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54.17

NLS2009049
June 22, 2009

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Response to Request for Additional Information for License Renewal Application – Safety RAI and Revised RAI
Cooper Nuclear Station, Docket No. 50-298, DPR-46

References:
1. Letter from Tam Tran, U.S. Nuclear Regulatory Commission, to Stewart B. Minahan, Nebraska Public Power District, dated June 8, 2009, "Request for Additional Information for the Review of the Cooper Nuclear Station License Renewal Application (TAC No. MD9763 and MD9737)."
2. Letter from Stewart B. Minahan, Nebraska Public Power District, to U.S. Nuclear Regulatory Commission, dated September 24, 2008, "License Renewal Application" (NLS2008071).

Dear Sir or Madam:

The purpose of this letter is for the Nebraska Public Power District to respond to Sections B and C of the Nuclear Regulatory Commission Request for Additional Information (RAI) (Reference 1) related to the Cooper Nuclear Station License Renewal Application (LRA) aging management review and aging management programs. These responses are provided in Attachment 1. Certain changes to the LRA (Reference 2) have been made to reflect these RAI responses and to make other miscellaneous changes. These changes are provided in Attachment 2.

Should you have any questions regarding this submittal, please contact David Bremer, License Renewal Project Manager, at (402) 825-5673.

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NRR

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on 6/22/09
(Date)

Sincerely,

Stewart B. Minahan
Vice President – Nuclear and
Chief Nuclear Officer

/wv

Attachments

cc: Regional Administrator w/ attachments
USNRC - Region IV

Cooper Project Manager w/ attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachments
USNRC - CNS

Nebraska Health and Human Services w/ attachments
Department of Regulation and Licensure

NPG Distribution w/o attachments

CNS Records w/ attachments

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©4

Correspondence Number: NLS2009049

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None		

Attachment 1

Response to Request for Additional Information
for License Renewal Application – Safety RAI and Revised RAI
Cooper Nuclear Station, Docket No. 50-298, DPR-46

The Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) regarding the License Renewal Application (LRA) aging management review and aging management programs are shown in italics. The Nebraska Public Power District's (NPPD) response to each question is shown in block font.

NRC Request: *RAI 3.3.2.2.3.3-1*

Background:
Section 3.3.2.2.3.3 "Cracking due to Stress Corrosion Cracking (SCC)" of the Standard Review Plan-License Renewal (SRP-LR) identifies SCC as an aging effect requiring management for stainless steel diesel engine exhaust piping, piping components, and piping elements exposed to diesel exhaust. The generic aging lessons learned (GALL) report identifies this MEAP combination in Item VII.H2-1. Aging management review (AMR) Item AP-33 in Table II.A of NUREG-1833, "Technical Bases for Revision to the License Renewal Guidance Documents," provides a basis for why it is important to identify SCC as an aging effect requiring management (AERM) for the internal surfaces of stainless steel emergency diesel generator exhaust piping that are exposed to diesel exhaust. Specifically, NUREG-1833 states that hot diesel engine exhaust may contain moisture and particulates which lead to SCC in stainless steel diesel exhaust components.

Issue:
Contrary to the License Renewal Guidance identified above, the applicant states that stainless steel exhaust components are not subject to significant moisture accumulation that would allow cracking to occur. The staff disagrees with this approach, and takes the position that this must be identified as an AERM similar to the GALL Item VII.H2-1.

Request:
Please provide an aging management program (AMP) and AMR line item to manage the aging effect recommended by GALL VII.H2-1

NPPD Response:

NPPD concurs that cracking is an aging effect requiring management for the diesel generator exhaust stainless steel expansion joint. Associated changes to LRA are provided in Attachment 2, Changes 1, 2, 5, and 9.

NRC Request: *RAI 3.3.2.2.7.3-1*

Background:
Section 3.3.2.2.7.3, "Loss of Material due to General, Pitting, and Crevice Corrosion" of the SRP-LR identifies loss of material as an AERM for steel and stainless steel diesel exhaust piping, piping components, and piping elements exposed to diesel exhaust. The applicant has credited the plant specific AMP B.1.31, Periodic Surveillance and Preventive Maintenance (PSPM) Program with managing this aging effect for emergency diesel generator exhaust piping, piping components, and piping elements.

