

South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

October 29, 2012 NOC-AE-12002915 10 CFR 54 STI: 33611703 File: G25

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

South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Annual Update to the South Texas Project License Renewal Application (TAC NOS. ME4936 and ME4937)

Reference: STPNOC Letter dated October 25, 2010, from G. T. Powell to NRC Document Control Desk, "License Renewal Application" (NOC-AE-10002607) (ML103010257)

By the referenced letter, STP Nuclear Operating Company (STPNOC) submitted an application to the Nuclear Regulatory Commission (NRC) for the renewal of Facility Operating Licenses NPF-76 and NPF-80, for South Texas Project (STP) Units 1 and 2, respectively. The application included the License Renewal Application (LRA), and the Applicant's Environmental Report – Operating License Renewal Stage. As required by 10 CFR 54.21(b), each year following submittal of the LRA, an amendment to the LRA must be submitted that identifies any change to the current licensing basis (CLB) that materially affects the contents of the LRA, including the Updated Final Safety Analysis Report (UFSAR) supplement.

This LRA update covers the period from September 1, 2011 through August 31, 2012. Enclosure 1 identifies STP LRA changes that are being made to: (1) reflect the CLB that materially affect the LRA; and (2) reflect completed enhancements and commitments. Changes to LRA pages described in Enclosure 1 are depicted as line-in/line-out pages provided in Enclosure 2.

There are no regulatory commitments in this letter.

Should you have any questions regarding this letter, please contact Arden Aldridge, STP License Renewal Project Lead, at (361) 972-8243, or Ken Taplett, STP License Renewal Project regulatory point-of-contact, at (361) 972-8416.

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

Executed on <u>10/29/2012</u> Date

D. W. Rencurrel

Senior Vice President

KJT

- Enclosures: 1. STPNOC License Renewal Application (LRA) Changes Reflected in Annual LRA Update
 - 2. STP LRA Changes with Line-in/Line-out Annotations

NOC-AE-12002915 Page 3

cc: (paper copy)

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Enclosure 1

STPNOC License Renewal Application (LRA)

Changes Reflected in

Annual LRA Update

STPNOC License Renewal Application (LRA) Changes Reflected in Annual LRA Update

Following Changes Materially Affect th	ne LRA
Reason for Change	Affected LRA Sections or Tables
Changed aging management program for fire dampers AMR lines from B2.1.22, "Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components" to B2.1.12, "Fire Protection" because the B2.1.12 program manages fire dampers that perform a fire barrier function.	Section 3.3.2.1.10 Section 3.3.2.1.11 Section 3.3.2.1.12 Section 3.3.2.1.13 Section 3.3.2.1.13 Section 3.3.2.1.15 Table 3.3.2.1.15 Table 3.3.2-10 Table 3.3.2-10 Table 3.3.2-11 Table 3.3.2-12 Table 3.3.2-13 Table 3.3.2-14 Table 3.3.2-15 Table 3.3.2-17
Added aging management program Open-Cycle Cooling Water System B2.1.9 to LRA Section 3.3.2.1.17 to correct a previous omission.	Section 3.3.2.1.17
Added the standby diesel generator starting air membrane dryer and connection tubing to the scope of the standby diesel generator in-scope components. The membrane dryers are credited for providing dry air (dry gas) environment.	Table 2.3.3-20 Table 3.3.2-20
Clarified that the steam generator secondary steam flow restrictor venturies (component type SG Secondary Nozzles and Safe Ends), that are welded into the SG Secondary Nozzles, are only exposed to Secondary Water and not Plant Indoor Air.	Table 3.1.2-4
Added the aging management program "Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components" (B2.1.22) to Gray Cast Iron and Copper Alloy (>15% Zinc) components exposed to Raw Water Environment. The only assigned aging effect was for loss of material due to selective leaching. The aging effect of loss of material due to general, pitting crevice and microbiologically influenced corrosion is also required.	Table 3.3.1 Table 3.3.2-24 Table 3.3.2-27
In addition, Item Number 3.3.1.81 in Table 3.3.1 deleted the reference to the "liquid radioactive waste system". This system is referred to as the "liquid waste processing system" for the South Texas Project.	

