Xcel Energy®

2807 West County Road 75
Monticello, MN 55362

July 18, 2023

L-MT-23-031
10 CFR 54.17

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

Monticello Nuclear Generating Plant
Docket No. 50-263
Renewed Facility Operating License No. DPR-22

Subsequent License Renewal Application Supplement 4 and Responses to Request for Confirmation of Information – Set 1

References:

1) Letter from Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy to Document Control Desk, "Monticello Nuclear Generating Plant Docket No. 50-263, Renewal License Number DPR-22 Application for Subsequent Renewal Operating License" dated January 9, 2023, ML23009A353

2) Letter from Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy to Document Control Desk, "Monticello Nuclear Generating Plant Subsequent License Renewal Application Supplement 1" dated April 3, 2023, ML23094A136

3) Letter from Northern States Power Company, A Minnesota corporation (NSPM), d/b/a Xcel Energy to Document Control Desk, "Monticello Nuclear Generating Plant Subsequent License Renewal Application Supplement 2" dated June 26, 2023, ML23177A218

4) Email from the NRC to Northern States Power Company, A Minnesota corporation (NSPM), d/b/a Xcel Energy, "Monticello SLRA – Request for Confirmation of Information – Set 1" dated June 21, 2023, ML23172A111 and ML23172A112

5) Letter from Northern States Power Company, A Minnesota corporation (NSPM), d/b/a Xcel Energy to Document Control Desk, "Monticello Nuclear Generating Plant Subsequent License Renewal Application Supplement 3" dated July 11, 2023, ML23193B026

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy hereafter "NSPM", is submitting a supplement and responses to requests for confirmation of information to the Subsequent License Renewal Application, listed in Reference 1.

Clarifying information regarding Tables 4.2.3-1 and 4.2.3-2 and an updated reference was provided in Supplement 1, listed in Reference 2. Clarifications to sections of the SLRA discussed in the breakout audits occurring April through June of 2023 were provided in Supplement 2, listed in Reference 3. Additional clarifications discussed in the breakout audits occurring April through June of 2023 are being provided in the Enclosures of Attachment 1 of this Supplement.

In the Enclosures of Attachment 1, changes are described along with the affected section(s) and page number(s) of the docketed SLRA (Reference 1) where the changes are to apply. For clarity, revisions to the SLRA are provided with deleted text by ~~strikethrough~~ and inserted text by **bold red underline**. Changes incorporated from Supplements 1 and 2, listed in References 2 and 3, respectively are provided by bold, black font and noted in the description of change. Supplement 3, listed in Reference 5, did not make any changes to the SLRA.

In an email from the NRC to Xcel Energy, listed in Reference 4, the NRC transmitted specific requests for confirmation of information (RCI) to support completion of the safety review. The responses confirming the RCIs are provided in the Enclosures of Attachment 2.

Summary of Commitments

This letter makes new commitments and revisions to existing commitments as explained in the enclosures. Commitments 01, 30, 41, 42, and 43 include additions and revisions.

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

Executed on July 18, 2023.

Gregory D. Brown
Plant Manager, Monticello Nuclear Generating Plant
Northern States Power Company - Minnesota

cc: Administrator, Region III, USNRC
Project Manager, Monticello, USNRC
Resident Inspector, Monticello, USNRC
Minnesota Department of Commerce

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Enclosure 01

SLRA Consistency with Electrical Aging Management Criteria

SLRA Consistency with Electrical Aging Management Criteria

Update SLRA to maintain program consistency with SLR-ISG-2021-04-Electrical

Affected SLRA Sections: A.2.2.38, A.2.2.40, Table A-3, B.2.3.38, and B.2.3.40

SLRA Page Numbers: A-32, A-34, A-96, A-97, B-261, B-263, B-272

Description of Change:

SLRA is updated to include the word “potentially,” in order to maintain consistency with the SLR-ISG-2021-04-Electrical (ML20181A395).