Issue:
The PSPM Program identifies the use of visual inspections performed on a "representative sample" of diesel generator exhaust gas components to manage the loss of material aging effect. The AMP indicates that sample size is determined using guidance from EPRI TR-107514, Age-Related Degradation Inspection Method and Demonstration, for a 90% confidence level that 90% of the population does not experience degradation. However, it is not clear what the population and sample size will be for the diesel generator system exhaust components. Additionally, the AMP indicates that "components with the same material-environment combinations at other facilities may be included in the sample." The inspection of components at other facilities would not necessarily offer an accurate representation of the aging effects at the current facility, and thus brings into question the extent of which this method will be used and the effect of its inclusion on the overall population and sample size.

Request:
a) Please provide the total actual population and sample size of diesel generator exhaust gas components to manage the loss of material aging effect at CNS.
b) Please clarify the use of "inspection of components at other facilities" as part of the representative sample for diesel generator exhaust gas components to manage the loss of material aging effect at CNS, and identify the specific impact this will have on the overall population and sample size.

NPPD Response:

a) The total population of diesel generator exhaust gas components is eight. Using the 90/90 confidence level as defined in EPRI Report TR-107514, the sample size will be seven.

b) The use of "inspection of components at other facilities" was intended to allow the inspection results for components with identical material and environment combinations as those at Cooper Nuclear Station (CNS) to be used in the sample population for CNS. However, NPPD plans to perform the required number of inspections to attain a 90/90 confidence level using only CNS components. Therefore, LRA Section B.1.31 is revised to remove reference to crediting components with the same material-environment combinations at other facilities (see Attachment 2, Change 8).

NRC Request: *RAI 3.3.2.2.7.3-2*

Background:
Section 3.3.2.2.7.3, "Loss of Material due to General, Pitting, and Crevice Corrosion" of the SRP-LR identifies loss of material as an AERM for steel and stainless steel diesel exhaust piping, piping components, and piping elements exposed to diesel exhaust. The applicant has credited the plant specific AMP B.1.16, Fire Protection Program with managing this aging effect for the diesel fire pump engine exhaust piping, piping components, and piping elements.

Issue:
License renewal application (LRA) AMP B.1.16, Fire Protection Program states as an enhancement that the diesel fire pump engine carbon steel exhaust components are inspected for evidence of corrosion or cracking. However, the LRA is not clear whether the inspection will be an internal inspection or external only. An internal inspection is necessary to inspect for the aging effects caused by exhaust gas.

Request:
Please clarify whether the inspection conducted by the Fire Protection Program includes the internal surface of the components.

NPPD Response:

The environment that credits the Fire Protection Program discussed in LRA Section 3.3.2.2.7 item 3 is exhaust gas (internal) for the component types of expansion joint, muffler and piping shown in Table 3.3.2-6. Therefore the inspection documented in the enhancement is an internal inspection. External inspections of these components are performed under the External Surfaces Monitoring Program as shown in Table 3.3.2-6.

NRC Request: *RAI B.1.15-9*

Based on the conference call between the staff and the applicant on May 20, 2009, this RAI was updated as follow:

Background:
Program Element 4 of NUREG-1801 Section X.M1 is concerning detection of aging effects. Under the CNS Fatigue Monitoring Program, B.1.15 (CNS-RPT-LRD02, Revision 1), program Element 4 Subsection B states: "No actions are taken as part of this program to detect aging effects ... If a design cycle assumption is approached, corrective action is taken which will include update of fatigue usage calculation, if necessary."

In addition, Program Element 5 of NUREG-1801 Section X.M1 is concerning monitoring and trending. Under the CNS Fatigue Monitoring Program, B.1.15 (CNS-RPT-LRD02, Revision 1), Program Element 5, Subsection B, it states: "The Fatigue Monitoring Program monitors the number of pressure and temperature transient cycles and periodically compares this cycle count with the design cycle count to ensure that fatigue sensitive components remain within their allowable design..."

Issue
Clarification is deemed necessary, as described below. Additionally, Element 5 indicates that only the feedwater nozzle will be monitored.

Request
(a) Please provide basis why taking "no action" will achieve the goal of detecting aging effects.