Enclosure 2

STP LRA Changes with Line-in/Line-out Annotations

Enclosure 2 NOC-AE-12002915 Page 1 of 30

CHANGE

Revised aging management program for fire dampers from AMP B2.1.22, Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components to AMP B2.1.12, Fire Protection

3.3.2.1.10 Electrical Auxiliary Building and Control Room HVAC System

Materials

The materials of construction for the electrical auxiliary building and control room HVAC system component types are:

- Aluminum
- Carbon Steel
- Carbon Steel (Galvanized)
- Copper Alloy
- Elastomer
- Stainless Steel

Environment

The electrical auxiliary building and control room HVAC system component types are exposed to the following environments:

- Closed-Cycle Cooling Water
- Encased in Concrete
- Plant Indoor Air
- Ventilation Atmosphere

Aging Effects Requiring Management

The following electrical auxiliary building and control room HVAC system aging effects require management:

- Hardening and loss of strength
- Loss of material
- Loss of preload
- Reduction of heat transfer

Aging Management Programs

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The following aging management programs manage the aging effects for the electrical auxiliary building and control room HVAC system component types:

- Bolting Integrity (B2.1.7)
- Closed-Cycle Cooling Water System (B2.1.10)
- External Surfaces Monitoring Program (B2.1.20)
- Fire Protection (B2.1.12)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)

3.3.2.1.11 Fuel Handling Building HVAC System

Materials

The materials of construction for the fuel handling building HVAC system component types are:

- Aluminum
- Carbon Steel
- Carbon Steel (Galvanized)
- Copper Alloy
- Elastomer
- Stainless Steel

Environment

The fuel handling building HVAC system component types are exposed to the following environments:

- Atmosphere/ Weather
- Closed-Cycle Cooling Water
- Encased in Concrete
- Plant Indoor Air
- Ventilation Atmosphere

Aging Effects Requiring Management

The following fuel handling building HVAC system aging effects require management:

- Hardening and loss of strength
- Loss of material
- Loss of preload
- Reduction of heat transfer

Aging Management Programs

The following aging management programs manage the aging effects for the fuel handling building HVAC system component types:

- Bolting Integrity (B2.1.7)
- Closed-Cycle Cooling Water System (B2.1.10)
- External Surfaces Monitoring Program (B2.1.20)

• <u>Fire Protection (B2.1.12)</u>

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Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)

3.3.2.1.12 Mechanical Auxiliary Building HVAC System

Materials

The materials of construction for the mechanical auxiliary building HVAC system - component types are:

- Carbon Steel
- Carbon Steel (Galvanized)
- Copper Alloy
- Elastomer
- Polyvinyl Chloride (PVC)
- Stainless Steel

Environment

The mechanical auxiliary building HVAC system component types are exposed to the following environments:

- Atmosphere/ Weather
- Closed-Cycle Cooling Water
- Encased in Concrete
- Plant Indoor Air
- Ventilation Atmosphere

Aging Effects Requiring Management

The following mechanical auxiliary building HVAC system aging effects require management:

- Hardening and loss of strength Hardening and loss of strength
- Loss of material
- Loss of preload
- Reduction of heat transfer

Aging Management Programs

The following aging management programs manage the aging effects for the mechanical auxiliary building HVAC system component types:

- Bolting Integrity (B2.1.7)
- Closed-Cycle Cooling Water System (B2.1.10)

- External Surfaces Monitoring Program (B2.1.20)
- Fire Protection (B2.1.12)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)

3.3.2.1.13 Miscellaneous HVAC Systems (In Scope)

Materials

The materials of construction for the miscellaneous HVAC systems (In Scope) component types are:

