-LR states that it is consistent with NUREG-0800 in the placement of items in systems.	The residual heat removal (rhr) system is in ESF in GALL and in NUREG-0800 ESF. The shutdown cooling system for older BWRs has no ESF function and is a reactor auxiliary water cooling water system per NUREG-0800 9.2.2. The SRP-LR, Sections 3.2 and 3.3, was revised to address this comment by stating that each of these SRP-LR sections and NUREG-0800 are generally consistent except for the stated systems.
NEI-17	B.3.10 Chapters VII and VIII	Condenser Circulating Water is in Steam and Power Conversion System in NUREG-0800 and in Auxiliary Systems in GALL/SRP-LR.	GALL/SRP-LR states that it is consistent with NUREG-0800 in the placement of items in systems.	The circulating water system is located in 10.4.5 (NUREG-0800 steam and power conversion systems). The other raw water systems are located in Chapter 9 (NUREG-0800 Auxiliary Systems). The raw water systems were kept together in Chapter VII (AUX) of GALL. The SRP-LR, Sections 3.3 and 3.4, was revised to address this comment by stating that each of these SRP-LR sections and NUREG-0800 are generally consistent except for the stated systems.

Table B.2.16: Disposition of NEI Comments Submitted at Meeting between NEI and NRC on November 8, 2000 (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
NEI-18	B.3.10 Chapters VII and VIII	Condensate Storage System is in the Auxiliary System in NUREG-0800 and in Steam and Power Conversion System in GALL/SRP-LR.	GALL/SRP-LR states that it is consistent with NUREG-0800 in the placement of items in systems.	The condensate storage facilities are located in 9.2.6 (NUREG-0800 Auxiliary Systems). the auxiliary feedwater system is located in 10.4.9 (NUREG-0800 Steam and Power Conversion Systems). The AFWS takes suction from the condensate storage tank, which is located in AUX in GALL. The condensate system in SPCS in GALL is located in Section 10.4.7 Condensate and Feedwater System of NUREG-0800. The SRP-LR, Sections 3.3 and 3.4, was revised to address this comment by stating that each of these SRP-LR sections and NUREG-0800 are generally consistent except for the stated systems.
NEI-19	B.3.10 Chapter VII	The Spent Fuel Racks, the Spent Fuel Pool and the Fire Barriers are located in Auxiliary Systems in NUREG-0800 and in GALL/SRP-LR. However, these systems are structural and have been put in the structures and component supports in the license renewal application.	These systems require structure and component support review.	The fire barriers were kept with the other fire protection systems in Auxiliary Systems in GALL. The spent fuel racks and the spent fuel pool were kept with the spent fuel pool cooling and cleanup (PWR and BWR) in Auxiliary Systems in GALL as in NUREG-0800. The SRP-LR was not revised to address this comment.

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APPENDIX C

DISPOSITION OF WRITTEN PUBLIC COMMENTS

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C.1. INTRODUCTION

On August 31, 2000, four documents comprising the draft license renewal guidance documents for implementation of 10 CFR Part 54 were made available for public comment on the Web site page http://www.nrc.gov/NRC/REACTOR/LR/guidance.html.

The public was requested to submit comments on the Draft Regulatory Guide DG-1104, the draft SRP-LR, the draft GALL report, and NEI 95-10 (Revision 2), by October 16, 2000. In addition, the NRC invited public comments on all information contained in these draft documents, but particularly solicited responses to the four questions described fully in the Federal Register Notice of August 31, 2000 (65 FR 53047).

Table C, at the end of Appendix C, contains the written comments or a summary of the written comments received. This Appendix C includes 226 written comments, with 153 from individuals representing public interest groups, 70 from individuals representing industry groups, and 3 from the ACRS.

C.2. EVALUATION AND DISPOSITION OF COMMENTS

Table C, at end of Appendix C, contains comments received from various public interest groups, industry groups, the Advisory Committee on Reactor Safeguards, and individuals.

The column heading, “Comment Number,” is primarily intended to identify the source of the comment (i.e., the organization or individual that submitted the comment). For example, DP-3 indicates that the comment was made by Duke Power Company, and the “3” distinguishes this comment from all other Duke Power Company comments. The exceptions are the comments from Indiana and Michigan Power (DG-1104-1 through DG-1104-2, GALL-1 through GALL-17, and SRP-LR-1 through SRP-LR-2); the comment from Omaha Public Power District (H. Kenneth-1); and those from the 113 individuals, which were numbered as originally submitted. The abbreviations used in this appendix are listed in the front matter of this NUREG. The numbers on the first line for each line item under the column heading, “Item Number,” indicate the listing number of a particular group of comments identified in Section C.3. The items on the second or subsequent lines for each line item under this column heading concern the applicable section of a license renewal guidance document on which a comment was made. References for all comments listed in Section C.3 are provided in Section C.4.

All comments are in alphanumerical order. These comments were not always dispositioned in the order in which they appear. For example, the disposition for comment “CAN-1” may refer to the disposition for comment “CAN-3” for its resolution, which means “CAN-1” was dispositioned after “CAN-3” even though it precedes “CAN-3” in the alphanumerical order presented.

C.3. ORIGIN OF COMMENTS

1.	ACRS-2 through ACRS-4	See Section C.4, Reference No. 1
2.	CAN-1 through CAN-11	See Section C.4, Reference No. 2
3.	C&PL-1	See Section C.4, Reference No. 3
4.	COMED-1through COMED-4	See Section C.4, Reference No. 4
5.	DG-1104-1 through DG-1104-2	See Section C.4, Reference No. 5
6.	DP-1 through DP-10	See Section C.4, Reference No. 6
7.	GALL-1 through GALL-17	See Section C.4, Reference No. 7
8.	General Public Comments	See Section C.4, Reference No. 8
9.	HKenneth-1	See Section C.4, Reference No. 9
10.	I&M-1 through I&M-17	See Section C.4, Reference No. 10
11.	KDrey-1 through KDrey-13	See Section C.4, Reference No. 11
12.	KOPEC-1	See Section C.4, Reference No. 12
13.	NIRS-1 through NIRS-8	See Section C.4, Reference No. 13
14.	NMC-1 through NMC-8	See Section C.4, Reference No. 14
15.	PECO-1	See Section C.4, Reference No. 15
16.	SRP-LR-1 through SRP-LR-2	See Section C.4, Reference No. 16
17.	UCS-1 through UCS-5	See Section C.4, Reference No. 17
18.	UCS-6 through UCS-9	See Section C.4, Reference No. 18
19.	VP-1	See Section C.4, Reference No. 19
20.	WESCO-1	See Section C.4, Reference No. 20
21.	W&S-1 through W&S-4	See Section C.4, Reference No. 21

C.4. REFERENCES

Letter to Chairman Meserve, NRC, from Dana Powers, ACRS, dated November 15, 2000.

Letter to David Meyers, NRC, from Citizens Awareness Network, dated October 16, 2000.

Letter to Secretary of the Commission, NRC, from Terry C. Morton, Carolina Power and Light Company, dated October 16, 2000.

Letter to Chief, Rules and Directives Branch, NRC, from R.M. Krich, Commonwealth Edison Company, dated October 16, 2000.

Letter to Chief of Rules and Directives, NRC, from M.W. Rencheck, Indiana Michigan Power, dated October 14, 2000.

Letter to David Meyers, NRC, from M. S. Tuckman, Duke Power Company, dated October 16, 2000.

Letter to Chief of Rules and Directives, NRC, from M.W. Rencheck, Indiana Michigan Power, dated October 14, 2000.

Letters emailed or submitted by 104 individuals.

Email from Henry Kenneth, dated October 4, 2000.

Letter to Chief of Rules and Directives, NRC, from M.W. Rencheck, Indiana Michigan Power, dated October 14, 2000.

Letter to David Meyers, NRC, from Kay Drey, University City, Missouri, dated October 16, 2000.

Letter (emailed) to David Meyers, NRC, from Hagki Youm, Korea Power Engineering Company, dated December 20, 2000.

Letter to David Meyers, NRC, from Paul Gunter, Nuclear Information and Resource Service, dated October 16, 2000.

Letter (emailed) to David Meyers, NRC, from Douglas F. Johnson, Nuclear Management Company, dated October 26, 2000.

Letter to Secretary, Rulemaking and Adjudications Staff, NRC, from James A Hutton, PECO Nuclear, dated October 16, 2000.

Letter to Chief of Rules and Directives, NRC, from M.W. Rencheck, Indiana Michigan Power, dated October 14, 2000.

Letter to Chief of Rules and Directives, NRC, from David A. Lochbaum, Union of Concerned Scientists, dated October 6, 2000.

Letter to Chief of Rules and Directives, NRC, from David A. Lochbaum, Union of Concerned Scientists, dated December 4, 2000.

Letter to Chief, Rules and Directives Branch, NRC, from William F. Renz, Virginia Power, dated October 16, 2000.

Letter to Sam Lee, NRC, from Arnold. H. Fero, Westinghouse Electric Company LLC, dated December 22, 2000.

Letter to David Meyers, NRC, from Kathryn M. Sutton, Winston & Strawn, dated October 16, 2000.

Table C: Disposition of Written Public Comments

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
ACRS-2	C.3.1	The staff should update the Generic Aging Lessons Learned (GALL) report as lessons are learned from reviewing future license renewal applications and as the staff approves new editions of codes and standards.	Since the preparation and review of future applications are likely to result in a significant number of new lessons learned, the staff should update the GALL report to incorporate the lessons learned. The provisions of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code have been codified in 10 CFR 50.55a. The staff has been amending 10 CFR 50.55a periodically to incorporate later editions of the ASME code. During periodic revision of 10 CFR 50.55a, the staff plans to evaluate the adequacy of these later editions for license renewal using the criteria described in the SRP-LR. We believe this process is appropriate for the period of extended operation. The staff should update the GALL report to incorporate new editions of codes and standards for which a similar process does not exist.	After resolution of stakeholder comments in April of 2001, GALL will be periodically updated as lessons are learned through subsequent license renewal reviews. The staff is evaluating the frequency by which updates will be made. In an August 31, 2000, *Federal Register* Notice (65 FR 53047), the NRC solicited comments on how to update the codes and standards referenced in GALL. The NRC has a process to periodically incorporate updated versions of the ASME Code into the regulation in accordance with 10 CFR 50.55a. To ensure that the GALL report conclusion will remain valid when further editions of the ASME Code are incorporated into the NRC regulation by the 10 CFR 50.55a rulemaking, the staff will evaluate the adequacy of these later editions for license renewal. However, there are other national codes and standards that are not subject to the Commission approval process in 10 CFR 50.55a. The most flexible approach is to specify in GALL the elements of the codes and/or standards that are required to provide aging management, rather than just referencing the code or standard as

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
ACRS-2 (cont.)				providing an adequate aging management program. Where GALL references a code or standard as providing an acceptable aging management program, an applicant could compare the two codes or standards and show in its application how a later version of the code or standard provides an equivalent aging management program. Another approach which has also been recommended by one member of the public in response to the Federal Register solicitation, would be to call out the codes and standards as providing an acceptable aging management program and then have the staff review revisions to codes and standards referenced by GALL as they are published and update GALL, as necessary. This might require license renewal applicants to describe comparisons with later versions if the staff had not yet revised GALL to reflect later versions. Both approaches would be acceptable. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
ACRS-3	C.3.1	The staff should validate that the artificially aged cables used in the studies conducted to address GSI-168 issues are representative of 30-40 year old cables.	Until GSI-168, which deals with environmental qualification of low-voltage instrumentation and control cables, is resolved, aging management of such cables will continue to be addressed through plant-specific programs. It does not appear that condition monitoring is a reliable predictor of future performance of cables under accident conditions. Testing of cables, which have undergone accelerated aging, identified severe degradation. The staff should validate that the artificially aged cables used in the accelerated aging studies conducted to address the issues of GSI-168 are representative of 30-40 year old cables. We plan to review this issue during our review of the proposed resolution of GSI-168.	The intent of this ACRS recommendation has been addressed in conjunction with the research activities completed in support of the resolution of GSI-168 on Environmental Qualification of Low-Voltage Instrumentation and Control (I&C) Cables. That research included direct comparisons between artificially and naturally aged cables, where the naturally aged cables with 10 and 24 years of service were acquired from decommissioned nuclear power plants. The operating thermal and radiation environment for the naturally aged cables was determined from plant records. Six sets of loss-of-coolant-accident (LOCA) tests provided data to validate that the artificially aged cables are representative of 20–40-year-old cables. The LOCA tests were conducted on three different groups of cables; new cables, cables artificially aged to simulate 20, 40, and 60 years of equivalent service life, and naturally aged cables retrieved from decommissioned plants after 10 and 24 years of service. The results showed that with the exception of Okonite and Samuel Moore cables, all three groups of

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
ACRS-3 (cont.)				cables passed the LOCA tests for equivalent of 20 and 40 years of service life. Failures observed for the Okonite and Samuel Moore cables are currently being addressed through the GSI-168 resolution process. The research showed that the naturally aged cables, when subjected to equivalent years of service life conditions in terms of thermal and radiation environment, performed better in terms of their ability to withstand LOCA conditions than the artificially aged cables. Therefore, additional testing to further validate the artificially aged cables representative of 30–40-year-old cables is not warranted. The GALL report and SRP-LR were not revised to address this comment.
ACRS-4	C.3.1	The staff and the industry should provide consistent guidance of the use of emergency operating procedures (EOPs) and severe accident management guidelines (SAMGs) as possible information sources to verify that equipment important to safety has not been inadvertently left out by the license renewal rule scoping process.	The SRP-LR provides guidance to review the adequacy of the scoping and screening processes used by the licensees to identify structures and components that are subject to an aging management review. As the first two applications demonstrated, the scoping process for older plants is a challenging task that does not lend itself to a standard procedure. Systems and components in scope are identified	EOPs and SAMGs are potential information sources for identifying the structures, systems, and components within the scope of the license renewal rule. EOPs are listed in SRP-LR Table 2.1-1, “Sample Listing of Potential Information Sources.” In a public meeting on February 7, 2000, the staff asked NEI to add

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
ACRS-4 (cont.)			based on a review of accident analyses that are part of the current licensing basis (CLB) of the plant. The accident analyses, especially those of older plants, provide abbreviated descriptions of events and seldom identify all of the equipment required to achieve safe shutdown. More detailed information is contained in the emergency operating procedures (EOPs) that are referenced in the Final Safety Analysis Report and, thus, are part of the CLB of the plant. However, the scoping process defined by the license renewal rule does not explicitly include the EOPs as a source of information to identify equipment in scope. In contrast, the maintenance rule explicitly includes the EOPs as a source of information to identify equipment in scope. As a result, there may be equipment whose active components are within the scope of the maintenance rule but its passive long-lived components are not within the scope of the license renewal rule. We recognize that most of the equipment used in the EOPs will be identified by the license renewal rule scoping process. The EOPs are already listed in Table 2.1-1 of the SRP-LR as a possible information source. However, they are not listed	these documents to NEI 95-10, Table 3.1-1, “Sample Listing of Potential Information Sources,” as potential information sources. NEI 95-10 was since revised accordingly. SRP-LR was revised to address this comment by adding the SAMGs to Table 2.1-1 but GALL was not revised.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
ACRS-4 (cont.)			as a possible information source in the corresponding Table 3.1-1 of NEI 95-10. We recognize that the EOPs are not within the scope of the license renewal rule. However, we believe that it would be prudent for the industry and the staff to include the EOPs in the guidance documents as a possible information source. This would confirm that equipment important to safety has not been omitted inadvertently in the scoping process, rather than leaving it to the individual reviewers to deal with this issue. Severe Accident Management (SAM) guidelines are currently implemented at all plants, are part of the CLB, and are tied to the EOPs. Operators are routinely trained on their use. However, SAM guidelines were developed as a voluntary industry initiative. The equipment used to support these guidelines is not necessarily within the scope of the license renewal rule. The SAM guidelines should be identified as a potential source of information in Table 2.1-1 of the SRP-LR and Table 3.1-1 of NEI 95-10 to confirm that equipment important to safety has not been omitted inadvertently in the scoping process.	

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
CAN-1	C.3.2	Based on industry experience with aging reactor degradation and embrittlement, and the ongoing erosion of hearing rights and democratic safeguards afforded the public in the Atomic Energy Act, CAN opposes a generic relicensing program. This easing of regulatory burden has truncated the ability for public to participate in matters of vital importance to their communities	None Provided.	See NRC dispositions of comments KDrey-1 and KDrey-12 in this Table C.
CAN-2	C.3.2	CAN believes that the NRC's proposal for a generic relicensing process will jeopardize the health and safety of workers and the public. The absence of effective regulatory oversight has in fact compromised the health and safety in numerous communities in the Northeast. The process of evaluating whether a reactor should win approval from the NRC to relicense is complex and should be determined on a case by case basis, since most reactors in the U.S. have individual designs, management processes, and associated problems. We do not believe that the regulatory burden on licensees should be eased. In fact, CAN believes as reactors age and deteriorate more regulatory oversight is required to protect the worker and public health and safety and the environment. This move	None Provided.	See NRC dispositions of comments KDrey-1 and KDrey-13 in this Table C. The review of a license renewal application is done on a case-by-case basis. Also see NRC dispositions to comments NMC-1 and NMC-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
CAN-2 (cont.)		increasingly toward industry self-regulation and the curtailing of NRC's regulatory authority to intervene is also undermining the democratic safeguards provided for by the Atomic Energy Act.		
CAN-3	C.3.2	In fact, had effective oversight occurred through vigilant routine inspection, Yankee Rowe may not have received its original relicensing approval.	None Provided.	Yankee Rowe did not receive a renewed operating license. Yankee Rowe did not apply for a license extension in accordance with 10 CFR Part 54. Yankee Rowe's owner was one of several utilities that initially explored license renewal, but decided against it in part because of costs associated with resolving questions surrounding the Yankee Rowe reactor vessel. The GALL report and SRP-LR were not revised to address this comment.
CAN-4	C.3.2	After Yankee Rowe and problems at other stations became know, NRC began requiring inspection of age-related degradations at reactors across the U.S. Through the program, NRC and industry discovered that components which were not included in original safety analyses and licensing bases were becoming dangerously embrittled.	None Provided.	In 1992, the NRC issued Generic Letter 92-01, "Reactor Vessel Structural Integrity," as part of a program to evaluate reactor vessel integrity and take regulatory actions, if needed, to ensure that licensee and permit holders were complying with 10 CFR 50.60 and 50.61, and were fulfilling commitments made in response to an earlier generic letter, GL88-11. Revision 1 was issued to better reflect information gained by the staff regarding Yankee Nuclear Power Station reactor vessel integrity, and highlighted that

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
CAN-4 (cont.)				concerns raised in the staff's review of reactor vessel integrity for the Yankee Nuclear Power Station is what lead to the generic letter. All licensees submitted information requested by July 2, 1992. In December 1994, the NRC staff issued its documented review of the licensee responses in NUREG-1511, "Reactor Pressure Vessel Status Report." As a result of its review the NRC did not subject licensees to any new requirements, but as a result of reviewing data relevant to several pressurized thermal shock evaluations from several plants the NRC staff concluded that licensees might not have considered all pertinent data in the responses to GL 92-01, Revision 1. Therefore, in 1995 the NRC issued GL 92-01, Revision 1, Supplement 1, to all reactor licensees requesting additional reactor pressure vessel data. In the fall of 1996, the NRC staff issued closeout letters on GL 92-01, Revision 1, Supplement 1, which stated that no immediate safety issues were associated with the structural integrity assessments for U.S. light-water reactors. Since the issuance of GL 92-01, Revision 1, Supplement 1, the industry owners