(b) Please explain why "design cycle" can be used as basis for detecting aging effects when the design transients do not include all thermal events actually experienced by the reactor coolant pressure boundary components, as discussed in RAI B.1.15-2.

(c) The LRA states that the environmental fatigue analyses were performed based on the 60-year projected cycles and LRA Table 4.3-1 shows that the 60-year projected cycles for most of the transients are less than the design cycles. With these conditions in mind, components could have failed before the design cycles are approached. Provide justification that the design cycles can be used as criteria to detect aging effects.

(d) GALL requires all high fatigue locations are monitored, not just at the most limiting location within the applicable NUREG/CR-6260 locations, as minimum. Please provide justification that CNS will monitor the feedwater nozzle only.

NPPD Response:

(a) The goals of the program do not include detecting aging effects. With respect to detection of aging effects, Element 4 of NUREG-1801 Section X.M1 states only, "The program provides for periodic update of the fatigue usage calculations." As indicated under the heading of Preventive Actions in NUREG-1801, Section X.M1, the program entails actions to prevent fatigue cracking of reactor coolant system components. The program ensures the numbers of cycles assumed in design basis fatigue analyses that include consideration of the effect of the reactor water environment remain valid, thereby preventing the effects of aging due to fatigue. The CNS program provides for periodic update of the number of cycles incurred by the plant. The CNS program also provides update of the fatigue analyses if the incurred number of cycles is approaching the analyzed number. As indicated in LRA Section B.1.15, the CNS program will be consistent with the guidance provided in NUREG-1801 Section X.M1.

(b) The term "design cycle" is not limited to the cycles in USAR Table III-3-1, but includes the analyzed cycles in the fatigue analyses of record. The response to RAI B.1.15-2[1] explains that CNS has added analyzed transients to the Fatigue Monitoring Program (FMP) as they have been identified. Where appropriate, the fatigue analyses of record have been revised accordingly. Thus the "projected transients" in LRA Table 4.3-1 includes the transients identified to date that would contribute to fatigue usage at CNS. The actuation of a safety/relief valve was recently identified as a transient to be recorded as input to the FMP, as documented in the second enhancement for this AMP. The FMP includes identified transients used as the basis for fatigue analyses to assure that the fatigue analyses remain valid.

(c) LRA Table 4.3-3 provides the results of analyses that project the CUFs for the locations identified in NUREG/CR-6260 for 60 years of operation including consideration of environmental effects. As discussed in LRA Section 4.3.3, there is no analysis of environmentally assisted fatigue under the current licensing basis. Rather, the effect on fatigue life of the reactor water environment is a new consideration for license renewal. Applying the F_{en} identified in Table 4.3-3 is not required during the initial 40 years of operation, consistent with the closure of Generic Safety Issue 190. Upon receipt of a renewed license, these analyses become the analyses of record. At that time, CNS will revise the FMP to include the numbers of analyzed cycles (projected cycles) in the environmentally assisted fatigue analyses as acceptance criteria, to assure that those analyses remain valid throughout the period of extended operation.

(d) The program is not limited to tracking only the cycles that affect the feedwater nozzle. The FMP at CNS counts the occurrence of design transients and compares the actual cycles incurred to the analyzed cycles for the applicable reactor coolant system components at CNS. As a cycle-based program it is not limited to specific components, but covers all applicable reactor coolant system components. Components that have a required fatigue analysis are covered by the cycles monitored under the FMP.

[1] Letter from Stewart B. Minahan (NPPD) to U.S. NRC, "Response to Request for Additional Information for License Renewal Application – Aging Management Programs" (NLS2009040), dated June 15, 2009.

NRC Request: *RAI B.1.15-10*

Based on the conference call between the staff and the applicant on May 20, 2009, this RAI was updated as follow:

Background:
Program Element 6 of NUREG-1801 Section X.M1 is concerning acceptance criteria. Under the CNS Fatigue Monitoring Program, B.1.15 (CNS-RPT-LRD02, Revision 1), Program Element 6 Subsection B states: "The Fatigue Monitoring Program acceptance criteria are that none of the transients exceeded the allowable numbers in USAR Table III-3-1 ..."

Issue:
Clarification is deemed necessary, as described below.