- Carbon Steel
- Carbon Steel (Galvanized)
- Elastomer

Environment

The miscellaneous HVAC systems (In Scope) component types are exposed to the following environments:

- Encased in Concrete
- Plant Indoor Air
- Ventilation Atmosphere

Aging Effects Requiring Management

The following miscellaneous HVAC systems (In Scope) aging effects require management:

- Hardening and loss of strength
- Loss of material
- Loss of preload

Aging Management Programs

The following aging management programs manage the aging effects for the miscellaneous HVAC systems (In Scope) component types:

- Bolting Integrity (B2.1.7)
- External Surfaces Monitoring Program (B2.1.20)
- Fire Protection (B2.1.12)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)

3.3.2.1.14 Reactor Containment Building HVAC System

Materials

The materials of construction for the reactor containment building HVAC system component types are:

- Aluminum
- Carbon Steel
- Carbon Steel (Galvanized)
- Copper Alloy
- Elastomer
- Stainless Steel

Environment

The reactor containment building HVAC system component types are exposed to the following environments:

- Atmosphere/ Weather
- Closed-Cycle Cooling Water
- Encased in Concrete
- Plant Indoor Air
- Ventilation Atmosphere

Aging Effects Requiring Management

The following reactor containment building HVAC system aging effects require management:

- Hardening and loss of strength
- Loss of material
- Loss of preload
- Reduction of heat transfer

Aging Management Programs

The following aging management programs manage the aging effects for the reactor containment building HVAC system component types:

- Bolting Integrity (B2.1.7)
- Closed-Cycle Cooling Water System (B2.1.10)
- External Surfaces Monitoring Program (B2.1.20)

Enclosure 2 NOC-AE-12002915 Page 9 of 30

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• Fire Protection (B2.1.12)

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Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)

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3.2.2.1.15 Standby Diesel Generator Building HVAC System

Materials

The materials of construction for the standby diesel generator building HVAC system component types are:

- Carbon Steel
- Carbon Steel (Galvanized)
- Elastomer
- Stainless Steel

Environment

The standby diesel generator building HVAC system component types are exposed to the following environments:

- Encased in Concrete
- Plant Indoor Air
- Ventilation Atmosphere

Aging Effects Requiring Management

The following standby diesel generator building HVAC system aging effects require management:

- Hardening and loss of strength
- Loss of material
- Loss of preload

Aging Management Programs

The following aging management programs manage the aging effects for the standby diesel generator building HVAC system component types:

- Bolting Integrity (B2.1.7)
- External Surfaces Monitoring Program (B2.1.20)
- Fire Protection (B2.1.12)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)

ltem Number	Component Type	Aging Effect / Mechanism	Aging Management Program	Further Evaluation Recommended	Discussion
3.3.1.72	Steel HVAC ducting and components internal surfaces exposed to condensation (Internal)	Loss of material due to general, pitting, crevice, and (for drip pans and drain lines) microbiologically influenced corrosion	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	No	Consistent with NUREG-1801 with aging management program exceptions for all components except dampers with a fire barrier function. Exception to NUREG 1801 for dampers with a fire barrier function. These dampers are managed by Fire Protection (B2.1.12). The aging management program(s) with exceptions to NUREG-1801 include: Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22) and Fire Protection (B2.1.12)

Table 3.3.1 Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 for Auxiliary Systems

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
Damper	FB, PB	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F1-2	3.3.1.56	В
Damper	FB, PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)Fire Protection (B2.1.12)	VII.F1-3 <u>VII.F2-3</u>	3.3.1.72	₿ <u>Е, 2</u>
Damper	₽₿₽₿	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.F2-3	3.3.1.72	В
Ductwork	PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F1-2	3.3.1.56	В

 Table 3.3.2-10
 Auxiliary Systems – Summary of Aging Management Evaluation – Electrical Auxiliary Building and Control Room

 HVAC System

Notes for Table 3.3.2-10:

Standard Notes:

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- B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- D Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.
- H Aging effect not in NUREG-1801 for this component, material, and environment combination.