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
CAN-4 (cont.)				groups have completed a major initiative to collect all available alloying chemistry and material property data for the various forging, plate, and weld material used in the fabrication of U.S. reactor pressure vessels. In addition, no new requirements were identified as a result of the response reviews. The GALL report and SRP-LR were not revised to address this comment.
CAN-5	C.3.2	Nevertheless, a 1999 NRC report on the core shroud at Nine Mile Point Unit 1 – the oldest reactor still operating in the U.S., and the worst example of age-related degradation among BWRs noted that the chances of catastrophic failure of the core shroud in the case of a design basis earthquake were 1:100,000. NMP's companion reactor, Nine Mile Point Unit 2, is 10 years younger, but showed similar signs of significant core shroud cracking after only 10 years of operation, with no history of poor water chemistry: 25% through-wall cracks, spanning 80% of the horizontal beltline weld. Cracking of the core shroud can lead to a loss of coolant accident, as can be embrittled reactor vessel.	See previous column.	In a letter dated November 29, 1999, from Brian W. Sheron, Acting Director Office of Nuclear Reactor Regulation, to Mr. Tim Judson, Syracuse Peace Council, 924 Burnet Avenue Syracuse, NY 13203 (ADAMS document accession Number ML993340201), the NRC forwarded the "Final Director's Decision Under 10 CFR 2.206," (ADAMS document accession Number ML993340208) related to these matters concerning Nine Mile Point Unit 1. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
CAN-6	C.3.2	The basis for a generic environmental impact statement on license renewal is nonexistent, since existing material conditions monitoring programs are unable to keep pace with aging-related degradation at current reactor sites.	None Provided.	The generic environmental impact statement is required by 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." Aging management of structures, systems, and components within the scope of the license renewal rule is not required by 10 CFR Part 51, but rather 10 CFR Part 54. See NRC disposition of comment KDrey-1 in this Table C. The GALL report and SRP-LR were not revised to address this comment.
CAN-7	C.3.2	The NRC has only managed to effectively regulate aging reactors such as Yankee Rowe, Main Yankee, Connecticut Yankee, and Millstone Units 1, 2 and 3, and Vermont Yankee through intensive oversight necessitated by site-specific review of plant operations and material condition and the pressure of the public and public interest groups intent on protecting their communities from nuclear devastation.	None Provided.	In accordance with the NRC's Revised Reactor Oversight Program (RROP), the NRC focuses its inspection resources commensurate with licensee performance. Licensee's that have more issues or problems receive more NRC attention. For a detailed description of the RROP see NRC web page address http://www.nrc.gov/NRR/OVERSIGHT/index.html. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
CAN-8	C.3.2	Furthermore, NRC's existing methods for mitigating the safety significance of material degradation problems have already proven to be inadequate, because of the pace of embrittlement and the changing conditions of nuclear power operations.	The steam generator tube rupture at Indian Point Unit 2 in February 2000 is an excellent example of the present lack of adequate NRC oversight at nuclear stations and the need for more stringent NRC oversight of material condition problems.	See NRC dispositions of comments KDrey-12 and NIRS-6 through NIRS-8 in this Table C.
CAN-9	C.3.2	Leak-before-break standard for mitigating accident scenarios have proved unrealistic, endangering workers as well as the public.	None Provided.	Previously addressed in a letter described in NRC disposition of comment CAN-5 in this Table C.
CAN-10	C.3.2	The issuance of a generic environmental impact statement on license renewal also impacts decommissioning and the ultimate disposition of reactor sites. Industry officials have stated that licensees may only be interested in operating reactors for a portion of the twenty years of extended license life, allowing Decommissioning trust funds to accrue in order to ensure adequate funding before beginning cleanup. However this option is still available under the existing license through the NRC approved SAFSTOR method, since license termination is not mandated until 60 years after licensed operation has ceased. Yet NRC regulations have changed to permit a wide range of decommissioning activities to occur under the normal operating license, which creates a potential for licensees constructing new	None Provided.	Licensees who make certifications in accordance with 50.82(a)(1)(i) and (ii) are precluded from restarting. If a utility wanted to construct a new reactor on the site of a currently decommissioned reactor they would have to apply for a new operating license in accordance with the requirements of 10 CFR Part 50 or 10 CFR Part 52. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
CAN-10 (cont.)		generating stations on-site before decommissioning and site cleanup have even been completed. This regulatory morass has the potential to allow the construction of new reactors on the old sites under the extended license – without the necessity of applying for the new license – and therefore effectively block the democratic participation of affected communities mandated under the Atomic Energy Act section 189a.		
CAN-11	C.3.2	Setting aside the licensed authority set forth in the Atomic Energy Act would undermine the Commission's ability to oversee the construction and operation of new nuclear reactors, prohibit the proper decommissioning on of the originally licensed facilities, and thereby endanger the worker and public health and safety and the environment.	None Provided.	See NRC dispositions of comments KDrey-1 and CAN-10 in this Table C. In addition, the license renewal rule, 10 CFR Part 54, does not automatically remove the requirement to decommission a reactor at the end of its operating license. The GALL report and SRP-LR were not revised to address this comment.
COMED-1	C.3.4	Com Ed has been actively involved with the Nuclear Energy Institute NEI) on this issue and endorses the industry comments submitted by the NEI.	None Provided.	See NRC dispositions of NEI comments in Appendix B of this NUREG.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
COMED-2	C.3.4	ComEd is concerned about how the GALL Report and the associated guidance for its use will treat plants that are not subject to the GDC of 10 CFR Part 50, Appendix C A, or the Standard Review Plan (NUREG-0800 SRP-LR). It is very likely that an applicant will reference, in whole or part, the report in its license renewal application.	Thus, it is important that the GALL Report and its associated guidance recognize that differences exist in licensees' current licensing basis and provide flexibility to accommodate these differences.	See NRC dispositions to comments NMC-1, NMC-2, and NMC-3 in this Table C.
COMED-3	C.3.4	As it stands now, the GALL Report and its associated guidance more frequently reference the most current version of codes, standards and other guidance.	This may limit the usefulness of the GALL Report and its associated guidance for older plants, such as Dresden and Quad Cities. This is because some programs for these older plants do not incorporate all of the features subsequently required by the NRC for newer plants and may not fully meet all ten of the criteria in the SRP- LR.	See NRC dispositions to comments ARCS-2, NMC-1, NMC-2, and NMC-3 in this Table C.
COMED-4	C.3.4	Consequently, ComEd believes that the GALL Report and its associated guidance should clarify that aging management programs based on earlier versions of codes, standards and other guidance document are not excluded from use by these older plants.	This flexibility could be incorporated by expanding the scope of the GALL Report to either include previously approved programs or to modify the acceptance criteria by which plants can certify that their programs are adequate for purposes of the GALL Report.	See NRC disposition to comment ARCS-2 in this Table C.
CP&L-1	C.3.3	CP&L endorses NEI comments transmitted by NEI letter dated October 13, 2000.	None Provided.	See NRC dispositions of NEI comments in Appendix B of this NUREG.
DG-1104-1 (I&M)	C.3.5 Paragraph C.1	Contents of an Application: Consider adding a section that would refer to the more detailed guidance on use of the GALL report.	DG-1104 is the instruction to potential license renewal applicants. It should contain instructions on the proper use of the GALL report.	See NRC disposition to comment NMC-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
DG-1104-2 (I&M)	C.3.5 Paragraph C3.2	Physical Specifications: Please consider adding specifications for electronic submittal of applications (e.g. CDROM).	Electronic transmittal of submittals such as the UFSAR is now accepted. It is much more efficient to submit a large document such as a License Renewal Application on CDROM.	DG-1104 has been finalized as RG 1.188, and that regulatory guide provides guidance for electronic formats for electronic submittals. RG 1.188 addresses this issue but the GALL report and SRP-LR were not revised to address this comment.
DP-1	C.3.6	Duke agrees with NEI's comments on these draft license renewal implementation documents.	None Provided.	See NRC dispositions of NEI comments in Appendix B of this NUREG.
DP-2	C.3.6	What actions are required to be taken in order to certify that an existing, plant-specific program matches the corresponding program described in the GALL report. What statement should be included in the application itself?	As currently drafted in both the GALL report and in the SRP-LR, the expectations are not clear on this most important point.	See NRC disposition to comment NMC-2 in this Table C.
DP-3	C.3.6	The Methodology discussed in the SRP-LR, Section 2.1 does not currently acknowledge the use of a broader, more comprehensive scoping approach. SRP-LR Section 2.1 should clearly state that a system scoping is not required in conjunction with a commodity approach or plant spaces approach to the integrated plant assessment.	Experience with Oconee license renewal indicates a need to make this understanding clear to reviewers of renewal applications.	The SRP-LR currently does not require system scoping in conjunction with a commodity approach or plant spaces approach in the integrated plant assessment. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
DP-4	C.3.6 SRP-LR, A.1	The process to identify those aging effects that require aging management during the period of extended operation is described in SRP-LR Appendix C A.1. Currently, this process does not discuss the necessary distinction between "aging effects that cause degradation" and "aging effects that cause degradation that could result in loss of structure or component intended function(s). The discussion in SRP-LR Appendix C A.1.1 needs to be revised to clearly state the expectations for identification of aging effects that require management during the period of extended operation; i.e., those that cause degradation that could result in loss of structure or component intended function. This revised discussion in Appendix C A.1.1 should then be applied to all listings in the GALL report to confirm that identified aging effects could result in a loss or intended function if left unmanaged during the period of extended operation.	The criteria contained in SRP-LR Appendix C A.1 are overly broad, and are not linked to intended function, which could result in the implementation of new aging management programs and activities prematurely.	The effects of aging are related to intended function of structures and components. As stated in SRP-LR, Appendix A, subsection A.1.2.1, item 1, the last sentence: "The effects of aging on the intended functions of structures and components should also be considered." The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
DP-5	C.3.6 SRP-LR, A.1.2	The process to describe and demonstrate the effectiveness of aging management programs is contained in SRP-LR Appendix C A.1.2. The guidance in this Appendix C needs to be clarified. Specifically, the guidance for "Detection of Aging Effects" and "Monitoring and Trending" needs to be revised to clearly state the expectations for each of the four types of aging management programs.	Duke's experience during the Oconee license renewal effort indicates the importance of having a clear understanding of the intent of each program attribute prior to describing the aging management programs.	See NRC dispositions of NEI comments SA.1-4 and SA.1-5 in Appendix B, Table B.2.14
DP-6	C.3.6 SRP-LR, A.1.2	The GALL report program descriptions need to be re-written to better reflect the attributes contained in SPR Appendix C A.1.2.	Currently, there are program descriptions in the GALL report that do not fully address each attribute. For example, the operating experience provided in the GALL program descriptions typically states that the effect has occurred and, thus, that the program is needed. However, the guidance in Appendix C A.1.2 provides that operating experience should provide objective evidence of program effectiveness. The "Detection of Aging Effects" and "Monitoring and Trending" portions of many program descriptions are unclear.	The aging management program evaluations were enhanced and clarified as appropriate to better address the attributes contained in SPR Appendix A, subsection A.1.2. See NRC dispositions of NEI comments SA.1-4 and SA-1-5 in Appendix B, Table B.2.14. The GALL report was revised to address this comment but not the SRP-LR.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
DP-7	C.3.6 SRP-LR, A.1.2	Technical references providing the foundation for additional requirements need to be provided.	Technical references providing the foundation for additional requirements need to be provided.	The evaluation in GALL and the guidance in the SRP-LR follow the requirements of the license renewal rule as stated in Part 54. That is the determination that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation. The GALL report reviews the material, environment, and the extensive compilation of data and experience to identify applicable aging effects. It builds on a previous report, NUREG/CR-6490, which was based on information in over 500 documents. It includes NPAR program reports, NUMARC Industry Reports, LER, information notices, generic letters, and bulletins. The staff has also considered information contained in the reports provided by the UCS in a May 5, 2000, letter. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
DP-8	C.3.6 SRP-LR, A.1.2	Duke suggests that each program in the GALL report contains two distinct discussions. The first would be a clear description of "what" the program is; the second would be "why" the program is effective. The Oconee license renewal safety evaluation report (NUREG-1723) presents the credited aging management programs and activities in this manner.	Clear program descriptions in the GALL report are one essential requirement for a future applicant to utilize the GALL report as part of its application.	Each aging management program in the GALL report contains a section titled Program Description. This section describes "what" the program is. The Program Description sections were reviewed and revised where appropriate to clarify "what" the program is. The 10 element attributes contained in each program state "why" the program is effective. These 10 elements provide a description of "why" the programs are effective. The program evaluations were reviewed and revised where appropriate to clarify "why" the programs are effective. See NRC disposition of comment DP-6 in this Table C. The GALL report was revised to address this comment but not the SRP-LR.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
DP-9	C.3.6	A better explanation of how license renewal applicants are expected to use and cross-reference the GALL report in plant-specific license renewal applications needs to be provided. A clear statement of the process to compare its plant-specific programs to those in the GALL report is a second essential requirement for a future applicant to utilize the GALL report as part of its application.	As currently drafted in both the GALL report and in the SRP-LR, the expectations are not clear on this most important point. Duke is unsure of exactly what actions are required to be taken in order to certify that an existing, plant-specific program matches the corresponding program described in the GALL report, and what statement should be included in the application itself.	See NRC dispositions to comments NMC-2 and NMC-8 in this Table C.
DP-10	C.3.6	The current contents of Chapter 3 of the application include a listing of the credited aging management programs. In order to identify those programs that fit into each of the four types of program reviews described clear guidance must be provided. Clear guidance needs to be provided for all possible situations where a program may fit under multiple headings. Clarifying the expectations for this portion of Chapter 3 of the application is a third essential requirement for a future applicant to utilize the GALL report as part of its application.	The guidance should cover situations where a single program may fit under heading (3) and (4), and where the QA requirements for non safety-related components must be reviewed, as well as requirements for new components or aging effects. As an alternative, it may be appropriate to simply have two headings: (1) 'Aging Management Programs Evaluated in the GALL Report that are Relied on for License Renewal,' and (2)"Further Evaluation of Aging Management Programs Recommended required," and not attempt to subdivide those programs that require further staff review evaluation any further. This alternative would simplify the process for both the applicant as well as the staff reviewer.	See NRC disposition to comment NMC-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-1 (I & M)	C.3.7 Page 3	The section "Application of GALL Report" should be expanded include additional licensing guidance for: 1. Referencing portions of the GALL report. 2. Demonstrating that existing programs, previously approved by NRC in an SER, a TER, or Inspection Report, are adequate for aging management. 3. In taking credit for a program as described in the GALL report. " the conditions at the plant must be bounded by the conditions for which the GALL program was evaluated." This needs more specific explanation for each program.	Older pre-SRP-LR plants do not have programs that are consistent with all those described in the GALL report. The referenced codes and standards in the GALL report are in many cases, the most recent and therefore go beyond the CLB of these older plants.	See NRC dispositions to comments NMC-1, NMC-2, ACRS-2, and I&M-9 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-2 (I & M)	C.3.7 Page 4	The Section "Summary and Recommendations" states that the report " .. also contains recommendations on specific areas for which generic existing programs should be augmented for license renewal." These recommendations are based on an assumed scope and content of existing programs that may go well beyond the programs presently incorporated in the CLB. For such cases, additional licensing guidance is needed to ensure that applicants identify and properly augment existing programs.	Criteria for determining if a specific program requires augmentation should be provided.	See NRC disposition to comment DP-7 in this Table C. Criteria for determining if a specific program requires augmentation is provided in each table in Chapters I through XIII in Volume 2 of GALL. In each table there is a column titled "Further Evaluation" which is used to indicate if program augmentation is necessary. See " GALL Evaluation Process" section Summary in Volume 1 of GALL for complete explanation. The GALL report and SRP-LR were not revised to address this comment.
GALL-3 (I & M)	C.3.7 Table 3, "Summary of AMPs for Auxiliary Systems Evaluated in Chapter V11 of the GALL Report"	Clarify the methodology for addressing unanticipated cyclic loading when calculating the Cumulative Fatigue Damage for the various Heat-Exchanger components in CVCS (Tube/Tube Sheet, Channel/Cover, Channel/Welds, Shell, and Closure bolting).	Aging Effects/Mechanism for CVCS heat exchanger includes unanticipated cyclic loading with no reference guidance regarding acceptable detection or evaluation methods.	Unanticipated cyclic loading is not a valid aging mechanism. The term "unanticipated" was eliminated because if a mechanism is not anticipated, then it cannot be managed in anticipation. Fatigue is a TLAA and is to be evaluated based on cyclic loads specified in the plant's CLB. The GALL report was revised to address this comment but not the SRP-LR.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-4 (I & M)	C.3.7 Section X.M1	This program description does not address unanticipated cyclic loading yet. Table 1, "Summary of AMPs for RCS Evaluated in Chapter IV of the GALL Report," includes a requirement to address unanticipated cyclic loading. Please provide additional guidance on methodology and criteria to be used.	None Provided.	Cyclic loading is not addressed in Chapter X as a fatigue AMP. The AMP for cyclic loading, typically, is ASME Section XI ISI. Specific guidance is provided in Chapters II though Chapter VIII to address cyclic loading. When ISI alone was not found to be adequate, additional guidance on the methodology and criteria was provided in the Aging Management Program column of these chapters. The GALL report was revised to address this comment but not the SRP-LR.
GALL-5 (I & M)	C.3.7 Section X1.M2 Thermal Aging & Neutron Irradiation Embrittlement of CASS (RV Internals)	See WOG comments.	I&M participates in the WOG/NEI integrated inspection program. Please refer to the June II 1999 response letter to the NRC's RAI with respect to CL 97-01. I&M considers the WOG/NEI recent comments as continuation of the integrated inspection effort.	WOG did not provide any comments. WOG comments were incorporated in the NEI comments. NEI also did not provide any specific comments on AMP XI.M2. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-6 (I & M)	C.3.7 Section XI. M4 CCCW System	Modify item (4) "Detection of Aging effects" to omit monitoring the flow, inlet and outlet temperatures, differential pressure for heat exchangers.	Heat exchanger thermal monitoring, results may be inconclusive. The monitoring of heat exchangers should follow GL 89-13 requirements.	The aging management program relies on preventive measures to minimize corrosion by maintaining inhibitors and by performing non-chemistry monitoring consisting of inspection and nondestructive evaluations based on the guidelines of EPRI-TR-107396 for closed-cycle cooling water (CCCW) systems. The inspections for monitoring, other than chemistry, includes data collection and analyses to predict the potential problems such as loss of structural integrity and reduced heat transfer caused by corrosion and/or deposition. These measures will ensure that the CCCW systems and components serviced by the CCCW system are performing their function acceptably. The requirement for performance of functional tests per ASME OM S/G Part 2 was deleted in the AMP "Closed-Cycle Cooling Water" (XI.M21 in NUREG-1801, Vol. 2). The GALL report was revised to address this comment.
GALL-7 (I & M)	C.3.7 Section XI.M8 Outer Surface of Buried Piping and Components	Modify item (4) "Detection of Aging effects" to state: Inspection of a sample of buried components is one way to provide for detection of aging effects. Another way is to conduct a system leakage test in accordance with ASME Section XI requirements.	Provides flexibility in selection of methods for detection of aging effects.	System leakage tests are complementary to inspection but not necessarily a substitute. If a leakage test is positive, an inspection still needs to be performed. The GALL report was not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-8 (I & M)	C.3.7 Section XI.M9 Fuel Oil Chemistry	Modify item (4), " Detection of aging Effects" to state: Specify that UT thickness measurements of tank bottom is a one time inspection.	Thickness measurement of tank bottom may result in equipment out-of-service duration exceeding allowed outage time in Technical Specification LCO. This will potentially increase EDG unavailability.	The AMP program XI.M32 "One-Time Inspections" is also required. A statement was added in the AMP program XI.M30 "Fuel Oil Chemistry" to reflect that UT thickness measurement of tank bottoms is a one-time inspection. The GALL report was revised to address this comment but not the SRP-LR.
GALL-9 (I & M)	C.3.7 Section X1.M14 Inspection of Class 1 Pump Casing & Valve Bodies	Propose to combine with Section G-XI.MI. as appropriate.	Defect inspection requirements are very similar to inspection requirements in for thermal aging embrittlement of CASS addressed in Section G-X1.M1.	Appropriate requirements were incorporated in XI.M12, "Thermal Aging Embrittlement of CASS," and XI.M12, "ASME Section XI Inservice Inspection," and the program XI.M14, "Inspection of Class 1 Pump Casings and Valve Bodies," was deleted. The GALL report was revised to address this comment but not the SRP-LR.
GALL-10 (I & M)	C.3.7 Section X1.S2 ASME Section XI, Subsection IWL	Modify item (1), "Scope of Program," to: Clarify the sentence beginning with NUREG 1611 concerning accessibility inaccessibility requirements. Similarly, modify SRP-LR, Page 3.5-7, Paragraph 3.5.3.2.1.1, to provide the same clarification (last 2 sentences in the paragraph).	GALL requirements go beyond the requirements in 10 CFR 50.55a(b)(2)(viii), greatly expand the required work scope by the licensee.	See NRC disposition of NEI comment G.X1.S1-2 of Appendix B, Table B.2.9-3. SRP-LR, page 3.5-7 was revised to address this comment by a similar clarification but not the GALL report.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-11 (I & M)	C.3.7 Section X1.S6 Structural Monitoring	Please provide an alternate set of references for pre-SRP-LR plants instead of recent Codes and Standards.	CNP is not committed to RG 1.54 Rev. 1(07/00) or ACI 349.3R-96 and it is unlikely that other pre-SRP-LR plants would have committed to this revision of the RG either.	See NRC disposition to comment NMC-1 in this Table C.
GALL-12 (I & M)	C.3.7 Section XI.S7 RG 1.127 Inspection of Water-Control Structures	Please allow risk significance to be considered in defining this program.	Inspection of structures below the surface water level on a 5 year frequency may impose excessive burden without commensurate safety improvement.	See NRC disposition to comment NMC-3 in this Table C.
GALL-13 (I & M)	C.3.7 Section XI. S8 (Coating)	This program references RG 1.54, Revision1 as a technical basis, yet this standard was issued in July 2000. Also, Table 2, "Summary of AMPs for Engineered Safety features Evaluated in Chapter V of the GALL Report," references atmospheric corrosion monitoring. Both are expansions of existing approved programs for which there is no technical basis.	None provided.	No one currently uses RG 1.54. Rev 1. RG 1.54, Rev 0, and ANSI 101.2 are added as references. These documents date back to the early 1970s. The GALL report was revised to address this comment but not the SRP-LR.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-14 (I & M)	C.3.7 Section XI.E1 Non-EQ Electrical Cables and Connections	Please provide the technical bases for the requirements for future discussion.	None provided.	Aging management of electrical cables and connections not subject to the environmental qualification requirements of 10 CFR 50.49 was identified as being necessary in reviews, analyses, and field inspections performed in support of previous license renewal applications. This aging management program in GALL was proposed by a previous license renewal applicant, and was subsequently reviewed and accepted by the staff to satisfy aging management. Because the program was needed by one of the first applicants, the program was included in GALL as a generically approved aging management program for use by future applicants, if needed. There is no requirement for applicants to implement all aging management programs included in the GALL report. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-15 (I & M)	C.3.7 Section XI.E2 Non-EQ Electrical Cables in Instrumentation Circuits	Please provide the technical bases for the requirements for future discussion.	None Provided.	See NRC disposition of comment GALL-14 in this Table C.
GALL-16 (I & M)	C.3.7 Section XI.E3 Non-EQ Inaccessible Medium Voltage Cables	Please provide the technical bases for the requirements for future discussion.	None Provided.	See NRC disposition of comment GALL-14 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
GALL-17 (I & M)	C.3.7 Section XI.E4 Borated Water Leakage Surveillance for Non-EQ Electrical Connectors	Please provide the technical bases for the requirements for future discussion.	None Provided.	See NRC disposition of comment GALL-14 in this Table C.
		Propose to add Section G-XI.E4 as an augmentation to the BA Corrosion Program in Section XI.M5.	None Provided.	The GALL report was revised to address this comment by deleting Section XI.E4 and referencing Section XI.M10 (previously XI.M) for the Boric Acid Corrosion program as the aging management program for electrical connectors exposed to borated water leakage. As noted in other comments received, inspection of electrical connectors for exposure to borated water leakage is already included in the Boric Acid Corrosion program, and there is no need to include a separate program for these components.
		NUREG/CR-5643, " Insights Gained from aging research, " March, 1992. Is this intended to be back-fit to Section G- XI. M5?	None Provided.	The GALL report was revised to address this comment to clarify the reference to NUREG/CR-5643 in sections XI.E1, E2 and E3. The section XI.E4 will be deleted in response to the previous comment. The reference to NUREG/CR-5643 is not intended to be a back-fit to Section G-XI.M10 (previously XI.M). The reference is to indicate that relevant technical information and guidance provided in that report has been considered in the preparation of this aging management program.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments	C.3.8	A large number of comments received in response to the August 31, 2000, Federal Register notice solicitation (65FR53047) on license renewal misinterpreted the purpose of the comment period in that it was the only opportunity to comment on the "generic" relicensing of nuclear power reactors. The comments ranged from requesting an extension to the public comment period to not allowing for extension to the operating licenses. The specific comments can be viewed by accessing the NRC document management system, ADAMS, using advance search and specify Property= "Case/Reference Number" and Value="*65FR53047*"		To disposition these comments from 113 individuals, which include 12 individuals representing public interest groups, the staff responded directly to each commenter with a description of the license renewal process and references for additional information. The following is the compendium of the staff responses to these comments. Thank you for your comments on the renewal of nuclear power plants operating licenses received via the NRC Web site. The Atomic Energy Act established a 40-year license term for power reactors, but also provided that such licenses could be renewed. Public comment was sought when the regulations were amended in 1991 and 1995 to include a process for renewal in Part 54 of Title 10 of the Code of Federal Regulations, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." Public comment was also sought when the associated environmental impact requirements in Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," were amended for license renewal in 1996.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments (cont.)				The license renewal requirements provide for a plant-specific determination that aging effects can be adequately managed during the period of extended operation. The NRC is currently seeking public comment on updated guidance for the evaluation of plant-specific applications for license renewal, including a report on generic aging lessons learned (GALL). Recent media reports erroneously described this guidance as the only opportunity for public comment for license renewal. The NRC requested comments on the updated renewal guidance by October 16, 2000, in preparation for a meeting of the Nuclear Regulatory Commission planned for December 5, 2000, to specifically discuss the extent to which existing inspection and maintenance activities need to be augmented for license renewal. In addition, each license renewal applicant must include a supplement to the environmental report, which contains an analysis of the plant's impact on the environment if allowed to continue operation beyond the initial license. The NRC performs plant-specific reviews of environmental impacts of operating life extension in accordance with