Request:
(a) *Questions (b) and (c) of RAI B.1.15-3*[2] *apply here. Please explain accordingly.*

(b) *GALL Section X.M1 Element 6 requires maintaining fatigue usage below the design code limit considering environmental fatigue effects. CNS Fatigue Monitoring Program Element 6 does not mention environmental fatigue effects. Please explain why.*

NPPD Response:

(a) The following is Question (b) of RAI B.1.15-9:

"*Please explain why 'design cycle' can be used as basis for detecting aging effects when the design transients do not include all thermal events actually experienced by the reactor coolant pressure boundary components, as discussed in RAI B.1.15-2.*"

NPPD Response to RAI B.1.15-9 (b) As Applied to the Acceptance Criteria Element NUREG-1801 Section X.M1

The term "design cycle" is not limited to the cycles in USAR Table III-3-1, but includes the analyzed cycles in the fatigue analyses of record. The response to RAI B.1.15-2 explained that NPPD has added analyzed transients to the FMP as they have been identified. Where appropriate, the fatigue analyses of record have been revised accordingly. Thus the "projected transients" in LRA Table 4.3-1 includes the transients identified to date that would contribute to fatigue usage at CNS. The actuation of a safety/relief valve was recently identified as a transient to be recorded as input to the FMP, as documented in the second enhancement for this AMP. The FMP includes

[2] In an e-mail dated June 18, 2009, from Tam Tran (U.S. NRC) to Bill Victor (NPPD) it was clarified that this RAI should have referred to RAI B.1.15-9, which superseded RAI B.1.15-3.

identified transients used as the basis for fatigue analyses to assure that the fatigue analyses remain valid.

The following is Question (c) of RAI B.1.15-9:

"The LRA states that the environmental fatigue analyses were performed based on the 60-year projected cycles and LRA Table 4.3-1 shows that the 60-year projected cycles for most of the transients are less than the design cycles. With these conditions in mind, components could have failed before the design cycles are approached. Provide justification that the design cycles can be used as criteria to detect aging effects."

<u>NPPD Response to RAI B.1.15-9 (c) As Applied to the Acceptance Criteria Element of NUREG-1801 Section X.M1</u>

LRA Table 4.3-3 provides the results of analyses that project the CUFs for the locations identified in NUREG/CR-6260 for 60 years of operation including consideration of environmental effects. As discussed in LRA Section 4.3.3, there is no analysis of environmentally assisted fatigue under the current licensing basis. Rather, the effect on fatigue life of the reactor water environment is a new consideration for license renewal. Applying the F_{en} values identified in Table 4.3-3 is not required during the initial 40 years of operation, consistent with the closure of Generic Safety Issue 190. Upon receipt of a renewed license, these analyses become the analyses of record. At that time, NPPD will revise the FMP to include the numbers of analyzed cycles (projected cycles) in the environmentally assisted fatigue analyses as acceptance criteria, to assure that those analyses remain valid throughout the period of extended operation.

(b) As stated in LRA Section B.1.15, the FMP will be enhanced to consider the effect of the reactor water environment. This enhancement applies to element 6 acceptance criteria as shown in LRA Section B.1.15 and in the associated CNS program basis document.

Attachment 2

Changes to the License Renewal Application Related to
Aging Management Review and Aging Management Program
RAI Responses and Miscellaneous Items
Cooper Nuclear Station, Docket No. 50-298, DPR-46

This attachment provides changes to the LRA based on the responses to the RAI provided in Attachment 1. Certain additional changes are made to the LRA based on dialogue with the NRC Staff. The revisions are shown in underline/strikeout format.

1. Section 3.3.2.2.3 item 3 states the following:

"Cracking due to SCC can occur in stainless steel diesel engine exhaust piping exposed to diesel exhaust when moisture can collect inside the component when the diesel is not in operation. At CNS, the stainless steel exhaust components are not subject to significant moisture accumulation that would allow cracking to occur. Therefore, cracking due to SCC is not an aging effect requiring management for the stainless steel diesel engine exhaust piping. This item was not used."