Plant Specific Notes:

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Loss of preload is conservatively considered to be applicable for all closure bolting. Fire Protection Program (B2.1.12) manages the aging effects associated with this fire damper material and environment combination. 2

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
Damper	PB	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F2-2	3.3.1.56	В
<u>Damper</u>	FB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Fire Protection (B2.1.12)	<u>VII.F2-3</u>	<u>3.3.1.72</u>	<u>E, 1</u>
Damper	₽B -PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.F2-3	3.3.1.72	В
Ductwork	LBS, PB	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F2-2	3.3.1.56	В

Table 3.3.2-11 Auxiliary Systems – Summary of Aging Management Evaluation – Fuel Handling Building HVAC System

Notes for Table 3.3.2-11:

Standard Notes:

- A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- D Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.

Plant Specific Notes:

None

1 Fire Protection Program (B2.1.12) manages the aging effects associated with this fire damper material and environment combination.

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item.	Notes
Damper	PB	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F2-2	3.3.1.56	В
Damper	FB	Carbon Steel (Galvanized)	Plant Indoor Air (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)Fire Protection (B2.1.12)	VII.F2-3	3.3.1.72	B <u>E, 2</u>
Damper	FВ, РВ	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.F2-3	3.3.1.72	В
<u>Damper</u>	<u>FB</u>	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Fire Protection (B2.1.12)	<u>VII.F2-3</u>	<u>3.3.1.72</u>	<u>E, 2</u>
Ductwork	PB	Carbon Steel (Galvanized)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F2-2	3.3.1.56	В

Table 3.3.2-12 Auxiliary Systems – Summary of Aging Management Evaluation – Mechanical Auxiliary Building HVAC System

Notes for Table 3.3.2-12:

Standard Notes:

- A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- D Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.

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- E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.
- F Material not in NUREG-1801 for this component.

Enclosure 2 NOC-AE-12002915 Page 16 of 30

Plant Specific Notes:

- 1
- PVC is relatively unaffected by water, concentrated alkalis, and non-oxidizing acids, oils, and ozone. Fire Protection Program (B2.1.12) manages the aging effects associated with this fire damper material and environment combination. 2

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
Damper	FB, PB	Carbon Steel (Galvanized)	Encased in Concrete (Ext)	None	None	VII.J-21	3.3.1.96	С
Damper	FB, PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)Fire Protection (B2.1.12)	VII.F2-3	3.3.1.72	B <u>E, 2</u>
Flex Connectors	PB	Elastomer	Plant Indoor Air (Ext)	Hardening and loss of strength	External Surfaces Monitoring Program (B2.1.20)	VII.F2-7	3.3.1.11	E

 Table 3.3.2-13
 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous HVAC Systems (In Scope)

Notes for Table 3.3.2-13:

Standard Notes:

- B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.

Plant Specific Notes:

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Loss of preload is conservatively considered to be applicable for all closure bolting.

2 Fire Protection Program (B2.1.12) manages the aging effects associated with this fire damper material and environment combination.

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
Damper	PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F3-2	3.3.1.56	В
Damper	ЕР-<u>РВ</u>	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	VII.F3-3	3.3.1.72	В
<u>Damper</u>	<u>FB</u>	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Fire Protection (B2.1.12)	<u>VII.F3-3</u>	<u>3.3.1.72</u>	<u>E, 2</u>
Ductwork	РВ	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F3-2	3.3.1.56	В

Table 3.3.2-14 Auxiliary Systems – Summary of Aging Management Evaluation – Reactor Containment Building HVAC System

Notes for Table 3.3.2-14:

Standard Notes:

- A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- D Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.
- H Aging effect not in NUREG-1801 for this component, material, and environment combination.

Plant Specific Notes:

- 1 Loss of preload is conservatively considered to be applicable for all closure bolting.
- 2 Fire Protection Program (B2.1.12) manages the aging effects associated with this fire damper material and environment combination.

