

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 “ <i>adverse localized environment</i> ” 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.	<p>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 "<i>somewhat unpredictable</i>" so it is not a sure thing that water treeing will occur even with the "right" conditions.</p> <p>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.</p>	<p>Note that this comment refers to sentence 3 of paragraph 1 in the August 2000 version, and not sentence 2.</p> <p>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.</p> <p>GALL Chapter XI, Section E3 was revised to address this comment.</p>

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).	<p>Section XI.E3, paragraph 1, sentence 2 states: <i>“The program described herein is an augmentation of the Boric Acid Corrosion Program ...”</i></p> <p>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.</p> <p>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.</p>	<p>Note that this comment refers to program XI.E4 in the August 2000 version, and not program XI.E3.</p> <p>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.</p> <p>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.</p>

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	<p>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.</p> <p>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."</p> <p>The GALL report also states that</p>	<p>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.</p> <p>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</p>	<p>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</p>

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.)		<p>“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.”</p> <p>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.</p> <p>However, for potentially susceptible components, the industry and the</p>	<p>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 %.</p> <p>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.</p>	<p>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.</p> <p>The GALL report was not modified to address this comment.</p>

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.)		<p>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.</p> <p>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.</p> <p>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,</p>	<p>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.</p>	

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	<p>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.</p> <p>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,</p>	<p>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.</p> <p>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</p>	<p>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.</p> <p>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</p>

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.)		<p>EVALUATION AND TECHNICAL BASIS</p> <p>(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 be 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.</p> <p>(2) Preventive Actions: The program relies on maintaining system corrosion inhibitor concentrations within specified limits of EPRI TR-107396 to minimize corrosion.</p>	<p>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.</p>	<p>"Closed-Cycle Cooling Water" (XI.M21 in NUREG-1801, Vol. 2).</p>

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.)		<p>(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.</p> <p>(4) Detection of Aging Effects: Water chemistry manages corrosion by controlling the environment and requires no detection of aging effects.</p> <p>Monitoring and Trending: The frequency of sampling water chemistry varies from continuous, daily, weekly, or as needed, based on plant operating conditions.</p> <p>Acceptance Criteria: Corrosion inhibitors concentrations are maintained within the limits specified in the EPRI water chemistry guidelines for CCCW.</p> <p>(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.</p> <p>(8 & 9) Confirmation Process and Administrative Controls: Site QA procedures, review and approval processes, and administrative controls are implemented in accordance with requirements of</p>		

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.)		<p>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.</p> <p>(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.</p> <p>REFERENCES EPRI TR-107396, <i>Closed Cooling Water Chemistry Guidelines</i>, Electric Power Research Institute, Palo Alto, CA, November 1997. NRC Generic Letter 89-13, <i>Service Water System Problems Affecting Safety-Related Equipment</i>, July 18, 1989. NRC Generic Letter 89-13, Supplement 1, <i>Service Water System Problems Affecting Safety-Related Equipment</i>, April 4, 1990. LER #93-029-00, <i>Inoperable Check Valve in the Component Cooling</i></p>		

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.)		<i>System as a Result of a Build-Up of Corrosion Products between Valve Components</i> , December 13, 1993. LER #91-019-00, <i>Loss of Containment Integrity due to Crack in Component Cooling Water Piping</i> , 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.	<p>The referenced LER numbers were verified to be valid. The details of these LERs are:</p> <p>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/)</p> <p>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/)</p> <p>The GALL report was not revised as a result of this comment.</p>

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.	<p>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.</p> <p>The GALL report was modified to address the comment by including low-alloy steel structures and components in the program scope.</p>
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.	<p>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.</p> <p>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.</p>

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.	<p>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.</p> <p>The GALL report was modified to address this comment.</p>
G-XI.M7-1		Delete generic program for "Outer Surfaces of Above Ground Carbon Steel Tanks" in its entirety.	<p>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.</p>	<p>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.</p>

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.	<p>“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.</p> <p>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).</p>
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.	<p>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), <i>Standard Practice for Manual Sampling of Petroleum and Petroleum Products</i>.</p> <p>The GALL report was modified to address this comment.</p>