This is revised to read:

"Cracking due to SCC ~~can occur~~ in stainless steel diesel engine exhaust ~~piping~~components exposed to diesel exhaust ~~when moisture can collect inside the component when the diesel is not in operation. At CNS, the stainless steel exhaust components are not subject to significant moisture accumulation that would allow cracking to occur. Therefore, cracking due to SCC is not an aging effect requiring management for the stainless steel diesel engine exhaust piping. This item was not used.~~is an aging effect requiring management at CNS. Cracking of stainless steel exhaust components in the emergency diesel generator system is managed by the Periodic Surveillance and Preventive Maintenance Program. This program uses visual and other NDE techniques to manage cracking of the components. These inspections will manage the aging effect of cracking such that the intended function of the component will not be affected."

Reference: Response to RAI 3.3.2.2.3.3-1

2. Table 3.3.1 Item Number 3.3.1-6 on Page 3.3-28 states:

3.3.1-6	Stainless steel diesel engine exhaust piping, piping components, and piping elements exposed to diesel exhaust	Cracking due to stress corrosion cracking	Plant specific	Yes, plant specific	This item was not used. The stainless steel diesel exhaust components are not subject to significant moisture accumulation, which precludes cracking due to stress corrosion cracking. See Section 3.3.2.2.3 item 3.

This is revised to read:

3.3.1-6	Stainless steel diesel engine exhaust piping, piping components, and piping elements exposed to diesel exhaust	Cracking due to stress corrosion cracking	Plant specific	Yes, plant specific	~~This item was not used. The stainless steel diesel exhaust components are not subject to significant moisture accumulation, which precludes cracking due to stress corrosion cracking.~~ Cracking of stainless steel diesel exhaust components will be managed by the Periodic Surveillance and Preventive Maintenance Program. See Section 3.3.2.2.3 item 3.

Reference: Response to RAI 3.3.2.2.3.3-1

3. Table 3.3.1 Item Number 3.3.1-68 on Page 3.3-55 states:

3.3.1-68	Steel piping, piping components, and piping elements exposed to raw water	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling	Fire Water System	No	Consistent with NUREG-1801 for fire protection system components. The loss of material in steel components exposed to raw water is managed by the Fire Water System Program. For steel components of the potable water system, also exposed to treated but unmonitored (raw) water, the Periodic Surveillance and Preventive Maintenance Program manages loss of material by mean of periodic visual inspections.

This is revised to read:

3.3.1-68	Steel piping, piping components, and piping elements exposed to raw water	Loss of material due to general, pitting, crevice, and microbiologically influenced corrosion, and fouling	Fire Water System	No	Consistent with NUREG-1801 ~~for fire protection system components~~. The loss of material in steel components exposed to raw water is managed by the Fire Water System Program. ~~For steel components of the potable water system, also exposed to treated but unmonitored (raw) water, the Periodic Surveillance and Preventive Maintenance Program manages loss of material by mean of periodic visual inspections.~~

Reference: This change is a clarification to remove credit for the PSPM Program in the aging management of potable water system steel components, consistent with the Program Description discussion in LRA Section B.1.31.

4. Table 3.3.1 Item Number 3.3.1-70 on Page 3.3-56 states:

3.3.1-70	Copper alloy piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting, crevice, and microbiologicall y influenced corrosion, and fouling	Fire Water System	No	Consistent with NUREG-1801. The loss of material in copper alloy components exposed to raw water is managed by the Fire Water System Program.

This is revised to read:

3.3.1-70	Copper alloy piping, piping components, and piping elements exposed to raw water	Loss of material due to pitting, crevice, and microbiologically influenced corrosion, and fouling	Fire Water System	No	Consistent with NUREG-1801 for fire protection system components. The loss of material in copper alloy components exposed to raw water is managed by the Fire Water System Program. For copper alloy components of the potable water system, also exposed to treated, but unmonitored (raw) water, the Periodic Surveillance and Preventive Maintenance Program manages loss of material by means of periodic visual inspections.

Reference: This change is a clarification which adds information on the aging management of potable water system copper alloy components, consistent with the Program Description discussion in LRA Section B.1.31.