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments (cont.)				National Environmental Policy Act (NEPA) and the requirements of 10 CFR Part 51. Comments on the license renewal guidance submitted after that date will be considered to the extent practical up to the time the proposed final guidance is submitted to the Commission for approval, presently scheduled for March 2001. The license renewal process provides for individual hearings, public meetings and a request for public comment in the vicinity of each plant that submits a license renewal application. Additional information about the license renewal process and related evaluation guidance is available on the NRC Web site at http://www.nrc.gov/NRC/REACTOR/LR/index.html. Specific information on issues surrounding high level radioactive waste is available on the NRC Web site at <http://www.nrc.gov/OPA/gmo/tip/tip14.htm> in Technical Issue Paper 14, “High Level Radioactive Waste.” With respect to “low-level” radiation, NRC regulations require licensees

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments (cont.)				to have effluent and environmental monitoring programs (to quantify releases and their impact on the environment) to ensure that the impacts from plant operations are minimized. The results of these programs are reported annually and available to the public. The permitted effluent releases result in very small doses to members of the public living around the plants (small fractions of the public dose limit). Regional NRC inspectors routinely inspect these monitoring programs to ensure continued compliance with regulatory requirements. Licensees are required to participate in an interlaboratory comparison program, which provides an independent check on the accuracy and precision of the environmental measurements. Additionally, the National Cancer Institute, at the request of Congress, conducted a study (Cancer in Populations Living Near Nuclear Facilities, Jablon, et al., National Cancer Institute, July 1990. [NIH Publication No. 90-874] Mary Ruth Craven, 1304 Winchester Dr., Charleston, SC 29407) of 52 nuclear power stations and 10 Department of Energy facilities. The study concluded that there was no increase in cancers in the communities surrounding the nuclear power plants.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments (cont.)				In addition to its mission of protecting public health and safety under the Atomic Energy Act, the U.S. Nuclear Regulatory Commission (NRC) is charged with protection of the environment in the use of nuclear materials. Each license renewal applicant must include a supplement to the environmental report, which contains an analysis of the plant's impact on the environment if allowed to continue operation beyond the initial license. The NRC performs plant-specific reviews of environmental impacts of operating life extension in accordance with National Environmental Policy Act (NEPA) and the requirements of 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." This review continues on a separate "track" from the safety reviews of the technical information. Environmental requirements for the renewal of power reactor operating licenses are contained in NRC's regulations, 10 CFR Part 51. The environmental protection regulations in 10 CFR Part 51 were revised on December 18, 1996, to improve regulatory efficiency in environmental reviews for license renewal and codify the findings

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments (cont.)				documented in the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, (NUREG-1437). The Generic Environmental Impact Statement (GEIS) examines the possible environmental impacts that could occur as a result of renewing any commercial nuclear power plant license, and, to the extent possible, establishes the bounds and significance of these potential impacts. For each type of environmental impact, the GEIS attempts to establish generic findings covering as many plants as possible. While plant and site-specific information is used in developing an envelope of generic findings, the NRC does not intend for the GEIS to be a compilation of individual plant environmental impact statements. Instead, this report may be incorporated, by an applicant, into a license renewal application environmental report. The GEIS makes maximum use of environmental and safety documentation from original licensing proceedings and information from state and Federal regulatory agencies, the nuclear utility industry, the open literature, operating experience, and professional contacts. It allows the

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments (cont.)				applicant to concentrate on those impacts that must be evaluated on a plant-specific basis. Information provided on the plant specific issues will either disposition the issue as not applicable or present an analysis of the issue using site-specific information. Mitigation and alternatives to reduce adverse impacts must also be discussed. This approach, the use of a generic environmental impact statement with a plant-specific supplement, improves the efficiency of the licensing process for licensees and the NRC. A scoping process is conducted to define the proposed action, to determine the scope of the EIS and identify the significant issues to be analyzed in depth. A public scoping meeting is held near the nuclear plant seeking license renewal. Based on this process and the staff's independent review, the NRC will issue a preliminary recommendation on the acceptability of a license renewal action with regard to environmental impact. A draft plant-specific supplement to the GEIS is released for public comment and a public meeting is then held to discuss the findings. After comments are addressed, the NRC publishes a

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
General Public Comments (cont.)				final plant-specific supplement to the GEIS and provides a final recommendation regarding the license renewal application to the Commission. Transcripts of environmental scoping meetings and public meeting on the draft supplements related to license renewal are available through the NRC Public Document Room. The GALL report and SRP-LR were not revised to address this comment.
HKenneth-1 (OPPD)	C.3.9	Item C2.6.1 in Chapter V11 of the August Draft of the GALL (Page V11 C2-4) identifies an Aging Effect for Lube Oil Coolers. However, there is no program information on the next page (C2-5) as there is for the other items on page C2-4) It appears the last row of the table on page C2-5 related to item C2.6.1 was inadvertently omitted.		See NRC disposition to NEI comment G-VIIC2-7 in Appendix B, Table B.2.6 of this NUREG.
I&M-1	C.3.10	NRC incorporate additional licensing guidance into Draft Regulatory Guide DG-1104, the SRP-LR, and the GALL report to clarify how the GALL report will be used in the license renewal process for plants designed and licensed in accordance with regulations, codes, and standards different from those cited in the SRP-LR and the GALL report.	None Provided.	See NRC dispositions to comments ARCS-2, NMC-1, NMC-2, and NMC-3 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
I&M-2	C.3.10	I&M also endorses the comments being submitted by the NEI and the Westinghouse Owners Group.	None Provided.	See Appendix B of this NUREG for NRC dispositions to individual NEI comments.
I&M-3	C.3.10	In general, the GALL report provides sufficiently detailed information regarding program attributes. The report also identifies program areas that require augmenting, and discusses the aspects to be augmented.	The referenced codes, standards, and regulatory guidance are frequently the most recent version and the basis for requiring a program to be augmented is not always clear or sufficiently linked to aging management. As such, the report may be of limited value to older plants such as CNP. This vintage plant, with an operating license based on pre-GDC, simply may not have all the programs as described, or they may be defined by other equally valid versions of the codes and standards.	See NRC dispositions to comments ARCS-2, NMC-1, NMC-2, and NMC-3 in this Table C.
I&M-4	C.3.10	The introductory section to the GALL report is expanded to provide additional licensing guidance on how the report will be applied in the license renewal process. This guidance on the use of the GALL report should also be included in the SRP-LR and DG-1104.	The licensing guidance should address several issues that are important to ensuring that the GALL report is useful for the greatest number of prospective applicants.	See NRC disposition to comment NMC-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
I&M-5	C.3.10	The GALL report should provide recognition of the fact that plants have CLB that differ significantly.	For example, CNP and a number of other plants, due to their vintage, are not subject to the GDC of 10 CFR Part 50, Appendix A, or the Standard Review Plan (NRREG-0800). As noted in SECY-92-223, "Resolution of Deviations Identified During the Systematic Evaluation Program," the GDC do not apply to plants with construction permits issued prior to May 21, 1971.	See NRC disposition to comment NMC-1 in this Table C.
I&M-6	C.3.10	I&M supports the Staff's plan to revise and expand the GALL report as additional experience is gained through review and approval of other applicants' AMPs.	In this way, the GALL report will be expanded over time to encompass additional programs, activities, codes, and standards that the Staff finds acceptable for plants of different designs and vintages.	See NRC dispositions to comments NMC-1 and ACRS-2 in this Table C.
I&M-7	C.3.10	Second, the GALL report should not be treated as, in effect, the only set of regulatory requirements and guidance for adequate aging management programs. Thus, guidance should be added to the SRP-LR, the GALL report, and DG-1104 to clarify.	If this were the case, any variation from a program as described in the GALL report, or any area where an applicant is not utilizing all the aging management programs or activities listed in the GALL report for a given structure or component, could result in a need to augment existing programs or add new programs.	See NRC disposition to comment NMC-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
I&M-8	C.3.10	While the report does reference a set of regulatory requirements and guidance for aging management programs applicants are free to use alternative approaches (e.g., different programs or different combinations of programs and activities) from those described in the report.	Staff should consider adding a methodology and criteria to allow an applicant to demonstrate equivalency with the GALL report by showing that the primary objective of managing the effects of aging is being met by an alternative program or activity. I&M also recommends that the criteria for demonstrating equivalency of AMPs should include the use of risk insights.	See NRC dispositions to comments NMC-2 and NMC-3 in this Table C.
I&M-9	C.3.10	At CNP many of these existing programs required by the NRC effectively manage aging and maintain the CLB, whether this purpose is explicit in the requirement or not. For example, the ISI program is credited for monitoring certain components and is designed to inspect for and address the effects of aging so that the CLB is maintained.	The NRC through a Safety Evaluation Report, a Technical Evaluation Report or in an Inspection Report has accepted existing CLB programs. An applicant should be able to rely on these programs as appropriate for managing the effects of aging.	See NRC disposition to comment NMC-2 in this Table C. The SRP-LR Section 1.1.3, “Review Procedures,” contains guidance that an applicant may incorporate (by reference) … or other information contained in previous applications for licenses, license amendments, statements or correspondence filed with NRC provided the references are clear and specific.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
I&M-10	C.3.10	Third, the GALL report suggests that certain existing programs, including some programs mandated by binding regulatory requirements (e.g., Inservice Inspection and Inservice Testing programs under 10 CFR 50.55a and containment inspection programs under Subsections IWE and IWL of the ASME Code Section XI), may not be adequate aging management programs for Part 54 purposes without some augmentation.	Programs mandated by regulatory requirements or Technical Specifications should be adequate for Part 54 purposes. Where the NRC believes that some augmentation of an existing program is necessary, the GALL report should clearly explain the technical basis for this position and the relation to aging management. As an example the GALL report goes beyond the requirements in 10 CFR 50.55a(b)(2) and requires inspection of inaccessible areas of concrete containments and buried pipe without a detailed technical basis.	See NRC disposition to comment DP-7 in this Table C. The staff found from operating experience that there are cases where degradation occurred in inaccessible areas that were not evident from observation of adjacent accessible areas surrounding the inaccessible areas. To address these situations, the staff proposed that inspection in the inaccessible areas is warranted. However, the applicant has the option of providing the staff with justification explaining why an inspection would not be necessary. The GALL report and SRP-LR were not revised to address this comment.
I&M-11	C.3.10	To clarify the NRC should incorporate into DG-1104, the SRP-LR, and the GALL report an augmented section providing licensing guidance for how the GALL report will be applied. The guidance should provide the following clarifications: The applicability of the GALL report should be adjusted based on the plant-specific CLB. Pre-GDC and pre-SRP-LR plants are not expected to demonstrate all program attributes assumed in the GALL report.	For a particular plant, a program can be an acceptable aging management program even without meeting all 10 criteria specified in the SRP-LR, provided the applicant demonstrates that the existing program meets the fundamental objectives and has appropriate acceptance criteria. In this regard programs that have been previously approved by NRC (e.g. in an SER or IR), and which manage the effects of aging should be accepted for the renewal period.	See NRC dispositions to comments NMC-1, NMC-2, NMC-3, and ARCS-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
I&M-12	C.3.10	The GALL report does not represent a single binding set of regulatory requirements and guidance for aging management programs. Applicants have flexibility to use alternative approaches from those described in the GALL report. For any particular structure or component.	Aging can be adequately managed through use of a program or combination of programs and activities that are different from those listed in the GALL report.	See NRC disposition to comment NMC-2 in this Table C.
I&M-13	C.3.10	Applicants have the flexibility to reference the GALL report or to demonstrate that their programs and activities are equivalent to the reference programs described in the GALL report. For some plants, programs and activities not described in the GALL report may be credited for aging management purposes.	For example, activities such as plant restart reviews, design basis reviews, system readiness reviews. And system walkdowns are valid assessment methods. The NRC should also include the methodology and criteria by which an applicant can demonstrate the equivalency of its AMPs and activities and credit those versions of codes and standards that are part of the CLB for their respective plant.	See NRC dispositions to comments NMC-1, NMC-2, NMC-3, and ACRS-2 in this Table C.
I&M-14	C.3.10	The NRC should provide clarification as to how an applicant is to make the judgment as presently stated on page 3 of the GALL report, that “the conditions at its plant are bounded by all conditions assumed in the GALL report for a particular program.	None Provided.	See NRC dispositions to comments NMC-2, NMC-3, and NEI-5 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
I&M-15	C.3.10	I&M suggests that the GALL report be enhanced to provide more focus on programs rather than specific structures and components. As stated purpose of the GALL report is to assess the adequacy of existing programs for purposes of managing aging, and provide the Staff's generic conclusion as to which programs are deemed adequate for license renewal purposes. Given this purpose, it would be appropriate to add tables to the GALL report that focus on programs, as opposed to a component-by- component format.	If Table 3 data were reformatted as a list of programs with the other data displayed for each program one could see the aging mechanisms and applicable components encompassed by each program. This would give the GALL report greater utility for the applicant's reviews and expedite preparation of a license renewal application. The review of specific structures and components in the GALL report would still be useful to confirm that the programs have adequate breadth and depth in managing the effects of aging.	See NRC dispositions to comments NIRS-1 and NMC-5 in this Table C.
I&M-16	C.3.10	The NRC should clarify the schedule for initial implementation of the GALL report to make clear when applicants are expected to begin referencing the report in their applications.	The Staff should recognize that there is considerable lead-time required to develop an application. Work on a renewal application generally must begin two to three years prior to the expected submittal date. For licensees that are in the process of developing an application at the time the GALL report is finalized (expected in 2001), it may not be realistic for them to "retrofit" their applications to address the GALL report.	An applicant can reference the GALL report after the Commission approves it for final issuance. The GALL report and SPR-LR were not revised to address this comment.
I&M-17	C.3.10	The Statement of Considerations to the 1995 license renewal rule recognized that PRA techniques "may assist in developing an approach for aging management adequacy" published in 60 Fed. Reg. at 22468.	I&M believes that the use of PRA techniques has advanced to the point where licensees should be able to employ risk insights in aging management reviews and in the detailed evaluation of TLAA.	See NRC dispositions to comments UCS-3 and NMC-3 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-1	C.3.11	If the NRC and the nuclear industry are successful in finalizing the proposed expedited license renewal procedures, and thus are able to discount generically the effects of aging on a wide range of SSC, the NRC's approval of LRs would become standardized. And the safety of complex, fallible components could be ruled to be immune to public review and challenges.	None Provided.	Also see NRC disposition of comment NIRS-2 in this Table C The Atomic Energy Act established a 40-year license term for power reactors, but also provided that such licenses could be renewed. Public comment was sought when the regulations were amended in 1991 and 1995 to include a process for license renewal in Part 54 of Title 10 of the Code of Federal Regulations, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." The license renewal requirements provide for a plant-specific determination that aging effects can be adequately managed during the period of extended operation. The license renewal applicant is required to demonstrate aging for those SSCs within the scope of license renewal will be achieved. Public comment was also sought when the associated environmental impact requirements in Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," were amended for license renewal in 1996. The NRC requested public comment (August 31, 2000, Federal Register Notice 65FR53047) on updated guidance for the evaluation of