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
Damper	FB, PB	Carbon Steel (Galvanized)	Encased in Concrete (Ext)	None	None	VII.J-21	3.3.1.96	С
Damper	FB, PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)Fire Protection (B2.1.12)	VII.F4-2	3.3.1.72	В <u>Е, 2</u>
Damper	PB	Stainless Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.F2-1	3.3.1.27	E

 Table 3.3.2-15
 Auxiliary Systems – Summary of Aging Management Evaluation – Standby Diesel Generator Building HVAC

 System

Notes for Table 3.3.2-15:

Standard Notes:

- B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- C Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.

Plant Specific Notes:

Loss of preload is conservatively considered to be applicable for all closure bolting.

2 Fire Protection Program (B2.1.12) manages the aging effects associated with this fire damper material and environment combination.

Enclosure 2 NOC-AE-12002915 Page 20 of 30

Component Type	Intended Function	Material	Environment	Aging Effect Requiring	Aging Management Program	NUREG- 1801 Vol.	Table 1 Item	Notes
Damper	FB, PB	Carbon Steel (Galvanized)	Encased in Concrete (Ext)	None	None	VII.J-21	3.3.1.96	A
Damper	FB, PB	Carbon Steel (Galvanized)	Ventilation Atmosphere (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)Fire Protection (B2.1.12)	VII.F4-2	3.3.1.72	₿- <u>Е, 5</u>
Filter (Halon)	PB	Aluminum	Dry Gas (Int)	None	None	VII.J-2	3.3.1.97	A

 Table 3.3.2-17
 Auxiliary Systems – Summary of Aging Management Evaluation – Fire Protection System

Notes for Table 3.3.2-17:

Standard Notes:

- A Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- B Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- E Consistent with NUREG-1801 for material, environment, and aging effect, but a different aging management program is credited or NUREG-1801 identifies a plant-specific aging management program.
- F Material not in NUREG-1801 for this component.
- G Environment not in NUREG-1801 for this component and material.
- H Aging effect not in NUREG-1801 for this component, material and environment combination.

Plant Specific Notes:

- Loss of preload is conservatively considered to be applicable for all closure bolting.
- 2 The Fire Protection program (B2.1.12) is used to manage aging of the external surfaces of halon piping.
- 3 A visual inspection of the external surface of the bottom of tanks sitting directly on soil or concrete cannot be performed. A volumetric examination from the inside of the bottom of the tank is performed in lieu of an external inspection.
- 4 The External Surfaces Monitoring Program (B2.1.20) is used to manage the hardening and loss of strength of the caulking found between the firewater storage tank (FWST) bottom to concrete foundation interface to prevent water entry under the tank bottom.
- 5 Fire Protection Program (B2.1.12) manages the aging effects associated with this fire damper material and environment combination.

Enclosure 2 NOC-AE-12002915 Page 21 of 30

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CHANGE

Added aging management program Open-Cycle Cooling Water System B2.1.9 to LRA Section 3.3.2.1.17 to correct a previous omission.

3.3.2.1.17 Fire Protection System

Materials

The materials of construction for the fire protection system component types are:

- Aluminum
- Carbon Steel
- Carbon Steel (Galvanized)
- Cast Iron (Gray Cast Iron)
- Copper Alloy
- Ductile Iron
- Elastomer
- Stainless Steel

Environment

The fire protection system component types are exposed to the following environments:

- Atmosphere/ Weather
- Borated Water Leakage
- Buried
- Closed-Cycle Cooling Water
- Concrete
- Diesel Exhaust
- Dry Gas
- Encased in Concrete
- Fuel Oil
- Plant Indoor Air
- Raw Water
- Ventilation Atmosphere

Aging Effects Requiring Management

The following fire protection system aging effects require management:

- Cracking
- Hardening and loss of material
- Loss of material
- Loss of preload
- Reduction of heat transfer