SLRA Section A.2.2.38 on page A-32 is revised to insert the following in the first paragraph:

A.2.2.38 Electrical Insulation for Inaccessible Medium-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements

The MNGP Electrical Insulation for Inaccessible Medium-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements AMP is an existing AMP. The purpose of this AMP is to provide reasonable assurance that the intended functions of inaccessible medium-voltage power cables (operating voltages of 2 kV to 35 kV) that are not subject to the EQ requirements of 10 CFR 50.49 are maintained consistent with the CLB through the SPEO. This AMP applies to inaccessible or underground (e.g., installed in buried conduit, embedded raceway, cable trenches, cable troughs, duct banks, vaults, manholes, or direct-buried installations) non-EQ medium-voltage power cables within the scope of SLR **that are potentially** exposed to wetting or submergence (i.e., significant moisture). Significant moisture is defined as exposure to moisture that lasts more than three days (i.e., long-term wetting or submergence over a continuous period), which if left unmanaged, could potentially lead to a loss of intended function. Cable wetting or submergence that occurs for a limited time as drainage from either automatic or passive drains is not considered significant moisture for this AMP.

SLRA Section A.2.2.40 on page A-34 is revised to insert the following in the first paragraph:

A.2.2.40 Electrical Insulation for Inaccessible Low-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements

The MNGP Electrical Insulation for Inaccessible Low-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements AMP is a new AMP. The purpose of this AMP is to provide reasonable assurance that the intended functions of inaccessible and underground low-voltage AC and DC power cables (i.e., typical operating voltage of less than 1,000 V, but no greater than 2 kV) that are not subject to EQ requirements of 10 CFR 50.49 are maintained consistent with the CLB through the SPEO. This AMP applies to inaccessible and underground (e.g., installed in buried conduit, embedded raceway, cable trenches, cable troughs, duct banks, vaults, manholes, or direct buried installations) low-voltage power cables, including those designed for continuous wetting or submergence, within the scope of SLR **that are potentially** exposed to significant moisture. In-scope inaccessible and underground low-voltage power cable splices subjected to wetting or submergence are also included within the scope of this program. Significant moisture is defined as exposure to moisture that lasts more than three days (i.e., long term wetting or submergence over a continuous period) that if left unmanaged, could potentially lead to a loss of intended function. Cable wetting or submergence that results from event-driven occurrences and is mitigated by either automatic or passive drains is not considered significant moisture for the purposes of this AMP.

Commitments 41, 42, and 43 in SLRA Table A-3 on pages A-96 and A-97 are revised as follows:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
41	Electrical Insulation for Inaccessible Medium-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements (A.2.2.38)	XI.E3A	The Electrical Insulation for Inaccessible Medium-Voltage Power Cables Not Subject to 10 CFR 50.49 EQ Requirements AMP is an existing program that will be enhanced to: a) Include non-EQ, in-scope, inaccessible medium-voltage power cables that are energized less than 25% of the time and **potentially** exposed to significant moisture to the scope of this program. b) Inspect in-scope manholes at least once annually and after event-driven occurrences, unless level monitoring system is installed, then manhole inspections will be performed at least once every 5 years and only after event-driven occurrences when indicated by level monitoring system. c) Ensure manhole inspection include direct indication that the cables are not wetted or submerged, and that cable/splices and cable support structures are intact. d) Test medium-voltage power cables within the scope of this program at least once every 6 years.	No later than 6 months prior to the SPEO, or no later than the last refueling outage prior to the SPEO
42	Electrical Insulation for Inaccessible Instrument and Control Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements (A.2.2.39)	XI.E3B	The Electrical Insulation for Inaccessible Instrument and Control Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements AMP will be implemented as a new program. The program will manage the effects of reduced insulation resistance of non-EQ, in-scope, inaccessible instrument and control cables, **that are potentially** exposed to significant moisture.	No later than 6 months prior to the SPEO, or no later than the last refueling outage prior to the SPEO