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-1 (cont.)				plant-specific applications for license renewal, including a report GALL. GALL is intended to provide the NRC staff with efficiencies in reviewing license renewal applications if applicants can certify that their aging management programs meet those described in GALL. However, applicants are free to propose alternative aging management programs, which the staff would review on a case-by-case basis. Recent media reports erroneously described this guidance as the only opportunity for public comment for license renewal. The NRC requested comments on the updated renewal guidance by October 16, 2000, in preparation for a meeting of the Nuclear Regulatory Commission held on December 5, 2000, to specifically discuss the extent to which existing inspection and maintenance activities need to be augmented for license renewal. Also see NRC disposition to comment NIRS-2 in Table C of this NUREG for discussion of hearing process applicable to license renewal application reviews. In addition, each license renewal applicant must include a supplement to the environmental report, which contains an analysis of the plant's impact on the environment if

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-1 (cont.)				allowed to continue operation beyond the initial license. The NRC performs plant-specific reviews of environmental impacts of operating life extension in accordance with National Environmental Policy Act (NEPA) and the requirements of 10 CFR Part 51. The GALL report and SRP-LR were not revised to address this comment.
KDrey-2	C.3.11	Surely, sound fiscal reasons exist that may explain why NRC is seeking ways to streamline its oversight and regulation of the 103 reactors that are still operating in the U.S. But can anybody point to sound safety reasons?	None Provided.	See NRC disposition of comment KDrey-1 in this Table C. The NRC did initiate developing the GALL report in part because it would provide one previously approved method for demonstrating that aging could be managed. However, the applicant must verify its aging management programs are bounded by those described in GALL. It was hoped that if the applicant could certify that their AMPS were equivalent to those described in GALL the staffs review could be reduced in that area. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-3	C.3.11	The NRC should demand from Congress and should receive funding for an augmented oversight staff and stricter regulatory authority – not contrive ways to simplify and cut back.	In order to cope with the increasing levels of complexity; the pervasive presence of corrosion, thinning, cracking and other forms of materials aging; and the decreasing supply of training and experienced nuclear engineers and workers (both at the NRC and at power plants).	The purpose for NRC's establishment of the SRP-LR and GALL is to gain efficiencies for the review of future license renewal applications in order to utilize NRC resources most effectively. Effectiveness means performing the work necessary to support the NRC missions and goals in a thorough, disciplined, and timely manner. As a result, the NRC must periodically challenge the value of NRC programs and activities based on how they contribute to the achievement of goals. As part of implementing a Planning, Budgeting, and Performance Management (PBPM) process, the NRC prepares a Strategic Plan that focuses on desired outcomes and provides visibility to our goals and measures. We will manage outcomes and establish goals to measure and report on our performance (to Congress). We will use performance feedback in our planning process, and identify the work necessary to produce the desired outcomes. We will meet our commitments in a predictable and timely manner. If the NRC foresees future number of license renewal applications exceeding the NRC's capacity to implement a thorough and/or timely review, the NRC can request additional resources of

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-3 (cont.)				Congress. In accordance with the NRC's Strategic Plan (NUREG-1614), "We will ensure that safety is maintained as licenses are renewed by ensuring that aging effects will be adequately managed and that the licensing basis related to the present plant design and operation will be maintained. We will authorize license renewal only after we have determined that aging effects have been and are being adequately managed. We will ensure that the licensing basis related to the present plant design and operation will be maintained throughout the period of extended operation. We will perform inspections to support the review of license renewal applications by verifying the acceptability of licensee aging management control processes." The GALL report and SRP-LR were not revised to address this comment. Also see NRC disposition of comment KDrey-1 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-4	C.3.11	The basic purpose of the proposed regulatory changes seems to be to enable the NRC staff to expedite the approval of the extended duration of each of the operating U.S. reactors with few, if any, requirements for site-specific aging management review of each reactor's individual SSC. An NRC licensee's promise of being able to operate his plant safely for another 20 years is clearly ingenuous, at best.	None Provided.	See NRC dispositions of comments KDrey-1 and KDrey-3 in this Table C.
KDrey-5	C.3.11	The NRC should sharpen its focus on defects and toughen its safety requirements.	Now that the plants have already operated longer than they should have, rigorous NRC oversight is more important, not less.	Before license renewal became an option, plants were initially licensed for 40 years of operation. No plants under the pre-license renewal requirements operated longer than their licensed life of 40 years. The NRC has a rigorous license renewal process. The license renewal rule, 10 CFR Part 54, has been established to focus the staff's review on aging management of plant structures and components for the period of extended operation. The GALL report and SRP-LR were not revised to address this comment. Also see NRC dispositions of comments KDrey-1 and KDrey-3 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-6	C.3.11	No safe site or technology has been found any place on or off the plant Earth to isolate the high-level radioactive waste (the irradiated fuel rods) to the highly radioactive "low-level" waste (everything else) of the current generation of operating and decommissioned nuclear power plants – or of the wastes generated at the uranium mines and mills and at the conversion, enrichment, and fuel fabrication plants; that is, the wastes from the rest of the uranium fuel cycle. And no safe way or people-less route has been found to transport the wastes to their non-existent burial grounds. Nuclear workers are exposed to levels of radiation that may be permissible, but are not safe.	None Provided.	Specific information on issue surrounding high-level waste and transportation of waste is available on the NRC Web site at http://www.nrc.gov/OPA/gmo/tip/issues.htm. The GALL report and SRP-LR were not revised to address this comment. Also see NRC disposition of comment KDrey-13 in this Table C regarding radiation effects to workers.
KDrey-7	C.3.11	Should the NRC be allowed to write a regulatory blank check or issue use-as-is permission for its licensees to continue to operate their nuclear power plants beyond the design life of the plant and its components?	None Provided.	See NRC dispositions of comments KDrey-1 and KDrey-3 in this Table C.
KDrey-8	C.3.11	A few Additional questions: (1) Is the real driver of these proposed regulatory changes the NRC's effort to improve its licensee's ability to compete in the new deregulated market.	None Provided.	See NRC disposition of comment KDrey-1 in Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-9	C.3.11	A few Additional questions:. . . (2) . . But speaking of multinational corporations, can anyone explain how a consortium of corporations with headquarters in various countries would be allowed to apply for and obtain a license renewal for a reactor in the United States?	According to 10 CFR 54.17 (b); "Any person who is a citizen, national, or agent of a foreign country, or any operations, or other entity which the Commission knows or has reason to know is owned, controlled, or dominated by an alien, foreign corporation, or a foreign government is ineligible to apply for an obtain a renewed license."	The Atomic Energy Act (AEA) of 1954, as amended, forms the basis for regulatory requirements promulgated in 10 CFR Part 50. Section 103d of the AEA, specifically provides that no license may be issued to an alien or to a corporation owned, controlled, or dominated by an alien, foreign corporation, or foreign government. The Standard Review Plan on Foreign Ownership, Control, or Domination, dated August 31, 1999, that is used by NRC staff to review applications for power plant licenses that may involve issues relating to foreign interests, outlines certain conditions by which some degree of foreign ownership or control of an applicant may be consistent with the AEA (See *Federal Register* Notice Vol. 64. No. 187, Tuesday, September 28, 1999). The purpose of the conditions is to ensure that foreign ownership or control of a licensee would be limited such that it would not be inimical to the common defense and security. Copies of this SRP-LR (to review the detailed explanation of the conditions for limited foreign involvement) can be obtained from the NRC's electronic document management system accessible at

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-9 (cont.)				www.nrc.gov or from the NRC Public Document Room at 11555 Rockville Pike, Rockville Maryland 20852-2738, 301-415-7000. The GALL report and SRP-LR were not revised to address this comment.
KDrey-10	C.3.11	Some specific concerns about extending the duration of the operating licenses – 1. Steam generators: Major, controversial, unresolved, safety issues remain about the design, fabrication, operation, repair, and safe shutdown of the steam generators – one of the most essential pieces of equipment in pressurized reactors.	In spite of concerns submitted by NRC staff member, Joram Hopenfeld (Ph.D. in Engineering, UCLA), dating back as early as 1991, the potential for multiple steam generator tube ruptures and/or leaks is basically being ignored. According to Dr. Hopenfeld's Differing Professional Opinion on steam tube integrity, presented on October 11 to an ad-hoc review panel of the NRC's Advisory Committee on Reactor Safeguards: as of July 1999 the NRC was permitting 17 reactors to operate with severely degraded steam generators, using NRC Generic Letter 95-05 guidelines.	See NRC dispositions of comments NIRS-7, NIRS-8, and UCS-4 in this Table C. The staff has incorporated lessons learned from the Indian Point 2 tube failure into its review and inspection activities. The NRC staff has issued to licensees a regulatory issue summary (2000-22 - Issues Stemming from NRC Staff Review of Recent Difficulties Experienced in Maintaining Steam Generator Tube Integrity available at http://www.nrc.gov/NRC/GENACT/GC/RI/2000/indexhtml or through the NRC document system ADAMS). The NRC staff has continued to conduct phone calls with select licensees that have very similar operating conditions (although no licensees currently have the same model steam generators as Indian Point 2) to discuss their SG inspections and now requests licensees to address any steps that they have taken, or

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-10 (cont.)				plant to take, in response to the industry lessons-learned from the Indian Point 2 tube failure (see document accession No. ML003765272). In addition, in a letter dated November 1, 2000, from the NRC's Executive Director of Operations, William Travers, to the Commissioners (see document accession No ML003765272), Mr. Travers stated "Based on our review of the lessons-learned report, we have concluded that there are no safety concerns that have been identified that require immediate action with respect to the industry." While the GALL report and SRP-LR were not revised to address this comment the GALL steam generator aging management program was reviewed by staff familiar with lessons learned from Indian Point 2.
KDrey-11	C.3.11	Some specific concerns about extending the duration of the operating licenses – 2. Radioactive corrosion products: I am enclosing a copy of a letter I sent to the NRC on July 16, 1980 --- twenty years ago! --- about the proposed use of chelating-agent solvents for the chemical decontamination of Dresden Unit One in Illinois.	As you know, the continuing buildup of radioactive corrosion products – which emit highly penetrating gamma rays – causes the radiation fields within which workers must inspect, repair and replace equipment to become higher and therefore potentially more harmful to the workers. As a nuclear plant ages, and as the corrosion products (crud and the green grunge)	In response to a petition from Ms. Kay Drey and the Citizens for a Better Environment, the NRC prepared an environmental impact statement to address the potential impacts from a plant modification at Dresden Unit No. 1. Because of high residual radiation levels, the licensee, Commonwealth Edison Company, had proposed by letter dated December 19, 1974, a project

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-11 (cont.)			increase – sometimes in inaccessible location – the only way a licensee is often able to reduce the resulting high radiation fields is to flush solvents through the piping or other corroded components. The result is dissolved radioactive wastes (bonded to the solvents) that are difficult, if not impossible, to isolate from the biosphere for the requisite millennia.	to chemically decontaminate the primary cooling system at Dresden Nuclear Power Station, Unit No. 1. The "Final Environmental Statement related to Primary Cooling System Chemical Decontamination at Dresden Nuclear Power Station, Unit No. 1" was published as NUREG-0686 in October 1980. The final environmental EIS (NUREG-0686) addressed concerns raised by Mrs. Drey's in her July 16, 1980 ,letter. Therefore, this comment has previously been addressed. The GALL report and SRP-LR were not revised to address this comment.
KDrey-12	C.3.11	Some specific concerns about extending the duration of the operating licenses – 3. Reactor Pressure Vessel: . . . The steel of the pressure vessel is subject to radiation effects due to its location near the reactor core.	Neutron radiation causes the brittle-to-ductile transition temperature to increase significant, leading to the increased possibility of fracture, for example during a refueling operation. In fact, the extension of reactor life beyond the traditional 40 years (and perhaps even sooner) depends critically on knowledge of the embrittlement characteristic of the pressure vessel and on the ability to offset the embrittlement by an annealing process.	Neutron Radiation Embrittlement of the Reactor Vessel is addressed in the GALL report. The existing reactor vessel material surveillance program must provide sufficient material data and dosimeters to monitor irradiation embrittlement at the end of the period of extended operation, and to determine the need for operating restrictions on the inlet temperature, neutron spectrum, and neutron flux. If surveillance capsules are not withdrawn during the period of extended operation, operating restrictions must be established to ensure that the plant is operated under the conditions to which the

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-12 (cont.)				surveillance capsules were exposed. Reactor vessel surveillance programs are plant-specific, depending on matters such as the composition of limiting materials, availability of surveillance capsules, and projected fluence levels. In accordance with Appendix H to 10 CFR Part 50, an applicant must submit its proposed withdrawal schedule for approval prior to implementation. Thus, staff evaluation of the applicants program is required for license renewal. The reactor vessel surveillance program (XI.M31) described in the GALL report and SRP-LR were revised but not to address this comment.
KDrey-13	C.3.11	Some specific concerns about extending the duration of the operating licenses: Release of radioactive gases and liquids to the environment: As a nuclear power plant gets older, its filtering and monitoring mechanisms, reactor coolant systems, piping, cooling water intake structures, and other systems inevitably wear out. Some can be maintained, refurbished, or replaced; some cannot. The gaseous and liquid radioactive waste detection and processing	None Provided.	With respect to “low-level” radiation, NRC regulations require licensees to have effluent and environmental monitoring programs (to quantify releases and their impact on the environment) to ensure that the impacts from plant operations are minimized. The results of these programs are reported annually and available to the public. The permitted effluent releases result in very small doses to members of the public living around the plants (small fractions of the public dose limit).

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-13 (cont.)		mechanisms become less effective, increasing the amounts of unfiltered and unmonitored gases, liquids and particulate materials released to the air and to the plant's cooling water source (the lake, ocean or river) during the routine operating of the plant. And even more critically, during an accident.		Regional NRC inspectors routinely inspect these monitoring programs to ensure continued compliance with regulatory requirements. Licensees are required to participate in an inter-laboratory comparison program, which provides an independent check on the accuracy and precision of the environmental measurements. Additionally, the National Cancer Institute, at the request of Congress, conducted a study of 52 nuclear power stations and 10 Department of Energy facilities ("Cancer in Populations Living Near Nuclear Facilities," Jablon, et al., National Cancer Institute, July 1990. [NIH Publication No. 90-874]). The study concluded that there was no increase in cancers in the communities surrounding the nuclear power plants. Regarding the potential for releases during accidents, the NRC has promulgated Emergency Preparedness requirements that licensees must adhere to so that actions will be taken to protect the public from a release during an accident. Licensees are required to drill on their preparations with offsite authorities and the NRC routinely inspects licensee emergency preparedness programs.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KDrey-13 (cont.)				The GALL report and SRP-LR were not revised to address this comment.
KOPEC-1 Hagki Youm	C.3.12	On the GALL report (pp IV C2-28, Item C2.5.10), the SCC and PWSCC aging mechanism are used for Austenite SS and Alloy 600, respectively. Could you explain the reason and background why other AMP shall be applied?	I know PWSCC is a SCC aging mechanism. Thus, it seems that same AMP can be used.	GALL recommends that the aging management program for SCC of austenitic stainless steel heater sheaths and sleeves is ASME Section XI Inservice Inspection, Subsection IWB and Water Chemistry. ASME Section XI Inservice Inspection, Subsection IWB and Water Chemistry are also recommended for Heater sheaths and sleeves made from Alloy 600. However for Alloy 600 Heater sheaths, sleeves, and the Inconel 182 welds require further evaluation. The reason for the different GALL recommendation for the Alloy 600 components is the operating experience. This operating experience is described in detail in Information Notice 90-10 and 96-11, and Generic Letter 97-01. Thus, the susceptibility of Alloy 600 to PWSCC has not been fully addressed by inservice inspection and chemistry. Therefore GALL recommends that the applicant should perform a susceptibility study of all Ni-alloy components to identify the most susceptible locations and to determine whether an augmented inspection program is necessary. The applicant should review the

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
KOPEC-1 (cont.)				scope and schedule of inspection, including leakage detection system, to assure detection of cracks before the loss of intended function of the penetrations. The applicant should either provide the technical basis that justifies the adequacy of the program or develop an integrated long-term program that includes periodic inspection of the most susceptible locations to detect the occurrence of PWSCC. The frequency of subsequent inspections should be based on the finding of the initial inspections and crack growth rate models for Ni alloys. The applicant should provide information on crack initiation and growth models and the data used to validate these models to verify adequacy of the inspection program and acceptance criteria. The GALL report and SRP-LR were not revised to address this comment.
NIRS-1	C.3.13	While reading over the transcript of the License Renewal Workshop Public Meeting dated September 28, 2000, I noted with concern that Mr. Yung Liu of the Argonne National Laboratory (ANL) indicates that his lab has been contracted by the NRC to reformat the Draft GALL Report. ANL is proposing to accomplish this task by modifying, compressing and	This raises a significant concern that the public is being asked to provide comments on material that is already dated by NRC for which the agency has no intention of issuing. Considering the density and complexity of the material presented by the GALL Report, it is grossly unfair to ask the public to comment	The NRC reformatted information in the GALL report to make it easier to understand and use. The content of the information available for public comment has not changed. If public commented on information that changed substantially, the NRC will evaluate whether the comment would be pertinent to the changed information and publish its