Aging Management Programs

The following aging management programs manage the aging effects for the fire protection system component types:

- Bolting Integrity (B2.1.7)
- Boric Acid Corrosion (B2.1.4)
- Buried Piping and Tanks Inspection (B2.1.18)
- Closed-Cycle Cooling Water System (B2.1.10)
- External Surfaces Monitoring Program (B2.1.20)
- Fire Protection (B2.1.12)
- Fire Water System (B2.1.13)
- Fuel Oil Chemistry (B2.1.14)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)
- One-Time Inspection (B2.1.16)
- Open-Cycle Cooling Water System (B2.1.9)
- Selective Leaching of Materials (B2.1.17)

Enclosure 2 NOC-AE-12002915 Page 23 of 30

CHANGE

Added the standby diesel generator starting air membrane dryer and connection tubing to the scope of the standby diesel generator in-scope components

Table 2.3.3-20 Standby Diesel Generator and Auxiliaries Systems

Component Type	Intended Function
Coatings	Maintain Coating Integrity
Dryer	Pressure Boundary
Expansion Joint	Pressure Boundary

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
Coating	MCI	Plasticap/ Plasite	Raw Water	Loss of coating integrity	Open-Cycle Cooling Water System (B2.1.9)	None	None	J, 4
<u>Dryer</u>	<u>PB</u>	<u>Stainless</u> Steel	Dry Gas (Int)	None	None	<u>VII.J-19</u>	<u>3.3.1.97</u>	<u>C</u>
<u>Dryer</u>	<u>PB</u>	<u>Stainless</u> Steel	<u>Plant Indoor Air</u> (Ext)	<u>None</u>	None	<u>VII.J-15</u>	<u>3.3.1.94</u>	<u>C</u>
Expansion Joint	PB	Carbon Steel	Closed Cycle Cooling Water (Int)	Loss of material	Closed-Cycle Cooling Water System (B2.1.10)	VII.H2-23	3.3.1.47	В

 Table 3.3.2-20
 Auxiliary Systems – Summary of Aging Management Evaluation – Standby Diesel Generator and Auxiliaries

Tubing	LBS, PB,	Stainless	Closed Cycle	Loss of material	Closed-Cycle Cooling	VII.C2-10	3.3.1.50	В
	SIA	Steel	Cooling Water		Water System (B2.1.10)			
			(Int)					
Tubing	<u>PB,</u> SIA	Stainless	Dry Gas (Int)	None	None	VII.J-19	3.3.1.97	A
		Steel						L
Tubing	LBS, PB,	Stainless	Lubricating Oil	Loss of material	Lubricating Oil Analysis	VII.H2-17	3.3.1.33	В
	SIA	Steel	(Int)		(B2.1.23) and One-Time			
					Inspection (B2.1.16)		****	

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CHANGE

Clarified that the steam generator secondary steam flow restrictor venturies (component type SG Secondary Nozzles and Safe Ends), that are welded into the SG Secondary Nozzles, are only exposed to Secondary Water and not Plant Indoor Air.

Table 3.1.2-4	Reactor Vessel, Internals, and Reactor Coolant System – Summary of Aging Management Evaluation – Stea	т
	Generators (Continued)	

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
SG Secondary Nozzles and Safe Ends	PB	Carbon Steel	Secondary Water (Int)	Loss of material	ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD for Class 2 components (B2.1.1) and Water Chemistry (B2.1.2)	IV.D1-12	3.1.1.16	A
SG Secondary Nozzles and Safe Ends	ŦĦ	Nickel Alloys	Plant Indoor Air (Ext)	None	None	IV.E -1	3.1.1.85	Α
SG Secondary Nozzles and Safe Ends	DF, SH	Nickel Alloys	Secondary Water (Ext)	Cracking	Steam Generator Tubing Integrity (B2.1.8) and Water Chemistry (B2.1.2)	IV.D1-14	3.1.1.74	A
SG Secondary Nozzles and Safe Ends	DF, SH	Nickel Alloys	Secondary Water (Ext)	Loss of material	Steam Generator Tubing Integrity (B2.1.8) and Water Chemistry (B2.1.2)	IV.D1-15	3.1.1.74	A
SG Secondary Nozzles and Safe Ends	TH	Nickel Alloys	Secondary Water (Int) (Ext)	Cracking	Steam Generator Tubing Integrity (B2.1.8) and Water Chemistry (B2.1.2)	IV.D1-14	3.1.1.74	С