5. Table 3.3.2-4 provides the following summary on Page 3.3-82 of the aging management evaluation for the diesel generator system:

Expansion joint	Pressure boundary	Stainless steel	Air – indoor (ext)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Expansion joint	Pressure boundary	Stainless steel	Air – outdoor (ext)	Loss of material	External surfaces monitoring	--	--	G
Expansion joint	Pressure boundary	Stainless steel	Exhaust gas (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.H2-2 (A-27)	3.3.1-18	E
Filter housing	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	External surfaces monitoring	VII.I-8 (A-77)	3.3.1-58	A
Filter housing	Pressure boundary	Carbon steel	Air – indoor (int)	Loss of material	External surfaces monitoring	V.D2-16 (E-29)	3.2.1-32	E
Filter housing	Pressure boundary	Carbon steel	Lube oil (int)	Loss of material	Oil analysis	VII.H2-20 (AP-30)	3.3.1-14	A, 302
Heat exchanger (bonnet)	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	External surfaces monitoring	VII.H2-3 (AP-41)	3.3.1-59	A
Heat exchanger (bonnet)	Pressure boundary	Carbon steel	Raw water (int)	Loss of material	Service water integrity	VII.C1-5 (A-64)	3.3.1-77	C

This is revised to read:

Expansion joint	Pressure boundary	Stainless steel	Air – indoor (ext)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Expansion joint	Pressure boundary	Stainless steel	Air – outdoor (ext)	Loss of material	External surfaces monitoring	--	--	G
Expansion joint	Pressure boundary	Stainless steel	Exhaust gas (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.H2-2 (A-27)	3.3.1-18	E
Expansion Joint	Pressure boundary	Stainless Steel	Exhaust Gas (int)	Cracking	Periodic Surveillance and Preventive Maintenance	VII.H2-1 (AP-33)	3.3.1-6	E
Filter housing	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	External surfaces monitoring	VII.I-8 (A-77)	3.3.1-58	A
Filter housing	Pressure boundary	Carbon steel	Air – indoor (int)	Loss of material	External surfaces monitoring	V.D2-16 (E-29)	3.2.1-32	E
Filter housing	Pressure boundary	Carbon steel	Lube oil (int)	Loss of material	Oil analysis	VII.H2-20 (AP-30)	3.3.1-14	A, 302
Heat exchanger (bonnet)	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	External surfaces monitoring	VII.H2-3 (AP-41)	3.3.1-59	A
Heat exchanger (bonnet)	Pressure boundary	Carbon steel	Raw water (int)	Loss of material	Service water integrity	VII.C1-5 (A-64)	3.3.1-77	C

Reference: Response to RAI 3.3.2.2.3.3-1

6. LRA Table 3.3.2-14-17 on Pages 3.3-216 and 3.3-217 states the following:

Bolting	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	Bolting integrity	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of preload	Bolting integrity	VII.I-5 (AP-26)	3.3.1-45	A
Piping	Pressure boundary	Copper alloy	Air – indoor (ext)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Piping	Pressure boundary	Copper alloy	Treated water (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.G-24 (A-33)	3.3.1-68	E, 304
Tubing	Pressure boundary	Copper alloy	Air – indoor (ext)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Tubing	Pressure boundary	Copper alloy	Treated water (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.G-24 (A-33)	3.3.1-68	E, 304
Valve body	Pressure boundary	Copper alloy	Air – indoor (ext)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Valve body	Pressure boundary	Copper alloy	Treated water (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.G-24 (A-33)	3.3.1-68	E, 304

This is revised to read:

Bolting	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	Bolting integrity	VII.I-4 (AP-27)	3.3.1-43	A
Bolting	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of preload	Bolting integrity	VII.I-5 (AP-26)	3.3.1-45	A
Piping	Pressure boundary	Copper alloy	Air – indoor (ext)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Piping	Pressure boundary	Copper alloy	Treated water (int)	Loss of material	Periodic surveillance and preventive maintenance	~~VII.G-24 (A-33)~~ VII.G-12 (A-45)	~~3.3.1-68~~ 3.3.1-70	E, 304
Tubing	Pressure boundary	Copper alloy	Air – indoor (ext)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Tubing	Pressure boundary	Copper alloy	Treated water (int)	Loss of material	Periodic surveillance and preventive maintenance	~~VII.G-24 (A-33)~~ VII.G-12 (A-45)	~~3.3.1-68~~ 3.3.1-70	E, 304
Valve body	Pressure boundary	Copper alloy	Air – indoor (ext)	None	None	V.F-3 (EP-10)	3.2.1-53	C
Valve body	Pressure boundary	Copper alloy	Treated water (int)	Loss of material	Periodic surveillance and preventive maintenance	~~VII.G-24 (A-33)~~ VII.G-12 (A-45)	~~3.3.1-68~~ 3.3.1-70	E, 304