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-1 (cont.)		eliminating existing columns and information from various tables.	on a roughly hewn document for the sake of meeting NRC timelines, knowing that agency does not intend on issuing the document in this format. As Mr. Grimes states in the transcript, "I had originally envisioned that the reformatting would be intended to make it easier for people to follow the material rather than to confuse them." However, it is not reasonable for NRC to solicit public comments on a document that it already views as confusing and in need of reformatting. If NRC were sincere in this endeavor, it clearly would have waited to provide the public with final draft of the report for comment.	evaluation with the final publication of these documents. The staff will address public comments received on the August 2000 version of the GALL report, SRP-LR, and Draft Regulatory Guide "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses (DG-1108) because the staff documents any changes and the basis for the change in this report. The staff's contractor, ANL, changed the format of the table as Mr. Liu indicated and the information previously in columns "Structure and Component" and "Region of Interest" has been combined into one column titled "Structure and/or Component." Information in columns "Aging Effect" and "Aging Mechanism" has been combined into one column titled "Aging Effect/Mechanism." In addition, the staff relocated the information in columns "References" and "Evaluation and Technical Basis" into Chapter XI under the various aging management programs which are still listed in the table for the various aging effect they are to manage. The information in the Aging Management Program has been simplified by pointing to the corresponding program in Chapter

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-1 (cont.)				XI. One may refer to a row in the table that identifies the aging management program of interest and then go to Chapter XI and look up the "References" and "Evaluation of Technical Basis" for that program. The information was combined and relocated in order to make the table easier to use and understand, but the technical substance was not affected. As a result, the relevancy of stakeholders' comments regarding the technical basis relied on to generically credit the various aging management programs for license renewal would not be affected because there has been no substantive change to the information in GALL. The GALL report and SRP-LR were not revised to address this comment.
NIRS-2	C.3.13	The agency's stated goal is to make the re-licensing process more predictable and streamlined. This is, without mistake, a process that is designed to facilitate a more predictable for re-licensing applicants. Central to making the re-licensing process predictable to licensees is the need to remove what is viewed by industry and regulator as time and cost	NIRS rejects the generic approach to age-related degradation issues for reactor licensing extension as a construct to solely benefit the nuclear industry economically while undermining public health and safety. This approach effectively eliminates site specific public participation and intervention in the re-licensing proceedings on aging issues. In turn, this approach	The GALL report does not affect the public's ability to comment on site-specific concerns related to safe operation of a nuclear facility undergoing a license renewal review by the NRC. Public comment was sought when the regulations were amended in 1991 and 1995 to include a process for renewal in Part 54 of Title 10 of

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-2 (cont.)		consuming impediments or licensing burdens raised through site specific re-licensing proceedings brought forward by the affected public regarding age-related degradation of systems, structures and components (SSC). The re-categorization of site-specific contestable issues to generic non-contestable issues is the central advantage gained by the agency and the licensees to make the re-licensing process predictable through the Generic Aging Lessons Learned or GALL approach.	eliminates independent experts and public review of the potential impact of age-related degradation issues from the license extension process. It is fundamentally undemocratic to remove the affected public's discovery process and their ability to scrutinize and cross-exam industry and regulatory assumptions pertaining to aging safety components and public safety within the context of an adjudicatory proceeding. By removing age-related degradation issues from the independent scrutiny of a site-specific proceeding, the GALL approach strengthens and perpetuates the historically cozy industry/regulatory relationship and systematically obfuscates safety issues through a host of mechanisms including corporate proprietary non-disclosures tactics.	the Code of Federal Regulations. Public comment was also sought when the associated environmental impact requirements in Part 51 were amended for license renewal in 1996. The public has the opportunity to provide site-specific comments regarding a license renewal application in response to a notice of opportunity for hearing issued pursuant to 10 CFR 54.27. A notice of opportunity for a hearing will be published in the *Federal Register* in accordance with 10 CFR 2.105. Any person whose interest may be affected by the proceedings may file a request for a hearing or a petition for leave to intervene. Hearing notices have been published regarding past license renewal applications that the NRC has received thus far and will continue to be posted as new license renewal applications are received. In addition, any person may file a request to institute a proceeding pursuant to 10 CFR 2.202 to modify, suspend, or revoke a license, or for any other action as may be proper. The request must specify the action requested and set forth the facts that constitute the basis for the request. In summary, GALL is a guidance document that does not affect opportunities to raise site-specific concerns regarding license

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-2 (cont.)				renewal. GALL does not alter the requirement for a licensee to demonstrate that the effects of aging [10 CFR 54(a)(3)] for SSCs with the scope of license renewal will be managed during the renewal term. The license renewal rule requires a plant-specific determination that aging effects can be adequately managed for the renewal term. If a licensee intends to reference an AMP in GALL it must certify that its AMP at a minimum manages the applicable aging effects. The GALL report was published so that the public had the opportunity to comment on the aging management programs described in it. Appendix A, Section A.1.2.2 of the SRP-LR provides a summary description of how the staff would review each aging management program contained within a license renewal application. Also see NRC disposition of comment KDrey-1 in this Table C of this NUREG. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-3	C.3.13	The GALL approach provides for far too much credit and confidence to be given to the regulator and industry towards the "generic" nature of age-related degradation the licensing basis.	In fact U.S. reactors have incorporated many design and component features that are unique within their pressurized and boiling water reactor licensing basis. As one NRC official told the McGraw Hill publication, Inside NRC (October 9, 2000, p.10), "You are talking about a licensing basis as if it were one thing," said David Weiss, "when, in fact, nuclear power plants are like snowflakes. Each one is different. It makes the job very difficult. If you pick on one particular issue at a plant and you throw enough resources at it you can figure out what the licensing basis is." It is the NIRS contention that the GALL approach significantly limits the overall effort to ascertain the real effects of aging on the over all licensing basis as it pertains to license extension. As a consequent, this generic approach constitutes a non-conservative approach to the re-licensing process and further undermines public health and safety.	While design basis for plants may differ, the aging mechanisms for plant equipment are very similar at many plants. The intent of the GALL report is only to review in advance programs, which the NRC would find acceptable for managing the applicable aging effects on the applicable SSCs. The aging effects and aging management programs described in the GALL report are a reflection of those reviewed in the first few renewal applications; therefore, the staff would expect to see them addressed. However, GALL does not provide the only way to demonstrate aging management required by 10 CFR 54 (a)(3). Applicants can either reference a previously approved program in GALL or they can propose their own AMP. Also see NRC disposition of comment NIRS-2 in Table C of this NUREG. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-4	C.3.13	Additionally, the NRC and industry have provided no "lessons learned" in their GALL approach for assessing demonstrated short falls, failures and differing professional opinions in the current process to evaluate aging for the current licensing basis.	These failures and shortfalls can compound to adversely impact the scope and accuracy of generic evaluations within the context of license renewal when overlooked in the evaluation program of the adequacy of generic age management programs.	The GALL, SRP-LR, and Draft RG have the benefit of the experience of the staff members who are part of the current process in evaluating aging for the current license term and also conducted the review of the initial license renewal applications. Therefore, lessons learned from the current process and from an efficiency and effectiveness standpoint in addressing unique issues related to license renewal from the first reviews have been incorporated into these documents. The GALL, SRP-LR, and Draft RG have been revised to address this issue but not specifically for this comment.
NIRS-5	C.3.13	The GALL process is therefore fundamentally flawed in assuming that the NRC staff and industry have assembled and are practicing from an adequate and accurate body of knowledge and experience to evaluate the adequacy of each generic aging management program from aging effects for SSC. NIRS cites several of the "l0 program attributes," used to generically categorize the SSC for GALL as fundamentally flawed. These program attributes include but are not limited to:	For example, it is generally recognized that within a single operational cycle, steam generator tube cracking can increase from tens to hundreds to thousands of cracks as a result of intergranular stress corrosion cracking without any degree of certainty that can predict this jump in crack growth. With regard to age-related degradation, NIRS contends that the industry and regulatory are placing an undue amount of confidence and credit in unproven and theoretical assumptions espousing that you can know where you are going by	This comment questions the adequacy of NRC and industry with respect to aging management programs, particularly steam generators. The GALL report was developed based on over 5,000 nuclear plant aging reports. This body of knowledge and experience included information from the nuclear plant aging research program and operating experience from licensee event reports. The 10 element aging management program evaluation demonstrates the effectiveness of an aging

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-5 (cont.)		#5 Monitoring and Trending. There is a distinct lack of assessment within the context of GALL for "lessons learned" from the apparent and significant degree of uncertainty for predicting degradation mechanisms (i.e. crack growth rates, embrittlement) over operational cycles of 15, 18 and 24 month operational cycles, let alone 20 year license extensions.	looking at where you have been. This is a lot like driving your car through the rear view mirror, which does not instill confidence for either the passengers of the vehicle or communities living downwind of nuclear power stations. Those of us who are being taken for a ride with the industry and regulator are increasingly alarmed by this practice as a continued justification for operational exemptions, as most recently exemplified by reduced inspection schedules leading up to Indian Point Unit 2 steam generator tube accident in February, 2000. NIRS now sees this same practice to be used generically applied to justify 20-year license extension without an avenue for public challenge.	management program. One of these attributes includes monitoring and trending. Parameters are monitored, inspected, and/or tested, that provide direct information about the relevant aging effect(s), and their impact on intended functions. One or more of the credited programs detects the aging effect(s) before there is a loss of the structure's or component's intended function. Monitoring and trending is to provide an adequate predictability and to provide for timely corrective or mitigative actions. Also, in this evaluation operating experience of the program/activity, including past corrective actions resulting in program enhancements, is considered. It provides objective evidence that the effects of aging have and will continue to be adequately managed. In the case of the Indian Point 2 steam generator incident, the state of knowledge regarding steam generator tube inspection programs was found to be adequate; however, the staff concluded that implementation of the program was not effective (See the Indian Point 2 Steam Generator Tube Failure Lessons-Learned Report dated October 23, 2000, for more information.) Ineffective

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-5 (cont.)				implementation results in increased oversight by the NRC and, if appropriate, penalties are also assessed. This NRC oversight practice is expected to continue into the license renewal term. The GALL report and SRP-LR were not revised to address this comment.
NIRS-6	C.3.13	Additionally, NIRS notes with alarm that the NRC and industry are interested in expanding the number of SSC that would be approved for one time inspections" as an acceptable alternate to periodic inspections to assess age-related degradation. NIRS is astounded by the NRC premise that a one time inspection will be sufficient to verify that age-related degradation of various SSC is sufficient to satisfy the license renewal basis, particularly when these inspection verifications are to occur a decade or more in advance of the license renewal date.	None Provided.	It is not necessary to establish a restriction on how early the one-time inspections can be performed. When the Commission established the license renewal rule in 1991, it determined that renewal applications could be submitted as early as 20 years before expiration of the current operating license because that would be sufficient operating experience to disclose plant-specific, age-related degradation. Therefore, if an aging effect is occurring, performance of the inspection after 20 years of operation but before the end of the current term should identify the aging effect. Also, these one-time inspections are intended to confirm that aging effects are not occurring. For example, when staff had concerns regarding whether an aging effect was occurring at the Calvert Cliff Nuclear Power Plant or whether a one-time inspection was sufficient, the one-time inspections

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-6 (cont.)				originally proposed by Baltimore Gas and Electric Company were converted into periodic inspections. Additionally, if operating experience reveals an emerging concern, whether before or after the one-time inspection is performed, the licensee must investigate and take any required corrective action in accordance with the requirements of Appendix B to 10 CFR Part 50. The GALL report and SRP-LR were not revised to address this comment.
NIRS-7	C.3.13	The GALL process is therefore fundamentally flawed in assuming that the NRC staff and industry have assembled and are practicing from an adequate and accurate body of knowledge and experience to evaluate the adequacy of each generic aging management program from aging effects for SSC. NIRS cites several of the “l0 program attributes,” used to generically categorize the SSC for GALL as fundamentally flawed. These program attributes include but are not limited to: #6 Corrective Actions. The existing 40% plugging criteria (40% PC) for steam generators in pressurized water reactors has imposed a heavy financial burden on the industry	As a result, despite a lack of technical justification, the industry insisted and the regulator acquiesced to a position that it is safe to operate steam generators with defective tubes. This flawed policy effectively allowed the steam generator tube rupture to occur at Indian Point Unit 2. The affected public views this as one of many examples of a collapsed and ineffective corrective action program. Again, NIRS sees this same practice to be incorporated generically to justify 20-year license extensions without an avenue for public challenge.	The 1997 inspections of the Indian Point 2 SG tubes missed detecting the tube in SG 24, which had the crack, that lead to the leakage in February 2000. In addition, after re-looking at the data from 1997 inspections (after correcting for high signal to noise ratio) the licensee has subsequently determined that the crack was greater than 40% through wall and would have been plugged if it had been detected as required in Regulatory Guide 1.121, “Bases for Plugging Degraded Steam Generator Tubes.” As a result of not detecting the indication during the 1997 outage the NRC has initiated enforcement action for those performance issues associated with the licensee not recognizing and taking appropriate

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-7 (cont.)		much to their dissatisfaction. In view of this dissatisfaction, NRC has made many attempts over the past decade and failed to formulate a meaningful alternative to the 40%PC. Despite this effort, the industry does not want to be constrained by the 40% PC and is requiring unlimited flexibility in making decisions regarding steam generator fitness for service.		corrective actions for significant conditions adverse to quality that affected the SG inspection program (see ADAMS document accession number ML003770186). The NRC and Industry are being proactive in addressing steam generator tube integrity. Examples of industry initiatives include a revision to NEI 97-06 that provides guidance for improving steam generator tube integrity. This document is currently under NRC staff review. The NRC is also addressing steam generator tubes as a generic safety issue (GSI-163, ADAMS accession number ML003762242). As for the Indian Point 2 steam generator tube incident, a task group was formed and a lessons learned report was issued (ADAMS accession number ML00376242). To further improve public confidence in the SG tube integrity area, the NRC has posted a steam generator tube action plan on the NRC Web site. Results from this action plan will be periodically updated to provide the public with current information from the achievement of the milestones. To further increase stakeholder input and confidence, steam generator tube public workshops and meetings are planned.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-7 (cont.)				In the current term, the NRC provides regulatory guidance, inspection, and enforces penalties or increased oversight to ensure steam generator tube integrity. When events occur, investigations are performed; root causes and corrective action are sought and implemented. This information and guidance provides feedback to improve the reliability of other plants. The steps that the NRC takes in this corrective action process are publicly available (at the NRC home pate www.nrc.gov and ADAMS) and are subject to public challenge. This process will continue in the license renewal period. The GALL and SRP-LR were not modified specifically as a result of this comment. Members of the Indian Point 2 steam generator tube integrity task force reviewed the GALL report and their comments were incorporated.
NIRS-8	C.3.13	The GALL process is therefore fundamentally flawed in assuming that the NRC staff and industry have assembled and are practicing from an adequate and accurate body of knowledge and experience to evaluate the adequacy of each generic aging management program from aging effects for SSC. NIRS	One recent example is contained within the NRC Office of the Inspector General Event Inquiry "NRC's Response to the February 15, 2000, Steam Generator Tube Rupture At Indian Point Unit 2 Power Plant," August 29, 2000. Despite long standing industry and regulatory concerns regarding the	The NRC staff reviewed the OIG report findings and bases for the findings and has determined that some of the findings portrayed an inaccurate picture regarding facts surrounding the information contained in "Consolidated Edison's 1997 inspection report" and the staff's review of Con Ed's license

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-8 (cont.)		cites several of the "l0 program attributes," used to generically categorize the SSC for GALL as fundamentally flawed. These program attributes include but are not limited to: #9 Administrative Controls. There is a demonstrated lack of adherence to administrative controls on the part of the industry and enforcement by NRC with regard to age-related degradation issues.	loss of steam generator tube integrity, the report identified a number of missed opportunities by NRC to catch degradation of a steam generator tube. The report concluded that NRC staff could have flagged the problem tube if it had conducted a technical review of Consolidated Edison's 1997 inspection report and that staff missed another opportunity when it reviewed Con Ed license amendment request for a one-year extension of the steam generator inspection, which was deferred in the summer of 1999. Additional, NRC engineering staff were hampered by senior management in following up with additional questions to Con Ed regarding the inspection extension which resulted in the February, 2000 tube rupture. NIRS has no confidence that current administrative controls in neither industry nor NRC enforcement of administrative controls are adequate and can be generically categorized to place age management issues beyond public scrutiny and intervention within the context of license extension.	amendment request, both, which preceded the Indian Point 2 tube leak in February 2000. The basis for the NRC staff's disagreement with the OIG's findings related to the inspection report and the amendment request is documented in a November 3, 2000, letter from NRC's Executive Director of Operations, William Travers to NRC Commissioners, "Staff Review of OIG Report on the NRC's Response to the Steam Generator Tube Failure at Indian Point 2 and Related Issues" (see document ADAMS accession number ML003753067). On page 4 of ML003753067 Mr. Travers stated: "The results of the licensee's 1997 steam generator inspection were provided to the staff in an inspection summary report from the licensee dated July 29, 1997, and as stated above, the NRC did not review this report for the reasons discussed previously. However, this summary report did not provide information identifying the flaw in the U-bend of the row 2, column 5 tube in SG 24 because the licensee's inspections did not identify this subject defect in 1997. The existence of the flaw that lead to the tube failure was only discovered after the February 2000

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-8 (cont.)				tube failure when a detailed review of the 1997 eddy current test data, which was not previously submitted to the NRC, was performed at the location at which the failure occurred. The 1997 summary inspection report did identify a U-bend defect in a different tube in SG 24 and this tube was plugged. However, in 1997 the licensee was not aware of the flaw that led to the tube failure and the staff could not have identified the flaw in the U-bend of the row 2 column 5 tube in SG 24 based on the information provided by the licensee in 1997." The November 3, 2000, Travers letter (ML003753067) also includes additional information clarifying the NRC's activities with respect to Indian Point 2. Because license technical specifications typically require licensees to submit reports summarizing the results of their steam generator inspections within 12 months following the inspection the NRC staff routinely engages in conference calls with licensees as they are conducting their inspections to obtain real-time information to assess the results of inspections. The information contained in these summary reports does not include the detailed eddy current inspection data, which is

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-8 (cont.)				analyzed to determine if there are flaws in SG tubes. Therefore, it is not possible with this data for the NRC staff to identify flaws that the licensee might have missed. The NRC does provide training on the review and interpretation of eddy current data to the NRC staff involved in steam generator activities and maintains specialized contractor support in this areas. However, because of resources the NRC conducts sampling reviews of SG inspection data. As part of the lessons learned from the Indian Point 2 failure, the NRC plans to reassess the best approach to applying NRC resources in this area. Regarding the need to obtain more real-time information on Indian Point 2 SG inspection results as they were being evaluated, the NRC staff held four conference calls to discuss the 1997 inspection results. The NRC staff cannot recollect that during any of the calls the licensee informed the staff that a crack had been found in a U-bend tube. As a result of this lesson learned, outlined in Attachment 3 of the November 3, 2000, letter, the staff plans to reassess the need for the summary inspection report and conference calls during the outages to determine the most effective approach for providing NRC

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-8 (cont.)				oversight of SG inspections by February 2001. The basis for the staff's disagreement regarding the amendment request is (see page 5 of ML003753067): "Although the NRC review could have been more thorough, we disagree that the review was inadequate because the scope and depth of the review conformed to staff guidance and was commensurate with the level of technical complexity and safety significance of the licensee's request. The purpose of the amendment request submitted by the licensee was to reschedule their upcoming SG inspection to a later date to take credit for the fact that the plant had been shut down for an extended period of time (approximately 10 months). During that shut down period the SGs had been placed in a "lay-up" condition. Under this "lay-up" condition the atmosphere inside the SGs was inerted (i.e., filled with a cover gas so the tubes are not exposed to oxygen) and the steam generators were at a low temperature. Operating experience has shown and it is well accepted technically that the SG tubes will not degrade under these conditions. In addition to crediting the period of time that