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Table 3.1.2-4	Reactor Vessel, Internals, and Reactor Coolant System – Summary of Aging Management Evaluation – Steam
	Generators (Continued)

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
SG Secondary Nozzles and Safe Ends	TH	Nickel Alloys	Secondary Water (Int) <u>(Ext)</u>	Loss of material	Steam Generator Tubing Integrity (B2.1.8) and Water Chemistry (B2.1.2)	IV.D1-15	3.1.1.74	С
SG Secondary Shell	PB	Carbon Steel	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	V.E-7	3.2.1.31	В

Enclosure 2 NOC-AE-12002915 Page 27 of 30

CHANGE

Added the aging management program "Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components" (B2.1.22) to Gray Cast Iron and Copper Alloy (>15% Zinc) components exposed to Raw Water Environment. The only assigned aging effect was for loss of material due to selective leaching. The aging effect of loss of material due to general, pitting crevice and microbiologically influenced corrosion is also required.

Item Number 3.3.1.81 in Table 3.3.1 deleted the reference to the "liquid radioactive waste system". This system is referred to as the "liquid waste processing system" for the South Texas Project.

ltem Number	Component Type	Aging Effect / Mechanism	Aging Management Program	Further Evaluation Recommended	Discussion
3.3.1.81	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	Open-Cycle Cooling Water System (B2.1.9)	No	Consistent with NUREG-1801 for all components except that a different aging management program is credited for components exposed to the raw water environment in the liquid radioactive waste and essential cooling pond makeup, open loop auxiliary cooling, oily waste, liquid waste processing, and solid waste processing systems. The aging of internal component surfaces exposed to the raw water environment of the liquid radioactive waste and essential cooling pond makeup, open loop auxiliary cooling, oily waste, liquid waste processing, and solid waste processing, and solid waste processing, and solid waste processing systems is are managed by Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22) aging management
	1				program.

Table 3.3.1 Summary of Aging Management Evaluations in Chapter VII of NUREG-1801 for Auxiliary Systems

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Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG- 1801 Vol. 2 Item	Table 1 Item	Notes
Pump	LBS	Cast Iron (Gray Cast Iron)	Plant Indoor Air (Ext)	Loss of material	External Surfaces Monitoring Program (B2.1.20)	VII.I-8	3.3.1.58	В
Pump	<u>LBS</u>	<u>Cast Iron</u> (Gray Cast Iron)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	<u>VII.C1-19</u>	<u>3.3.1.76</u>	<u>E. 2</u>
Pump	LBS	Cast Iron (Gray Cast Iron)	Raw Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VII.G-14	3.3.1.85	В