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, <i>modified</i> 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" AMP XI.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.)		<p>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.</p> <p>In addition, the Fuel Oil Chemistry is sufficient to manage aging in the fuel oil tanks and should be written as follows:</p> <p>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.</p> <p>EVALUATION AND TECHNICAL BASIS <i>(1) Scope of Program:</i> 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</p>	<p>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.</p>	<p>Because the applicant has the option of conducting an alternative plant-specific program.</p> <p>The GALL report was not modified to address the first part of this comment.</p>

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.)		<p>microbiological organisms.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>Compliance with diesel fuel oil</p>		

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.)		<p>standards in item 3 above and periodic multilevel sampling provides assurance that fuel oil contaminants are below acceptable levels.</p> <p>(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.</p> <p>(6) Acceptance Criteria: ASTM standard D 975 specifies acceptance criteria for the limits of water content and sediment in the diesel fuel oil.</p> <p>(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</p>		

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.)		<p>addressing corrective actions.</p> <p>(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.</p> <p>(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.</p> <p>REFERENCES ASTM D 975-98b, <i>Standard Specification for Diesel Fuel Oils</i>, The American Society of Testing Material, West Conshohocken, PA. ASTM D 4057-95, <i>Standard Method of Sampling Petroleum and</i></p>		

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.)		<i>Petroleum Products</i> , The American Society of Testing Material, West Conshohocken, PA. ASTM D 1796-97, <i>Standard Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method</i> , The American Society of Testing Material, West Conshohocken, PA. ASTM D 2709-96, <i>Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge</i> , The American Society of Testing Material, West Conshohocken, PA.		
G-XI.M10-1		Delete the 4 th 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.)		<p>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."</p>	<p>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."</p>	<p>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</p>

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.)				<p>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."</p> <p>The program description of "Fire Water System" XI.M10 (XI.M27 in NUREG-1801, Vol. 2) was not modified to address this comment.</p>
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.	<p>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."</p> <p>The GALL report was modified to address this comment.</p>

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	<p>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.</p> <p>Chemistry alone is sufficient to manage aging and the program should be revised as follows:</p> <p>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</p>	<p>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.</p>	<p>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.</p> <p>The GALL report was modified to address the comment by adding a statement indicating that there are alternatives based on past maintenance records.</p>

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.)		<p>secondary water chemistry. The water chemistry programs are generally effective in removing impurities in primary and secondary water systems.</p> <p>EVALUATION AND TECHNICAL BASIS</p> <p>(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.</p> <p>(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.</p>		

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.)		<p>(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.</p> <p>(4) Detection of Aging Effects: Water chemistry manages corrosion by controlling the environment and requires no detection of aging effects.</p> <p>(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.</p> <p>(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</p>		

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.)		<p>cause identified and the condition corrected.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>Operating Experience: The EPRI guidelines documents have been developed based on plant</p>		

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.)		<p>experience and have been shown to be effective over time with their widespread use.</p> <p>REFERENCES EPRI TR-105714, <i>PWR primary Water Chemistry Guidelines-Revision 3</i>, Electric Power Research Institute, Palo Alto, CA, Nov. 1995. EPRI TR-102134, <i>PWR Secondary Water Chemistry Guideline-Revision 3</i>, Electric Power Research Institute, Palo Alto, CA, May 1993. EPRI TR-103515, <i>BWR Water Chemistry Guidelines-Revision 3, Normal and Hydrogen Water Chemistry</i>, Electric Power Research Institute, Palo Alto, CA, February 1994.</p>		

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.	<p>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:</p> <p>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.</p> <p>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.</p>	<p>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, <i>Good Bolting Practices, A Reference Manual for Nuclear Power Plant Maintenance Personnel</i>.</p> <p>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.</p> <p>The GALL report was revised to address the comment by adding a sentence to the AMP EPRI TR-104213, <i>Bolted Joint Maintenance & Application Guide</i>.</p>

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)	<p>Scope of Program Change item number 3 to "...provided IWE-1232 and IWE-5220 are met..."</p>	Editorial	<p>The proposed change provides a more concise reference to the appropriate paragraph of IWE.</p> <p>GALL XI.S1 was revised to address this comment.</p>
G.XI.S1-2	XI.S1	<p>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."</p>	Plant-specific actions to address inspection of inaccessible areas are beyond Code requirements.	<p>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.</p> <p>GALL Chapter and AMPs II, XI.S1, and XI.S2 were revised to address this comment.</p>

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.	<p>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."</p> <p>GALL XI.S1 was revised to address this comment.</p>