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-8 (cont.)				the plant was shut down, the revised inspection schedule from the licensee also proposed to extend the actual period of SG operation at power by about two months." While the tube rupture did not occur during the extended SG operation period granted by the NRC staff and the very complex nature of the casual factors that lead to the tube failure makes it unclear whether the NRC staff might have determined the existence of the flaw had they looked further, the staff is assessing the SG review guidance for improvements. Regarding whether NRC engineering staff were hampered by NRC management in following up to questions to Con Ed regarding the inspection extension request, the Director of NRR has taken additional steps to reiterate the guidance in the office procedure governing licensing reviews does not absolutely limit staff to one round of questions. The office procedure only requests that staff focus questions in an attempt to reasonably limit the number of rounds of questions. However, the same office procedure also provides guidance to staff to so that they may obtain necessary information from licensees when responses to the

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NIRS-8 (cont.)				first round of questions are not responsive. This additional guidance includes, conference calls, public meetings with NRC and licensee management, and if necessary a second round of questions. The GALL report and SRP-LR were not specifically revised as a result of this comment; however, staff involved with developing lessons learned from Indian Point 2 reviewed the aging management program for SG tub inspections.
NMC-1	C.3.14	The license renewal applicants must know how to use the guidance and what the NRC will expect to see in the applications relative to the guidance. In addition, the supporting bases referred to in these documents should be constructed in a way that allows both plants which were licensed prior to the present GDCs and SRP-LR and those licensed under the GDCs and SRP-LR to benefit from the work done in the Generic Aging Lessons Learned and Standard Review Plan for License Renewal.	None Provided.	GALL was drafted to evaluate aging management of SSCs in particular environments irrespective of the vintage of a plant. The staff has reviewed AMPs described in the GALL report to ensure programs apply to both pre- and post-GDC licensed plants. For example, the coating program described in Chapter XI, Section S.8, has been revised to incorporate older and newer versions of referenced regulatory guides. The GALL report and SRP-LR were revised to address this issue but not specifically for this comment.
NMC-2	C.3.14	Despite the interactions between NEI and the NRC, we do not fully understand how a license renewal applicant would use the GALL and the SRP-LR; nor are we certain how		On November 9, 2000, representatives from NEI and other interested industry groups met with the Nuclear Regulatory Commission (NRC) staff in Rockville, Maryland,

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-2 (cont.)		the NRC would use the documents in the review of a renewal application. We have noted that there is language in the August version of the GALL and SRP-LR, which discusses the purpose, and use of these documents. However, we believe uncertainty still exists.		to discuss use of the draft GALL and SRP-LR. NEI stated that the purpose of the meeting was to clarify the NRC's expectations for the application of the GALL report and the SRP-LR. Applicants submitting license renewal applications in 2000 and 2001, will use the GALL report primarily as an information source on the types of components, aging effects/ mechanisms, and programs to be considered in a license renewal application. In this context, the GALL report will help focus the presentation of information in a license renewal application and the basis to resolve questions and open items. For 2002, and beyond, after Commission approval, an applicant may use GALL as an approved topical report that is generically applicable. The industry representatives explained that they wanted the NRC to better define both how an applicant, will utilize the GALL report during the preparation of a license renewal application, and how the NRC staff will use it to facilitate the review of an application. The industry representatives stated that neither the GALL report nor the Standard Review Plan adequately described how to appropriately employ the GALL report to an applicant's

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-2 (cont.)				advantage. The industry representatives were particularly concerned about the staff's expectation for the level of detail associated with the certification that an applicant's programs conformed to the program descriptions in GALL and how exceptions to the GALL report would be described in an application. The staff stated that an applicant who references GALL in a license renewal application would be expected to verify that the programs relied on for a specific structures or components is bounded by the program evaluated in GALL, in order to use GALL as a reference for an acceptable program in the same way that topical reports are used as references for accepted programs. The staff review would intend to use GALL to focus on the areas where further evaluation is recommended or a plant-specific aging management program is proposed. By referencing the GALL, the staff expects that an applicant would decrease the volume of the application and the level of effort required for the staff review. The references along with exceptions to the GALL report may be in tables, footnotes to tables, or in a separate section in the front or the back of the application. The FSAR supplement that is included in the application

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-2 (cont.)				needs to reflect a summary description of the aging management programs, but it may take the form of the tables for components and aging management programs covered by GALL as described in Chapter 3 of the SRP-LR. The industry representatives stated that NEI 95-10 would be revised to state how to use the GALL report and the SRP-LR. As discussed in a January 31, 2001, public meeting, NEI committed to conduct demonstration project with plant examples to further define implementation details and expectations. The NRC and NEI agreed that the generic license renewal guidance document would not be modified further at this time and that current guidance regarding the application of GALL in the SRP-LR and GALL report was adequate. Both the NRC and NEI agreed to consider lessons learned from the demonstration project that might provide additional clarification regarding the application of GALL. The lessons learned could then be factored back into the SRP-LR and NEI 95-10. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-3	C.3.14	The flexibility to provide for acceptance of functionality equivalent programs does not appear to be written into the SRP-LR.		The NRC has built in flexibility for evaluations of AMPs. It is described in Appendix A, Section A.1.2.2 of the SRP-LR, and briefly summarized as follows: An acceptable aging management program should consist of the 10 elements described in Table A.1-1, as appropriate (Ref. 1). These program elements/attributes are discussed further in Position A.1.2.3 below. All programs and activities that are credited for managing a certain aging effect for a specific structure or component should be described. These aging management programs/activities may be evaluated together for the 10 elements described in Table A.1-1 (in SRP-LR), as appropriate. The risk significance of a structure or component could be considered in evaluating the robustness of an aging management program. Probabilistic arguments may be used to assist in developing an approach for aging management adequacy. However, use of probabilistic arguments alone is not an acceptable basis for concluding that, for those structures and components subject to an aging management review, the effects of aging will be adequately managed in the period of extended operation. Thus, risk significance may be

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-3 (cont.)				considered in developing the details of an aging management program for the structure or component for license renewal, but may not be used to conclude that no aging management program is necessary for license renewal. The GALL report and SRP-LR were not revised to address this comment.
NMC-4	C.3.14	The supporting basis should avoid using references to the GDCs and SRP-LR so that plants that were licensed prior to the GDCs and SRP-LR being established can more fully utilize the GALL.	Many of the underlying discussion in the GALL are tied to the GDCs and SRP-LR.	See NRC disposition of comment NMC-1 in this Table C.
NMC-5	C.3.14	We like the use of Chapter XI because it provides a repository for one-time evaluations of aging management programs. We have noticed that there are programs discussed in the body of the GALL report that are not listed in Chapter XI. We suggest that those programs not now listed in Chapter XI be included.	See previous column.	The NRC has modified GALL to list and describe all the applicable AMPs in Chapter XI. A central location of the aging management programs provides for easy of reference and reduces redundancy and potential inconsistencies. The GALL report and SRP-LR were revised to address this issue but not specifically for this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-6	C.3.14	Licensees that are of pre-GDC and SRP-LR vintage should support the attributes of programs contained in GALL independently of reference to the GDC or SRP-LR to allow use. Flexibility must be provided to allow some differences for those plants that do not fit the generic definition.	See previous column.	See NRC dispositions of comments NMC-1, NMC-3 ,and NMC-4 in this Table C.
NMC-7	C.3.14	We agree with the NEI response that, if a specific revision of a code; say those published by the American Concrete Institute (ACI), is referenced and evaluated in GALL, a renewal applicant can indicate that they use the same program at their facility and rely on the GALL evaluation for NRC acceptance of the code. If the ACI standard used by an applicant is different from that in the GALL, then the applicant must demonstrate that its program is adequate in the areas, which differ between the standard revisions, contained in GALL and the revision of the standard, which the applicant uses. Additionally we believe that the applicant should be able to use the edition of the ASME code that is applicable to the licensee in its current licensing basis or a more recent edition of the code. A more		See NRC disposition of comment ACRS-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-7 (cont.)		recent edition of the code would be applicable if the licensee plans to use it in the future.		
NMC-8	C.3.14	Nuclear Management Company, LLC, agrees with the NEI suggestion as discussed in the question. Given a robust process for identification of aging affects, the justification of any aging effect not requiring management would be part of the process documentation and is not required to be separately documented in the application.	It appears that the GALL identified aging effects are to be used by the staff as a checklist of those that require management. This implies that it would be possible for an applicant to use the GALL to determine which aging effects require management. We do not believe it should be acceptable for an applicant to use the GALL to determine which aging effects require management. The applicant must make use of the licensee's engineering analyses to determine which aging effects do and do not require management. The licensee will need to document in the application the applicable aging effects requiring management. Those that do not require management will be documented in the supporting documentation kept on site.	Pursuant to 10 CFR 54.21(a)(3), a license renewal applicant is required to demonstrate that the effects of aging on structures and components subject to an aging management review will be adequately managed so that their intended functions will be maintained consistent with the current licensing basis (CLB) for the period of extended operation. The SRP-LR Section A.1.2.1 No.1, page A.1-2, provides further clarification that the staff is only interested in applicable aging effects based on experience to date. To provide further clarification the NRC staff has modified No. 3 as follows: "If operating experience or other information indicates that certain aging effects may be applicable and an applicant does not justify the absence of the aging effect in its application, it may be appropriate to question its absence. However, in questioning the absence of the aging effect, a reference and/or basis, which provide relevance to aid the applicant in addressing the question, shall be provided. For example, the question could cite a previous application review, NRC generic communications,

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
NMC-8 (cont.)				engineering judgment, relevant research information, or other industry experience as the basis for the question. Simply citing that the aging effect is listed in GALL is not a sufficient basis. For example, the aging effect is applicable to a PWR component, but the applicant's plant is a BWR and does not have such a component. In this example, using the GALL report merely as a check list is not relevant." The SRP-LR was revised to address this comment.
PECO-1	C.3.15	PECO Energy appreciates the opportunity to comment on this petition for rulemaking. We endorse the comments provided by the Nuclear Energy Institute.	None Provided.	See Appendix B of this NUREG for NRC dispositions to individual NEI comments.
SRP-LR-1 (I&M)	C.3.16 Section 3	Add a section on references explaining that the SRP-LR and GALL report both have adopted current references in many cases and this is not intended to exclude earlier versions or other codes, standards, or guidance documents that are currently part of the CLB. A procedure for review and comparison with the GALL requirements would be an option that would preserve the utility of the GALL.	See GALL-1 and GALL-2 comments.	See NRC dispositions to comments NMC-2 and ACRS-2 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
SRP-LR-1 (I&M)	C.3.16 Paragraph 3.5.2.3	This section references the BTP RLSB-l in Appendix A.I of the SRP-LR for the acceptance criteria for programs that are different from those described in the GALL report. Appendix A.I describes a means to review and demonstrate that a program meets the general requirements for AMPs. Please consider adding a methodology that would allow a licensee to demonstrate equivalency with the GALL by showing that a primary objective is met or that alternative codes and standards to those referenced in the GALL report are met.	See GALL-1 and GALL-2 comments.	See NRC dispositions to comments NMC-1, NMC-2, and NMC-3 in this Table C.
UCS-1	C.3.17	UCS attended the public workshop conducted by the NRC staff on September 25, 2000. After the preliminary opening remarks, Mr. Yung Liu of the ANL made the first formal presentation. Apparently, ANL had been contracted by NRC to evaluate reformatting the Generic Aging Lessons Learned (GALL) report. Mr. Liu outlined the results of ANL's evaluation. Mr. Liu displayed -- but did not provide copies of -- proposed revamped table for the GALL report. The revamped table purportedly saves paper by eliminating many of the existing columns in the table. Combining information with information in other columns eliminates some of the	While the format, style, and font size of the GALL report are clearly within the purview of the NRC staff; it is outrageous that the NRC staff would ask the public to review and comment on one draft GALL report (ADAMS as session number ML003742594) while concurrently contracting for a substantial revision of that document. This act amounts to 'bait and switch." The NRC staff has a self-imposed deadline of August 31, 2000 for seeking public comments. In order to meet that artificial deadline, the NRC staff apparently released for public comment a premature draft of the GALL report it intends to issue. Thus, the public will be reviewing a	See NRC disposition of comment NIRS-1 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-1 (cont.)		columns. Other columns, such as references, are just eliminated. UCS finds references very useful and would not want to see this valuable information discarded or relocated.	draft report that the NRC has no real intention of issuing. The NRC staff should not place schedule ahead of quality. The NRC staff should wait until it has developed a draft GALL report it can support and then publish that document for public comment. The public has a right to review and comment on the document the NRC intends to issue, not the document the NRC staff hurriedly puts out just to meet some silly deadline.	
UCS-2	C.3.17	Section 3.2 of Draft Regulatory Guide DG-l 104, "Standard Format and Content for Applications to Renew Nuclear Plant Operating Licenses," needs to be more explicit. It specifies that the license renewal application documents may be mechanically or photographically reproduced.	However reproduced, the documents ultimately end up on the NRC's Agency wide Document Access and Management System (ADAMS). Members of the public can (with a certain amount of good karma) download the documents and print out copies for purposes of review/comment. A color printer is not standard equipment. Thus, this regulatory guide should specify that the original documents might be in color, but that no essential information shall be lost when the document is output to a black & white printer.	In the interest of making information publicly available, color drawings and documents must be distinguishable when printed out in black and white so that no essential information is lost. The staff will pursue with the Nuclear Energy Institute adding this clarification to NEI 95-10, "Industry Guideline on Implementing the Requirements of 10 CFR Part 54, The License Renewal Rule," which DG-1104, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses" endorses. RG 1-188 (formally DG-1104) was revised to include this clarification.
UCS-3	C.3.17	The NRC is presently attempting to risk-inform various things. For example, there's an initiative on risk informing special treatment		The risk significance of a structure or component could be considered in evaluating the robustness of an aging management program.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-3 (cont.)		requirements. If adopted, this initiative would enable plant owners to classify components by safety significance and by safety class (i.e., safety related or non-safety related). It is not clear from the draft regulatory guide, the draft standard review plan, or the draft GALL report how the agency will reconcile a plant getting a non-risk informed license extension under GALL-like provisions with subsequent substantial changes to that plant's licensing bases.		Probabilistic arguments may be used to assist in developing an approach for aging management adequacy. However, use of probabilistic arguments alone is not an acceptable basis for concluding that, for those structures and components subject to an aging management review, the effects of aging will be adequately managed in the period of extended operation. Thus, risk significance may be considered in developing the details of an aging management program for the structure or component for license renewal, but may not be used to conclude that no aging management program is necessary for license renewal. Currently 10 CFR Part 54 does not specifically address licensees who voluntarily chose to follow any new regulatory requirements such as the risk-informing special treatment requirements initiative relief from the scope of 10 CFR Part 54 requirements. However, Part 50.54 assumes the current licensing basis carries forward. If a license renewal applicant had implemented risk-informing its SSCs in accordance with a voluntary risk-informed initiative, then the new SSC classifications would constitute its new current licensing basis.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-3 (cont.)				Therefore, the license renewal applicant would then apply Part 50.54 against this new set of SSCs. The GALL report and SRP-LR were not revised to address this comment. The current license renewal guidance documents do not clearly articulate how this situation should be handled. The staff will evaluate which document or other license renewal guidance document might be appropriate for documenting the clarification to this comment.
UCS-4	C.3.17	The Federal Register notice posed the question, "Did the NRC staff provide sufficient credit for existing [aging management] programs in the draft GALL report?" UCS believes that the evidence shows NRC is giving too much credit for existing aging management programs.	For example, the NRC's Office of the Inspector General released a report dated August 29, 2000, "NRC's Response to the February 15, 2000, Steam Generator Tube Rupture at Indian Point Unit 2 Power Plant," concluded: QIG determined that the NRC and nuclear industry had long-standing concerns about the loss of integrity of steam generator tubes used on PWRs due to a variety of degradation mechanisms. Degradation problems particular to Westinghouse Model 44 steam generators resulted in all plants with this model steam generator replacing their steam generators, except IP2. The NRC has also been long aware of steam generator tube	See NRC disposition to comment NIRS-5, NIRS-6, NIRS-7, and NIRS-8 in this Table C. These comments address concerns related to aging management programs and Indian Point 2 SG issues. The staff cannot address other examples which "clearly demonstrate the difference between having an aging management program and having an effective aging management program" because these examples have not been provided. The NRC staff does not simply assume without a demonstration that any applicant's aging management programs are