Intended Function	Material	Environment	Aging Effect Requiring	Aging Management Program	NUREG- 1801 Vol.	Table 1 Item	Notes		
			Management		2 Item				
LBS	Copper Alloy	Plant Indoor Air	None	None	VIII.I-2	3.4.1.41	A		
	(>15% Zinc)	(Ext)							
LBS	Copper Alloy	Raw Water (Int)	Loss of material	Inspection of Internal	<u>VII.C1-9</u>	3.3.1.81	<u>E, 9</u>		
	(>15% Zinc)			Surfaces in					
				Miscellaneous Piping					
				and Ducting					
				Components (B2.1.22)			•		
LBS	Copper Alloy	Raw Water (Int)	Loss of material	Selective Leaching of	VII.C1-10	3.3.1.84	В		
	(>15% Zinc)			Materials (B2.1.17)					
	Intended Function LBS LBS	Intended FunctionMaterial MaterialLBSCopper Alloy (>15% Zinc)LBSCopper Alloy (>15% Zinc)LBSCopper Alloy (>15% Zinc)	Intended Function Material Environment LBS Copper Alloy (>15% Zinc) Plant Indoor Air (Ext) LBS Copper Alloy (>15% Zinc) Raw Water (Int) (>15% Zinc) LBS Copper Alloy (>15% Zinc) Raw Water (Int)	Intended FunctionMaterialEnvironmentAging Effect Requiring ManagementLBSCopper Alloy (>15% Zinc)Plant Indoor Air (Ext)NoneLBSCopper Alloy (>15% Zinc)Raw Water (Int) (Int)Loss of material Loss of materialLBSCopper Alloy (>15% Zinc)Raw Water (Int) (Int)Loss of material Loss of material	Intended FunctionMaterialEnvironment EnvironmentAging Effect Requiring ManagementAging Management ProgramLBSCopper Alloy (>15% Zinc)Plant Indoor Air (Ext)NoneNoneNoneLBSCopper Alloy (>15% Zinc)Plant Indoor Air (Ext)Loss of materialInspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)LBSCopper Alloy (>15% Zinc)Raw Water (Int)Loss of materialSelective Leaching of Materials (B2.1.17)	Intended FunctionMaterialEnvironment Requiring ManagementAging Effect Requiring ManagementAging Management ProgramNUREG- 1801 Vol. 2 ItemLBSCopper Alloy (>15% Zinc)Plant Indoor Air (Ext)NoneNoneNoneVIII.I-2LBSCopper Alloy (>15% Zinc)Raw Water (Int) (>15% Zinc)Loss of material Miscellaneous Piping and Ducting Components (B2.1.22)Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)VII.C1-10LBSCopper Alloy (>15% Zinc)Raw Water (Int)Loss of materialSelective Leaching of Materials (B2.1.17)VII.C1-10	Intended FunctionMaterialEnvironment EnvironmentAging Effect Requiring ManagementAging Management ProgramNUREG- 1801 Vol.Table 1 Item 1801 Vol.LBSCopper Alloy (>15% Zinc)Plant Indoor Air (Ext)NoneNoneNoneVIII.I-23.4.1.41LBSCopper Alloy (>15% Zinc)Raw Water (Int) (>15% Zinc)Loss of material (>15% Zinc)Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)VII.C1-9 (>1.00000000000000000000000000000000000		

 Table 3.3.2-27
 Auxiliary Systems – Summary of Aging Management Evaluation – Miscellaneous Systems in scope ONLY for
Criterion 10 CFR 54.4(a)(2)

Valve	LBS	Copper Alloy (>15% Zinc)	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
<u>Valve</u>	<u>LBS</u>	<u>Copper Alloy</u> (>15% Zinc)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	<u>VII.C1-9</u>	<u>3.3.1.81</u>	<u>E, 9</u>
Valve	LBS	Copper Alloy (>15% Zinc)	Raw Water (Int)	Loss of material	Selective Leaching of Materials (B2.1.17)	VII.C1-10	3.3.1.84	В
Valve	LBS	Copper Alloy (Aluminum > 8%)	Plant Indoor Air (Ext)	None	None	VIII.I-2	3.4.1.41	A
<u>Valve</u>	<u>LBS</u>	Copper Alloy (Aluminum > 8%)	Raw Water (Int)	Loss of material	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B2.1.22)	<u>VII.C1-9</u>	<u>3.3.1.81</u>	<u>E, 9</u>
Valve	LBS	Copper Alloy (Aluminum > 8%)	Raw Water (Int)	Loss of material	Selective Leaching of Aluminum Bronze (B2.1.37)	VII.C1-10	3.3.1.84	E, 8