Reference: NPPD has identified a more appropriate NUREG-1801 reference for two lines of LRA Table 3.3.2-14-17. Reference to item (A-33) is changed to (A-45).

7. Appendix A, Section A.1.1.31 (Periodic Surveillance and Preventive Maintenance Program) and Appendix B, Section B.1.31 (Periodic Surveillance and Preventive Maintenance) Program Description state in the first and second paragraphs respectively:

"The Periodic Surveillance and Preventive Maintenance Program is an existing program that includes periodic inspections and tests that manage aging effects not managed by other aging management programs. In addition to specific activities in the plant's preventive maintenance program and surveillance program, the Periodic Surveillance and Preventive Maintenance Program includes enhancements to add new activities. The preventive maintenance and surveillance testing activities are generally implemented through repetitive tasks or routine monitoring of plant operations. The program is credited with managing loss of material from external surfaces for situations in which external and internal material and environment combinations are the same such that internal surface condition is representative of external surface condition."

This is revised to read:

"The Periodic Surveillance and Preventive Maintenance Program is an existing program that includes periodic inspections and tests that manage aging effects not managed by other aging management programs, including loss of material, cracking, change in material properties, loss of material due to wear, and fouling. In addition to specific activities in the plant's preventive maintenance program and surveillance program, the Periodic Surveillance and Preventive Maintenance Program includes enhancements to add new activities. The preventive maintenance and surveillance testing activities are generally implemented through repetitive tasks or routine monitoring of plant operations. While primarily used for managing the effects of aging on internal surfaces, ~~T~~the program is also credited with managing loss of material from external surfaces for situations in which external and internal material and environment combinations are the same such that internal surface condition is representative of external surface condition."

Reference: This clarification itemizes the aging effects included under the PSPM Program and underscores that the PSPM Program is primarily used for managing the effects of aging on internal component surfaces.

8. Appendix B, Section B.1.31 (Periodic Surveillance and Preventive Maintenance) states under the Program Description:

"In cases where a representative sample is inspected by this program, a representative sample will be selected from each unique material and environment combination covered under each of the program activities. Each sample size will be based on Chapter 4 of EPRI document 107514, Age-related Degradation Inspection Method and Demonstration, which outlines a method to determine the number of inspections required for 90% confidence that 90% of the population does not experience degradation (90/90). Components with the same material-environment combinations at other facilities may be included in the sample."

This is revised to read:

"In cases where a representative sample is inspected by this program, a representative sample will be selected from each unique material and environment combination covered under each of the program activities. Each sample size will be based on Chapter 4 of

EPRI document 107514, Age-related Degradation Inspection Method and Demonstration, which outlines a method to determine the number of inspections required for 90% confidence that 90% of the population does not experience degradation (90/90). ~~Components with the same material-environment combinations at other facilities may be included in the sample.~~"

Reference: Response to RAI 3.3.2.2.7.3-1

9. Appendix B, Section B.1.31 (Periodic Surveillance and Preventive Maintenance) states under the Program Description table of activities for the Diesel generator (DG) system:

Diesel generator (DG) system	Perform internal visual inspection of a representative sample of DG exhaust gas components to manage loss of material. Perform intercooler operability testing to manage fouling for stainless steel tubes and aluminum fins. Perform visual inspection of a representative sample of DG service air component internal surfaces to manage loss of material.

This is revised to read:

Diesel generator (DG) system	Perform internal visual and other NDE inspections of a representative sample of DG exhaust gas components to manage loss of material and cracking. Perform intercooler operability testing to manage fouling for stainless steel tubes and aluminum fins. Perform visual inspection of a representative sample of DG service air component internal surfaces to manage loss of material.

Reference: Response to RAI 3.3.2.2.3.3-1