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-4 (cont.)			and other problems at IP2. Nevertheless, the NRC did not conduct a technical review of the July29, 1997, IP2 steam generator inspection report when it was submitted to NRR. This OIG report for IP2 and other examples clearly demonstrate the difference between having an aging management program and having an effective aging management program. The NRC staff should not simply assume that any applicant's aging management programs are effective.	effective. The license renewal rule (10 CFR Part 54) requires applicants to demonstrate that their aging management programs are effective. GALL does not assume licensee aging management programs are effective, but reviews current industry practices and documents what aspects of current industry practices make an effective aging management program so that applicants will know one way the NRC will find the demonstration acceptable. However, applicants are free to propose other aging management programs than are listed in GALL, but they must demonstrate why they would be effective in managing aging. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-5	C.3.17	The draft GALL report specifies ten attributes or elements that are to be addressed for each aging management program. One of these elements, Monitoring and Trending, defines the inspection method, frequency, and sample size that provide reasonable assurance of timely detection of aging effects. During the September 25, 2000, workshop, Ms. Tammy Bloomer of the NRC staff made a formal presentation on the use of one time inspections as an acceptable surrogate for periodic inspections. The license renewal application submitted by the owner of the Hatch nuclear plant (which generally conformed with the concepts specified in the draft GALL report) specified one-time inspections for many components. The NRC staff is giving too much credit for one-time inspections.	The first of the two license renewals granted by the NRC thus far does not enter the renewal period for over a decade. None, or at least very few, of the one-time inspections have yet been conducted. Thus, the NRC has little to no evidence to support its bold assumption that one-time inspections will verify lack of aging. If, on the other hand, the one-time inspections reveal far more aging than is expected or permissible, all of the license renewals granted in the meantime will have been upon invalid bases. The NRC staff must judiciously accept one-time inspections. In addition, the NRC staff must consider whether selective one-time inspections should be performed now rather than waiting more than a decade to confirm well-intended guesses.	The purpose of one time inspections normally is to confirm that while aging degradation would not be expected for a particular SSC (because industry experience does not provide sufficient evidence that aging would occur), or an aging effect is expected to progress very slowly. Licensee corrective action programs would require upon finding evidence of aging effects, that the causes be investigated further and if necessary provide a ongoing aging management program for the time following the inspection. In addition, 10 CFR 50.109, “backfitting” provides a formal process for the NRC to implement new requirements when warranted to maintain safety. If new aging mechanisms were to be discovered at a later time, the NRC would impose new requirements in accordance with this process. Also see NRC disposition of comment NIRS-6 in this Table C.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-6	C.3.18	Is the GALL report rendered obsolete or invalid when a plant owner adopts a voluntary regulatory initiative (such as risk-informed special treatment requirements) before submitting the license renewal application?		Voluntary initiatives affect a plant's current licensing basis (CLB). The CLB is plant-specific and is carried into license renewal unchanged. If an applicant does rely on certain components through a voluntary initiative to perform intended functions as defined in the license renewal rule and they have become part of the CLB, these components will be in the scope of license renewal and the applicant will describe programs to manage aging for license renewal. The GALL report and SRP-LR were not revised to address this comment.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-7	C.3.18	Is a license renewal granted based upon the GALL report invalidated when that plant owner subsequently adopts a voluntary regulatory initiative?		Subsequent to granting a renewed license, if a licensee adopts new voluntary initiatives that result in additional components having intended functions as defined in the license renewal rule, 10 CFR 54.37 requires the licensee to document the corresponding aging management program in an FSAR update. The staff is currently working with stakeholders on the details of how to implement the license renewal rule with risk-informed initiatives, but currently the staff believes that if the new initiative would result in the removal of SSCs from the scope of those previously within the scope of license renewal, the licensee would perform a 10 CFR 50.59 evaluation to control changes. The GALL report and SRP-LR were not revised to address this comment.
UCS-8	C.3.18	Is the regulatory endpoint for a plant adopting voluntary initiative X before submitting a GALL-based license renewal application equivalent to that for a plant submitting a GALL-based license renewal application before adopting voluntary initiative X?		See NRC dispositions of comments UCS-6 and UCS-7 in this Table C which indicates, the answer is yes.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
UCS-9	C.3.18	When the voluntary regulatory initiatives spawn a spectrum of regulatory schemes, as suggested by Figure 1, what does Generic mean?		The License Renewal Rule principles acknowledge that the plant's CLB is specific. However, we will continue our dialog with stakeholders on risk-informed special treatment requirements regarding license renewal implications. The GALL report and SRP-LR were not revised to address this comment.
VP-1	C.3.19	We have reviewed and concur with the comments submitted on behalf of the nuclear utility industry by the Nuclear Energy Institute (NEI).	None Provided.	See Appendix B of this NUREG for NRC dispositions to individual NEI comments.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
WESCO-1	C.3.20	If an applicant has a surveillance program that consists of capsules with a projected fluence exceeding the 60-year fluence at the end of 40 years, the applicant withdraws one capsule at an outage in which the capsule receives a neutron fluence equivalent to 60-year fluence and tests the capsule in accordance with the requirements of ASTM E185. If available, one capsule should remain in the vessel at all times. Additional capsules should be removed and placed in storage, depending on whether the licensee is considering a second renewal period (i.e. 80 years of operation). Any changes in anticipation of additional renewals, should be discussed with the staff.	A further clarification of the intent of this paragraph would be important to Westinghouse as well as to utilities that operate Westinghouse 3-loop and 4-loop reactors that have neutron pad style reactor internals structures. The key characteristic (from a reactor vessel surveillance viewpoint) of these reactor internals designs is that the surveillance capsule lead factor (for all capsule positions) is quite large, e.g. on the order of 3.5 to 5.0. Recall that the lead factor is the ratio of the fast neutron exposure rate seen by the surveillance capsules to that seen by the peak location at the inner surface of the reactor vessel. Two different interpretations of the above paragraph from the GALL report have been voiced. At issue is whether or not to leave a surveillance capsule in the reactor and whether or not to irradiate a surveillance capsule to an 80-year-equivalent fluence now. We would appreciate it very much if you would review these comments and provide clarification of the NRC's intent.	The GALL report was revised to address this comment to clarify the capsule removal strategy to account for both high and low lead factor plants. It is recognized that plants with a lead factor of 4 will have 80 years of exposure in the capsule after being in the vessel for only 20 years. The GALL report and SRP-LR were revised to address this comment.
W&S-1	C.3.21	We endorse those NEI comments.	None Provided.	See Appendix B of this NUREG for NRC dispositions to specific NEI comments.

Table C: Disposition of Written Public Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis For Comment	NRC Disposition
W&S-2	C.3.21	License renewal applicants who elect to use the GALL Report should not be required to perform an actual or de facto certification of their aging management programs against the program descriptions and attributes set forth in the document.	None Provided.	See NRC disposition to comment NMC-2 in this Table C.
W&S-3	C.3.21	Nor should here be any required "mapping" between aging effects addressed in a license renewal application versus the GALL Report.	Instead, the GALL Report should only be treated as a reference tool, both by applicants and the NRC Staff.	See NRC dispositions to comments NMC-2 and NMC-8 in this Table C
W&S-4	C.3.21	We strongly urge the staff to better define, in the document, how it is to be used by license renewal applicants.	We believe that it is most important to explain that a license renewal applicant's aging management program need not be identical to that described in the GALL Report in order to take credit for the conclusions reached in the report.	See NRC disposition to comment NMC-2 in this Table C.

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APPENDIX D

DISPOSITION OF FIVE UNION OF CONCERNED SCIENTISTS REPORTS

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D.1. Introduction

In a letter dated May 5, 2000, the Union of Concerned Scientists (UCS) provided five reports (ADAMs accession number ML003713188) to be considered for the development of the improved license renewal guidance documents. The titles of these documents are included in Section D.3 of this appendix. The components and aging effects provided in these reports were evaluated, and the results of this review are summarized in this appendix.

D.2. EVALUATION AND DISPOSITION OF COMMENTS

Table D, at end of Appendix D, contain the evaluation and disposition for each of the UCS reports. The column heading “Document Number” is primarily intended to provide the source of the comment, meaning the report being reviewed; it provides a means of referring to each report without having to use the title. For example, UCS-1 indicates that the report being reviewed is from UCS, and the “1” segregates this report from all other UCS reports. The references in Appendix D.3 provide the sources of all comments

D.3 REFERENCES

The following references were included in the Union of Concerned Scientist's letter (ADAMs accession number ML003713188):

1. H. M. Thomas, Rolls-Royce & Associates, "Pipe and Vessel Failure Probability," Reliability Engineering, 1981.

2. Nicholas T. Saltos, Probabilistic Safety Assessment Branch, Nuclear Regulatory Commission, "Risk Impact of Environmental Qualification Requirements for Electrical Equipment at Operating Nuclear Power Plants," March 30, 1993.

3. Robert Pollard, Union of Concerned Scientists, "US Nuclear Plants —- Showing Their Age / Case Study: Core Shroud Cracking," September 1995.

4. Robert Pollard, Union of Concerned Scientists, "US Nuclear Plants —Showing Their Age / Case Study: Reactor Pressure Vessel Embrittlement," December 1995.

5. Robert Pollard, Union of Concerned Scientists, "US Nuclear Plants —Showing Their Age / Case Study: Steam Generator Corrosion," December 1995.

Table D: Disposition of Five Union of Concerned Scientists Reports

Document No.	Item Number	Document Title	Document Summary	NRC Disposition
UCS-1	IV.C1.1.1-IV.C1.1.11, IV.C1.1.13, IV.C2.2.1-IV.C2.2.8, IV.D1.1.5, IV.D2.1.5, V.D2.1.1-V.D2.1.7, VII.E2.1.1 VII.E3.1.1.	H. M. Thomas, Rolls-Royce & Associates, "Pipe and Vessel Failure Probability," Reliability Engineering, 1981.	This document presents a generalized approach to estimation of failure probabilities for leakage and ruptures of piping and vessels. Failure data includes stress corrosion cracking of boiling water reactor (BWR) piping and fatigue cracking of light water reactor (LWR) piping. Steam generator tube failures are also discussed in the paper.	Most of the failure data presented in this document are associated with failures in the first few years of life resulting from design and fabrication defects, thus are not aging management issues. Most pressure vessel failures reported in this document were due to manufacturing defects, not to any aging effects, and they had occurred in fossil power plants (Reference 2 of the document: WASH 1318, *Technical report on analysis of pressure vessel statistics from fossil-fuelled power plant service and assessment of reactor vessel reliability in nuclear power plant service*, USAEC Report, 1974.) Steam generator tube failures are mentioned in the document without identifying the associated aging mechanisms. For these reasons, the role of aging degradation in the reactor pressure vessel failures and steam generator tube failures discussed in this document cannot be evaluated. The GALL report contains comprehensive evaluation of the existing aging management programs for both reactor pressure vessels and steam generator tubes discussed in this document. The GALL report also contains comprehensive evaluation of aging management programs for SCC of BWR piping and fatigue and corrosion of LWR piping. The GALL report has not been revised to address the review of this document.

Table D: Disposition of Five Union of Concerned Scientists Reports (continued)

Document No.	Item Number	Document Title	Document Summary	NRC Disposition
UCS-2	IV.A1.2.7, IV.A1.5.5, IV.B1.1.1, IV.B1.1.2, IV.B1.1.4, IV.B1.2, IV.B1.3.1 IV.B1.3.2, IV.B1.4.1-IV.B1.4.9, IV.B1.5.1, IV.B1.5.2, IV.B1.6.1-IV.B1.6.4.	*Robert Pollard, Union of Concerned Scientists, "US Nuclear Plants – Showing Their Age / Case Study: Core Shroud Cracking," September 1995.*	This document focuses on aging of BWR vessel internals: steam dryer, steam separator and its support ring, core shroud, shroud head, core plate, top guide, feedwater sparger, core spray line and sparger, jet pump assemblies including jet pump sensing line, fuel supports, incore neutron flux monitors (housings, dry tubes, and guide tubes), neutron source holder, control blade, and CRD housing. The document listed the following aging effects and mechanisms for the internals components: crack initiation and growth due to SCC and fatigue, loss of fracture toughness due to neutron irradiation and thermal aging embrittlement, loss of material due to erosion, and deformation due to thermal creep.	Most of the internals and aging mechanisms addressed in this document are included in GALL Chapter IV B1, but some are not. Six of the internals mentioned in this document (steam dryer, steam separator and its support ring, steam shroud head and bolts, and feedwater sparger) are not included in GALL because they have no license renewal intended function (not safety related and not a part of the pressure boundary) The correct name for steam separator support ring is holddown beams, which are attached to the vessel top head. These attachment welds are included in Chapter IV-A1 of GALL. Control blades are not included because they are short-lived components and are replaced periodically during plant operation. Neutron source holders are not included because most BWR plants have removed them from the vessels. Creep of BWR internals is not included because the temperatures experienced by the internals are well below the temperature at which creep is a concern for stainless-steel components. Erosion of jet pump assemblies is not included because there has been no evidence of erosion in the jet pump throat area, which is the most susceptible location for erosion. Even if erosion occurs in the throat area, it will not impair the intended function of the jet pump, which is to reflood the core to two-thirds core height during an accident. SCC of fuel support pieces is not included because they are made of cast austenitic

Table D: Disposition of Five Union of Concerned Scientists Reports (continued)

Document No.	Item Number	Document Title	Document Summary	NRC Disposition
UCS-2 (cont.)				stainless steel and/or subjected to low stresses. The GALL report was modified to address the review of this document by including the incore neutron flux monitor guide tubes and a jet pump sensing line.
UCS-3	IV.A2.5.1, IV.A2.5.2.	Robert Pollard, Union of Concerned Scientists, "US Nuclear Plants — Showing Their Age / Case Study: Reactor Pressure Vessel Embrittlement," December 1995.	This document reviews information pertaining to reactor pressure vessel embrittlement and the issues related to the safe operation of nuclear power plants.	Aging management of neutron embrittlement of PWR and BWR reactor pressure vessels has been addressed, respectively, in GALL, Chapters IV-A1 and IV-A2. The GALL report was not revised to address the review of this document.
UCS-4	IV.D1.2.1, IV.D1.2.3, IV.D2.2.1, IV.D2.2.2.	Robert Pollard, Union of Concerned Scientists, "US Nuclear Plants — Showing Their Age / Case Study: Steam Generator Corrosion," December 1995.	This document reviews aging degradation of PWR recirculating steam generator tubes. The document mentions that the tubes in once-through steam generators have experienced similar types of aging degradation but does not provide any specific information. The document identifies two issues related to aging management of steam generator tubes: (1) Quality of current inspection techniques for detecting steam	All but one degradation mechanisms for steam generator tubes were included in GALL; for recirculating steam generator tubes in Chapter IV D1 and for once-through steam generator tubes in Chapter IV D2. Loss of section thickness due to fretting (wear) of once-through steam generator tubes is now included in Chapter IV D2 because fretting has caused material loss in these tubes and challenged their structural integrity. Regarding the quality of current inspection techniques for detecting steam generator tube degradation, the GALL report has been revised to recommend further evaluation of the effectiveness of the proposed aging management programs during license renewal period for steam generator tubes.

Table D: Disposition of Five Union of Concerned Scientists Reports (continued)

Document No.	Item Number	Document Title	Document Summary	NRC Disposition
USC-4 (cont.)			generator tube degradation, (2) Quality of current inspection techniques for detecting steam generator tube degradation, (3) Adequacy of the alternate repair criterion based on voltage rather than crack size.	The second issue mainly applies to the specific case of ODSCC in Westinghouse drill-hole support plates. The alternate Repair criteria were developed only after a substantial database had been developed to demonstrate that using such a criterion maintained the margin of 3 delta p against burst that has always been required for SG tubing and that leakage could be kept low enough to ensure that radiation exposure limits to the public are not violated. This issue does not warrant any additional changes in GALL than the one mentioned above. The GALL report has been revised to address the review of this document.
UCS-5	IV.C1.1.13, IV.C2.1.5, IV.C2.2.8.	Nicholas T. Saltos, Probabilistic Safety Assessment Branch, Nuclear Regulatory Commission, “Risk Impact of Environmental Qualification Requirements for Electrical Equipment at Operating Nuclear Power Plants,” March 30, 1993.	This document used probabilistic risk assessment (PRA) techniques to quantify the risk impact of electrical equipment qualified under the “old” EQ requirements and compare to recent requirements. The document also identified equipment in the containment whose failure could impact risk important operations.	Review of this document has resulted in addressing aging of instrumentation lines in GALL. These lines are included in GALL as small-bore piping in Chapter IV. There has been a clarification of the treatment of small bore piping and instrument lines in Chapters V, VII, and VIII of the GALL report. The GALL report has been revised to address the review of this document.

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APPENDIX E

DISPOSITION OF THE NRC ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS) CONSULTANTS' ELECTRICAL AND STRUCTURAL COMMENTS

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E.1 INTRODUCTION

The NRC Advisory Committee on Reactor Safeguards (ACRS) consultants have reviewed the August 2000 version of the draft Standard Review Plan (SRP) for License Renewal and GALL report. Comments were provided in two consultant reports, which were included as attachments to a November 1, 2001 memorandum (see References, Section E.3). The specific technical areas reviewed by the ACRS consultants are electrical components (S. Carfagno) and containment structures (C. Chen). Each of these comments has been evaluated, and the guidance documents have been revised, as needed, based on the staff's disposition of these comments.

E.2. EVALUATION AND DISPOSITION OF COMMENTS

Table E, at the end of Appendix E, provides the evaluation and disposition for each of the ACRS consultants' comments. The column heading "Comment Number" is primarily intended to provide the source of the comment, meaning the organization or individual that submitted the comment. For example, ACRS-CARFAGNO-1 indicates that the comment was made by the ACRS electrical consultant Carfagno and the "1" segregates this comment from all other electrical consultant comments. All comments are in alphanumeric order, based first on the organization, which is the ACRS, and second on the consultant's name. The references in Appendix E.3. provide the sources of all comments.