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)	<p>(3) Parameters Monitored or Inspected Change “ultimate strength” to “ultimate tensile strength” in sentence on tendon wires are also tested for...</p>	<p>To match the ASME Code (IWL-2523.2). (Editorial)</p>	<p>The proposed change accurately reflects the wording in IWL-2523.2. GALL XI.S2 was revised to address this comment.</p>
G-XI.S2-4	Eval & Tech Basis (4) 5th line	<p>(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</p>	<p>To address the inspection interval for sites with multiple units.</p>	<p>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.</p>

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.)				<p>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."</p> <p>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.</p> <p>GALL XI.S5 was revised to address this comment.</p>

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	<p>The following wording should be used:</p> <p>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.</p> <p>For plants with a separate masonry wall program, the following evaluation and technical basis is provided:</p>	Provides for use of existing Structures Monitoring Program and a method for using other plant specific programs.	<p>NEI's proposed wording was incorporated in the Program Description for the Masonry Wall Program (XI.S5), except for the sentence, "<i>In these cases, the Maintenance Rule evaluation (XI-S6) for license renewal applies and no further explanation is required.</i>"</p> <p>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.</p> <p>GALL XI.S5 was revised to address this comment.</p>

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	<p>Masonry Wall Inspection:</p> <p>Scope of Program: The scope of the program includes those masonry walls within the scope of license renewal.</p> <p>Preventive Actions: No specific preventive actions are required.</p> <p>Parameters Monitored/Inspected: Visual inspection by a qualified individual is sufficient to identify cracking of masonry walls.</p> <p>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.</p> <p>Monitoring and Trending: There are no monitoring and trending processes associated with this program</p> <p>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.</p> <p>(10)Operating Experience: Incorporation of lessons learned from the implementation of IE Bulletin 80-11, USI A-46, and the</p>	<p>There is no need to include USI A-46 program here. It is addressed in Operating Experience.</p> <p>The program is a visual inspection and no preventive actions are identified. The staff has found this acceptable.</p> <p>Cracking is the primary parameter.</p> <p>Frequency does not need to be specified here. Frequency is per the current licensing basis.</p> <p>The NRC staff has found this acceptable.</p> <p>Do not expand criteria previously established.</p>	<p>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.</p> <p>GALL XI.S5 was not revised to address this comment.</p> <p>Also see NRC Disposition of NEI Comment G-XI.S5-1 in Appendix B, Table B.2.9-3.</p>

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.)		<p>parameters to be monitored or inspected. For welds, additional details on parameters to be monitored or inspected are provided in EPRI NP-5380.”</p> <p>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.</p>	<p>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.</p>	<p>this comment.</p>
G-XI.S6-2	<p>XI-S6 Evaluation & Technical Basis (4)</p>	<p>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 (including connections) are specified in ANSI/ASCE 11-90. Additional details on detection methods for welds are</p>	<p>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.</p> <p>ANSI/ASCE 11-90 is not widely used by the industry to define inspection attributes for structural steel elements.</p> <p>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</p>	<p>See NRC Disposition of NEI Comment G-XI.S6-1 in Appendix B, Table B.2.9-3.</p>

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.)		<p>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 agreement with inspection intervals specified in ACI 349.3R-96 for concrete structures and recommendations given in NUREG-1522.”</p> <p>Replace with: “Guidance for detection is provided in NEI 96-03.”</p>	<p>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.</p>	
G-XI.S6-3	XI-S6 Evaluation & Technical Basis (6)	<p>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.”</p> <p>Replace with: “Guidance for acceptance criteria is provided in</p>	<p>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.</p> <p>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</p>	<p>See NRC Disposition of NEI Comment G-XI.S6-1 in Appendix B, Table B.2.9-3.</p>

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.	<p>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.</p> <p>GALL XI.S6 was not revised to address this comment.</p>

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	<p>Change the second sentence under Item (6) "Acceptance Criteria" to read as follows:</p> <p>"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."</p>	<p>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.</p>	<p>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.</p> <p>GALL XI.S7 was revised to address this comment.</p>
G-XI.S8-1	Page XI.S23	<p>Delete the Protective Coating Monitoring and Maintenance Program.</p>	<p>This Aging Management Program is not credited for loss of material due to corrosion of steel.</p>	<p>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.</p> <p>GALL XI.S8 was not revised to address this comment.</p>

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