E.3 REFERENCES

NRC memorandum dated November 1, 2000, “Consultant Reports Concerning License Renewal Guidance Documents,” James E. Lyons, ACRS to Christopher L. Grimes, NRC.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-1	SRP Ch. 3.6, Table 3.6-1 and 3.6-2 Non-EQ electrical cables and connections	It is suggested that consideration be given to adding moisture to heat and radiation as the causes of adverse environments.	None provided.	Moisture is a potential cause of aging degradation for electric cables and should be included as a cause of an adverse environment. The proposed change is acceptable and has been incorporated. The SRP Section 3.6 was revised to address this comment. Also, conforming changes were made to GALL Chapter XI.
ACRS-CARFAGNO-2	SRP Ch. 3.6, Table 3.6-2 Non-EQ electrical cables and connections	It is suggested that the inspection interval of "at least once every 10 years" be reduced after the age of the component reaches approximately 40 years, or after testing indicates that significant degradation has taken place. It is questioned whether visual inspection for surface anomalies is an adequate indicator of component degradation.	None provided.	Inspections at an interval of 10 years have been accepted in past license renewal applications on the basis that operating experience shows aging degradation to be a slow process and visual inspections have been shown to be effective at identifying indicators of aging degradation. Using a frequency of 10 years will provide two data points in a 20-year period that can be used to characterize the degradation rate. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-3	SRP Ch. 3.6, Table 3.6-2 Non-EQ inaccessible medium-voltage cables	A weakness in the aging management program for this category is that the testing is defined only as "to be determined prior to each test," so that a reviewer has no specific guidance as to what constitutes an acceptable test.	None provided.	The test to be used for medium-voltage, inaccessible cables will have to be based on technology that is state-of-the-art at the time the test is performed have to be approved by the NRC staff before performing the test. The SRP Section 3.6 and GALL Chapter XI, E3 were revised to address this comment by including the above requirements.
ACRS-CARFAGNO-4	SRP Ch. 3.6, Table 3.6-2 Non-EQ inaccessible medium-voltage cables	It is suggested that a testing interval shorter than "at least once every 10 years" would be more appropriate after the age of the component exceeds approximately 40 years, or after testing indicates that significant degradation has taken place.	None provided.	An interval of 10 years has been accepted in past license renewal applications on the basis that operating experience shows aging degradation to be a slow process. Using a frequency of 10 years will provide two data points in a 20-year period that can be used to characterize the degradation rate. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-5	SRP Ch. 3.6, Table 3.6-2 Non-EQ connectors subject to borated water leakage	It is not obvious how visual inspection of connectors and enclosure external surfaces can provide a reliable determination of "the possible intrusion of borated water" into the components.	None provided.	Past operating experience has shown that components subjected to borated water leakage are left with a stain or discoloration that is indicative of boric acid corrosion, even after accumulations of boric acid are removed. Visual inspections will be able to identify evidence of exposure to borated water leakage, which, if noted on the surface of components, would indicate the need for further examination and testing to determine if intrusion of the borated water occurred and, if so, if it is a concern. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CARFAGNO-6	SRP Ch. 3.6, General	A flow chart guiding reviewers to the appropriate review category and checklists for each category could simplify the task of reviewers.	None provided.	Flowcharts and checklists might be useful; however, they are not necessary. The SRP provides sufficient guidance to the reviewer under "Review Procedures." However, flowcharts and checklists are options for future revisions to the SRP, based on implementation experience. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-7	SRP Ch. 4.1 4.1.3	[It is unclear] how a reviewer chooses a TLAA that was not listed by the applicant but which is likely to satisfy all six acceptance criteria.	None provided.	The review of the TLAA identification list is to be based on the updated safety analysis report and other CLB documents, such as SERs. This is stated in Section 4.1.3 and provides sufficient guidance on where to look for such TLAAs. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CARFAGNO-8	SRP Ch. 4.1 4.1.1	The applicant's listing [of TLAAs] is required to include sufficient detail to permit identification of the type of calculation, but there is evidently no requirement that the review covered by Chapter 4.1 include a technical review of the adequacy of the calculation.	None provided.	The review covered by Chapter 4.1 deals only with the identification of TLAAs. Technical reviews to determine the adequacy of any calculations in a TLAA are covered in other sections of the SRP. This was clarified by including references to the sections dealing with the technical reviews. The SRP, Chapter 4, was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-9	SRP Ch. 4.4 4.4.1.1	Section 4.4.1.1 states "*Compliance with 10 CFR 50.49 provides evidence that the component will perform its intended functions…"* While the wording "provides evidence" is relatively less objectionable than "provides assurance", it is suggested, as elsewhere in this [ACRS consultant] report, that "provides reasonable assurance" is preferable wording.	Compliance with 10 CFR 50.49 does not provide absolute assurance that a component will perform its intended function. Rather, 10 CFR 50.49 provides reasonable assurance that a component can perform its intended function.	The purpose of 10 CFR 50.49 is to provide reasonable assurance that components can perform their intended function in a harsh environment. Therefore, the proposed change is acceptable and has been incorporated. The SRP, Chapter 4, and GALL Chapter X were revised to address this comment.
ACRS-CARFAGNO-10	SRP Ch. 4.4 4.4.1.1	Paragraph 4.4.1.1.1 states how the DOR Guidelines will be used for the review of equipment subject to significant degradation due to aging where a qualified life was previously established; it should also state how equipment for which a qualified life was not established will be reviewed.	None provided.	EQ equipment using materials susceptible to significant age degradation and for which a qualified life was not established are expected to be rare. However, Section 7 of the DOR guidelines addresses such equipment and requires that ongoing programs be implemented at the plant to review surveillance and maintenance records to assure that equipment that is exhibiting age-related degradation will be identified and replaced, as necessary. This was clarified by referencing Section 7 of the DOR guidelines as the requirements to be used in reviewing EQ equipment for which a qualified life was not established. The SRP, Chapter 4.4, was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-11	SRP Ch. 4.4 4.4.1.1.2	(Paragraph 4.4.1.1.2, covering NUREG-0588 Category II components, states that the qualification programs for valve actuators and motors committed to conform with IEEE Standards 382-72 and 334-71, respectively, will be reviewed against Category II requirements; it is not clear what is to be done with components other than valve actuators and motors that fall under Category II.	None provided.	Components other than valve actuators and motors that fall under Category II should also be addressed. This was clarified by revising Paragraph 4.4.1.1.2 to include a statement similar to that in Paragraph 4.4.1.1.3 for Category I components. The SRP Chapter 4.4 was revised to address this comment.
ACRS-CARFAGNO-12	SRP Ch. 4.4 4.4.3.1.2	In paragraph 4.4.3.1.2, referring to aging analyses, the meaning of the last phrase, "…and the period of time prior to the end of qualified life" is not clear. It seems to mean that the applicant should identify how long before the end of qualified life the analyses will be completed.	None provided.	The intended meaning of the referenced statement is to verify that the reanalysis is completed in sufficient time before the end of the component's qualified life to allow component replacement or refurbishment in the event the reanalysis cannot extend the component's qualified life, pursuant to 10 CFR 54.21(c)(1)(ii). This statement was clarified. The SRP, Chapter 4.4, was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-13	SRP Ch. 4.4 4.4.3.3	Paragraph 4.4.3.3, on the FSAR supplement, allows applicants to make program changes in the supplement, without prior Commission approval, "provided that the applicant evaluates each such change pursuant to the criteria set forth in 10 CFR 50.49." It is not clear at what point the staff is to review such changes.	None provided.	The requirements for submitting program changes for staff review are set forth in 10 CFR 50.59, as stated in the SRP. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CARFAGNO-14	SRP General	Clearer language would be helpful in eliminating potential confusion as to the definition of components within the scope of license renewal.	On the one hand, components with an active function are excluded and passive components are included, the rationale being that performance monitoring makes aging management easier for active components. Similarly, components whose replacement is based on a qualified life or a specific replacement interval are excluded. On the other hand, EQ components most of which have active functions and do have a qualified life, are included; but their evaluation is essentially limited to the review of TLAAs and any aging monitoring programs that may be used to justify operation beyond their qualified life.	The language used to define components within the scope of license renewal is based on, and is consistent with, that in the license renewal rule 10 CFR 54. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-15	SRP General	One critical area of review concerns condition monitoring (CM) programs that may be used for EQ components with a qualified life less than 60 years.	While the documents reviewed contain a wealth of information on the criteria that must be met for CM programs to be acceptable, the fact remains that practical CM techniques probably do not exist that meet the key criterion (i.e., that the method be capable of predicting with reasonable assurance the remaining period during which the intended function can be performed.) The regulatory documents state specifically that simply verifying that equipment is functional in the normal service environment is not sufficient.	While currently available CM techniques may not be capable of predicting with reasonable assurance the remaining period during which the intended function can be performed, they can provide information that can be used to make informed decisions regarding the acceptability of components for continued service. In addition, as advances in CM technology are made, and experience with monitoring the condition of aged equipment increases, predictions of future performance may become more practical. Thus, even with the current limitations in technology, CM is an effective tool for managing aging and the option of using CM in an aging management program should be available. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-16	SRP General	[An] area of review that may present difficulty concerns components designed and built prior to the existence of the present criteria and inspection programs. This area is also related to the question of whether equipment qualified in accordance with older regulations and IEEE standards are adequate for use during the period of continued operation.	Earlier qualification standards did not require the establishment of a qualified life.	Components qualified to older standards, and for which there is no qualified life, are expected to be rare. In the event there are such components, they will be evaluated in a similar manner as components with a qualified life less than the period of extended operation. The SRP, Chapter 4.4, was revised to address this comment by adding a statement for clarification.
ACRS-CARFAGNO-17	SRP General	[A] caution [related to the guidance for evaluating time-limited aging analyses] applies to the choice of activation energy.	Activation energy is known to depend critically on the specific composition of materials analyzed – making the use of generic values of activation energy questionable.	The use of generic activation energies was accepted in the CLB and is outside the scope of license renewal. In evaluating TLAAs for EQ equipment, changes in activation energy are closely monitored and will only be allowed with proper justification on a plant-specific basis. This is specifically stated in the evaluation of EQ as an aging management program in Chapter X. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CARFAGNO-18	GALL Vol. 1 Summary	It is recommended that elements 4 and 5 [of the aging management programs] be reworded to be consistent with existing technology.	The description of element 4 states, *"Detection of aging effects should occur before there is a loss of any…component intended function."* The description of element 5 states, in part, *"Monitoring and trending*	The intent of elements 4 and 5 is to encourage the detection of aging degradation at the earliest possible time and to monitor that degradation so that informed decisions can be made as to when corrective actions are needed to

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-18 (cont.)			*should provide for prediction of the extent of the effects of aging and timely corrective or mitigating actions."* It must be kept in mind that the most important "intended function" is the one required when an accident occurs. For non-environmentally qualified electrical cables and connections this point is relatively less important than it is for environmentally qualified equipment, because the environment of non-EQ cables and connections is not likely to change from the normal environment when an accident occurs. However, for EQ equipment the environment will be more severe than normal when an accident occurs; therefore, it is difficult to determine whether the intended function can be performed based on inspection and testing conducted under normal service conditions. For EQ equipment, although components with a QL or specified replacement interval are excluded from license renewal review, EQ equipment is included because it involves TLAAs. This concern also applies if CM is depended upon to accommodate a QL (now usually 40	provide reasonable assurance that a component can perform its intended function. As worded, element 4 does not require that acceptance criteria be established. It does require that actions be taken to detect aging degradation before a loss of component intended function. Similarly, element 5 also does not require that acceptance criteria be established; it does require that Degradation be monitored and trended, if applicable. In the case of the aging management programs evaluated for non-EQ electrical components, none of them rely on monitoring and trending to manage the effects of aging. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-18 (cont.)			years) which is less than the desired life, e.g., 60 years. Consequently, while it is possible to detect aging effects, it is usually not feasible to determine when the aging effects have progressed to the level that there remains reasonable assurance that the intended function can be performed during the period before the next surveillance is scheduled to take place. This dilemma is described more fully in Section 4.3 of this [ACRS consultant] report on Condition Monitoring. Since decision criteria are generally not available, it is inconsistent to imply that the evaluation of aging programs has demonstrated that element 4 is satisfied. The comments concerning element 4 apply even more strongly here, because element 5 emphasizes the requirement for predicting future intended function capability.	
ACRS-CARFAGNO-19	GALL Vol. 1 Summary	It is suggested that a checklist be prepared similar to the one (see Appendix B [of the ACRS consultant report]) for the review of equipment qualification programs.	A checklist would facilitate the review process.	See NRC disposition of comment ACRS-CARFAGNO-6 in this Table E.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-20	GALL Ch. X P. X-10	Reword references to 10 CFR 50.49 to state that "…compliance provides **reasonable assurance** that the component **can** perform its required functions."	On this page [of the GALL report], in items 9 and 10, it is stated that compliance with 10 CFR 50.49 demonstrates that *"a component will perform required functions"* and that "*Compliance with 10 CFR 50.49 provides evidence that a component will perform its intended functions…"* It is more accurate to state that compliance with 10 CFR 50.49 provides **reasonable assurance** that the component **can** perform its required functions. This comment is based on extensive past discussions among qualification standards writing groups, but it is also consistent with the statement in the first paragraph of Chapter XI.E1, "*The purpose of the aging management program described herein is to provide reasonable assurance that the intended functions of electrical equipment will be maintained…*," where, unfortunately, the word "will" is repeated.	The purpose of compliance with 10 CFR 50.49 is to provide reasonable assurance that components can perform their intended function in a harsh environment. Therefore, the proposed change is acceptable and has been incorporated. GALL, Chapter X, was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CARFAGNO-21	GALL Ch. XI E1 and E2	Add moisture to heat and radiation as an environmental condition of interest.	None provided.	Moisture is a potential cause of aging degradation for electric cables and should be included as a cause of an adverse environment. The proposed change is acceptable and has been incorporated. GALL, Chapter XI, was revised to address this comment. Also, conforming changes were made to the SRP, Section 3.6.
ACRS-CARFAGNO-22	GALL Ch. XI E1 and E3	Particularly with increasing age, a shorter [inspection] interval [than once every 10 years] would be more appropriate.	In Chapters XI.E1 and XI.E3, [it is stated that] an inspection interval of "at least once every 10 years is an adequate period to preclude failures of the conductor insulation." With increasing age, a shorter interval would be more appropriate.	An interval of 10 years has been accepted in past license renewal applications on the basis that operating experience shows aging degradation to be a slow process. Using a frequency of 10 years will provide two data points in a 20-year period that can be used to characterize the degradation rate. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-1	SRP 3.5.1	Guidance is needed for sources of information for "non-recent vintage plants. SRP 2.4 on scoping and screening is a good source.	SRP 3.5.1 does not address older plants.	For older plants, the location of applicable information is plant-specific because the FSAR may have predated NUREG-0800. Section 3.5.1 of the SRP was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CHEN-2	SRP 3.5.2.2.1 and 3.5.3.2.1	Mark I steel and concrete containments and Mark II steel containment should also be added to have a complete list. (GL 87-05 Table 1 lists Brunswick 1 & 2 as Mark I concrete containments.)	For completeness.	The SRP is consistent with the GALL tables for BWR containments. Concrete elements are not identified for Mark I and II steel containments. Mark I concrete containment was previously in the 12/6/99 draft but was deleted in the August 2000 draft as a result of an NEI Comment. This was deleted because it only covered one (1) plant, Brunswick. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-3	SRP Table 3.5-1, p.3.5-18	Add "potential loose expansion anchor bolts due to vibration or waterhammer." It can be managed by an in-service inspection program.	Concern this was overlooked.	"Potential loose expansion anchor bolts due to vibration or waterhammer" is covered in GALL Chapter IIIB —Component Supports. A structures monitoring program can be credited to manage this. SRP, Table 3.5-1, identifies "concrete surrounding anchor bolts" as the area of concern. Cracking of the concrete would lead to reduction in anchor capacity. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CHEN-4	SRP 3.5.1, p. 3.5-1	The words "ASME Class MC piping and components" is unclear as to the meaning. Class MC is for metal containments.	Improve clarity.	See NRC disposition of NEI comment GIIIB1-1 in Appendix B, Table B.2.2. The SRP was revised to address this comment.
ACRS-CHEN-5	SRP 3.5	SRP refers to GALL report at many places, but does not mention specific chapters. However, it is not too difficult to find the right chapters of GALL using the GALL report TOC.	Response to ACRS Requirement 3.2 concerning guidance in SRP for referencing GALL chapters.	The ACRS consultant did not propose any revision. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-6	SRP 4.6.1	SRP states "If a plant's code of record requires a fatigue analysis, then this fatigue analysis may be a TLAA." No guidance if code of record does not require a fatigue analysis. Should the Backfit Rule be applied or is fatigue analysis not required for LR also?	Concern there is no guidance provided for containments designed prior to present criteria and inspection program.	The Backfit Rule does not apply; fatigue analysis is not required for LR unless it is part of CLB for the containment structure. A separate entry in GALL tables was specifically created for this case. "Cracking due to cyclic loading" has been identified when a CLB fatigue analysis does not exist. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-7	General comment	GL 87-05 pointed out that details of the "sand cushion design" for Mark I drywells varies depending on the AE and may be significant in the occurrence of degradation. This should be added to SRP and highlighted for the reviewers.	Same as directly above.	In GALL Chapter IIB, the "sand pocket region" is identified for Mark I and II steel containments for loss of material due to corrosion. Reference to GL 87-05 was added to the "Operating Experience" discussion in GALL, Chapter XI.S1. The GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CHEN-8	GALL Vol. 1, Table 5	Same as ACRS-CHEN-3.	Same as ACRS-CHEN-3.	See NRC disposition of comment ACRS-CHEN-3 in this Table E.
ACRS-CHEN-9	GALL, p. II B2-3	Paragraph refers to Mark II steel containment as having both steel and concrete elements, which is inconsistent with ps. II B2-1 and II B2-6, which only address steel elements. Also Mark I steel and concrete containments not properly identified.	Correct inconsistency.	According to NUREG-1557, there are no concrete elements for Mark I and II steel containments that require aging management. Mark I concrete containment is no longer included in GALL. See NRC disposition of comment ACRS-CHEN-2 in this Table E. The GALL report was revised to address this comment by revising Page II B2-3 to delete the word "concrete" in regard to Mark II steel containments.
ACRS-CHEN-10	GALL Item II A1.1 "leaching of calcium hydroxide, aggressive chemical attack, corrosion of embedded steel" and GALL Item IIA1.2 "corrosion" requiring evaluation of inaccessible areas	Evaluation of inaccessible areas when conditions in accessible areas may not indicate the presence of or result in degradation to such inaccessible areas goes beyond the inaccessible area requirements of 10 CFR 50.55a(b)(2)(ix). It is more reasonable to require this in cases when the applicant cannot show that the environments in accessible and inaccessible areas are similar.	GALL is too restrictive on "inaccessible areas."	See NRC disposition of NEI comment G-IIA1-1in Appendix B, Table B.2.1.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CHEN-11	General comment	It appears that adequate technical bases for the AMPs are provided in the referenced ASME codes, Reg. Guides and relevant NUREGs.	Response to ACRS Requirement 3.5 concerning the technical bases for the AMPs.	The consultant concluded that the AMPs have adequate technical bases in codes and regulatory standards. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-12	GALL Section II.B1, "Mark I Contain-ments"	See comments ACRS-CHEN-2, -7, -9.	Response to ACRS Requirement 3.6 that a more in-depth review of Mark I containments be conducted.	See NRC dispositions of comments ACRS-CHEN-2, -7, and -9 in this Table E.
ACRS-CHEN-13	General Comment	Adequate technical bases to support LR decisions are provided.	Response to ACRS Guidance 4.1: Do LR documents provide adequate technical bases to support license renewal decisions?	The consultant concluded that adequate technical bases are provided for LR decisions. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-14	General Comment	SRP-LR provides an adequate roadmap, with one (1) minor editorial difference. There is an inconsistency between NEI 95-10, Rev. 2 and SRP-LR in Table 6.2-1 of 95-10.	Response to ACRS Guidance 4.2: Are LR documents effectively integrated to provide a consistent and understandable process?	The consultant concluded that the SRP-LR provides an adequate roadmap. There was an inconsistency between NEI 95-10, Rev. 2, and SRP-LR in Table 6.2-1 of 95-10**.** NEI 95-10 was subsequently revised to eliminate inconsistencies. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CHEN-15	General Comment	Adequate scoping/screening criteria is applied to old plants because non-safety-related and regulated-events are included, in addition to safety-related, in the scoping.	Response to ACRS Guidance 4.3: Is scoping/screening guidance adequate for old plants?	The consultant concluded that adequate scoping/screening guidance is provided for older plants. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-16	General Comment	Lessons learned from Calvert Cliffs and Oconee are listed in SRP Table 4.1-3 and described in detail in GALL Chapter X. To help future reviewers, SRP should include a more detailed description of lessons learned.	Response to ACRS Guidance 4.3: Are lessons learned from Calvert Cliffs and Oconee adequately conveyed to future reviewers?	The consultant identified GALL Chapter X and SRP, Table 4.1-3, for lessons learned. It is noted that lessons learned from Calvert Cliffs and Oconee have been implemented in the development of the SRP and GALL report; incorporating lessons learned is expected to continue as more applications are reviewed. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-17	General Comment	SRP directs the staff to develop comprehensive understanding of technical issues concerning scooping/screening and identification of TLAAs. It also directs the staff to verify the existence of AMPs.	Response to ACRS Guidance 4.4: Does SRP direct the staff to develop comprehensive understanding of technical issues and proposed technical solutions or to verify the existence of AMPs?	The consultant concluded that the SRP provides appropriate direction on technical matters and how to verify existence of AMPs. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CHEN-18	General Comment	Plant-specific operating experience is one of the ten attributes evaluated for AMPs, as shown in GALL Vol. 1, p. 2 and in GALL Vol. 2, Chapters X and XI.	Response to ACRS Guidance 4.5: Is review of plant-specific operating experience adequately emphasized by the SRP? Is guidance adequate for evaluation of AMPs that address unique types of plant-specific aging degradation?	The consultant concluded that the SRP adequately addresses plant-specific operating experience and unique plant-specific aging degradation. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-19	General Comment	Guidance could be more specific. The tendon access gallery is one example where more detailed guidance should be included. Suggest that increased inspection frequency where high moisture and humidity is present be added in GALL page IIA1-13 and SRP Table 2.4-1, p. 2.4-6.	Response to ACRS Guidance 4.5: Is review of plant-specific operating experience adequately emphasized by the SRP? Is guidance adequate for evaluation of AMPs that address unique types of plant-specific aging degradation?	See NRC disposition of NEI comment G-IIA1-13 in Appendix B, Table B.2.1.
ACRS-CHEN-20	General Comment	Recommend some examples of plant-specific operating experience be described under attribute 10 in GALL Chapters X and XI.	Response to ACRS Guidance 4.5: Is review of plant-specific operating experience adequately emphasized by the SRP? Is guidance adequate for evaluation of AMPs that address unique types of plant-specific aging degradation?	As appropriate, GALL references specific IEBs, GLs, INs and other documents that discuss significant industry operating experience, including plant-specific experience. Operating experience unique to the applicant's plant would be addressed in the LRA. Neither the SRP nor the GALL report was revised to address this comment.

Table E: Disposition of the NRC Advisory Committee on Reactor Safeguards (ACRS) Consultants' Electrical and Structural Comments (continued)

Comment Number	Item Number	Comment/Proposed Change	Basis for Comment	NRC Disposition
ACRS-CHEN-21	General Comment	The concerns of the public, and possibly the interveners, are taken into consideration. SRP Sections 2.1.2.1 and 2.1.2.2 refer specifically to NEI 95-10, Rev. 2 and GALL Vol. I page 1 refers to reports provided by UCS which the staff considered.	Response to ACRS Guidance 4.6: Have the issues and concerns raised by all stakeholders been properly considered in the SRP and supporting documents?	All public comments received by the NRC have received the same consideration and the same level of review and disposition. Neither the SRP nor the GALL report was revised to address this comment.
ACRS-CHEN-22	General Comment	Generic issues as discussed in SRP Appendix A.3 are adequately resolved.	Response to ACRS Guidance 4.7: Are LR generic issue resolutions adequately reflected in the guidance documents?	The consultant concluded that generic issues are adequately reflected in the guidance documents. Neither the SRP nor the GALL report was revised to address this comment.

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