43	Electrical Insulation for Inaccessible Low-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements (A.2.2.40)	XI.E3C	The Electrical Insulation for Inaccessible Low-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements AMP will be implemented as a new program. The program will manage the effects of reduced insulation resistance of non-EQ, in-scope, inaccessible low-voltage cables, **that are potentially** exposed to significant moisture.	No later than 6 months prior to the SPEO, or no later than the last refueling outage prior to the SPEO

The second paragraph of SLRA Section B.2.3.38 on page B-261 is updated as follows:

> This AMP applies to inaccessible or underground (e.g., installed in buried conduit, embedded raceway, cable trenches, cable troughs, duct banks, vaults, manholes, or direct buried installations) non-EQ cables within the scope of SLR **that are potentially** exposed to wetting or submergence (i.e., significant moisture). Significant moisture is defined as exposure to moisture that lasts more than three days (i.e., long-term wetting or submergence over a continuous period) that if left unmanaged, could potentially lead to a loss of intended function. Cable wetting or submergence that occurs for a limited time, as in the case of automatic or passive drainage, is not considered significant moisture for this AMP.

The enhancement to the Scope of Program element of SLRA Section B.2.3.38 on page B-263 is updated as follows:

Element Affected	Enhancement
1. Scope of Program	Revise implementing documents to ensure **non-EQ, in-scope,** medium-voltage power cables **that are** energized less than 25% of the time **and potentially exposed to significant moisture** are included within the scope of this program.

The second paragraph of SLRA Section B.2.3.40 on Page B-272 is updated as follows:

> The MNGP Electrical Insulation for Inaccessible Low-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements AMP applies to inaccessible and underground (e.g., installed in buried conduit, embedded raceway, cable trenches, cable troughs, duct banks, vaults, manholes, or direct buried installations) non-EQ low-voltage power cables, including those designed for continuous wetting or submergence, within the scope of SLR **that are potentially** exposed to significant moisture. Significant moisture is defined as exposure to moisture that lasts more than three days (i.e., long term wetting or submergence over a continuous period) that if left unmanaged, could potentially lead to a loss of intended function. Cable wetting or submergence that results from event driven occurrences and is mitigated by either automatic or passive drains is not considered significant moisture for the purposes of the MNGP Electrical Insulation for Inaccessible Low-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements AMP.

Enclosure 02

Concrete Aging Management Review Voluntary Supplement

Concrete Aging Management Review Voluntary Supplement

Clarification of inconsistencies in aging management tables

Affected SLRA Sections: Table 3.5-1, Table 3.5.2-3, Table 3.5.2-4, Table 3.5.2-5, Table 3.5.2-7, Table 3.5.2-8, Table 3.5.2-9, Table 3.5.2-10, Table 3.5.2-11, Table 3.5.2-12, Table 3.5.2-13, Table 3.5.2-14, Table 3.5.2-15, Table 3.5.2-16, Table 3.5.2-17, and Table 3.5.2-18.

SLRA Page Numbers: 3.5-66, 3.5-86, 3.5-88, 3.5-89, 3.5-90, 3.5-92, 3.5-94, 3.5-100, 3.5-104, 3.5-105, 3.5-107 3.5-109, 3.5-110, 3.5-111, 3.5-112, 3.5-114, 3.5-115, 3.5-117, 3.5-120, 3.5-121, 3.5-123, 3.5-124, 3.5-128, 3.5-129, 3.5-133, 3.5-134, 3.5-135, 3.5-140, 3.5-141, 3.5-144, 3.5-145, 3.5-148, 3.5-149 and 3.5-150

Description of Change:

The Tables for Summary of Aging Management Evaluations are revised to ensure the line items for the concrete consistently apply the aging effects from NUREG-2192 line items for both accessible and inaccessible areas.

Black bold font information in Table 3.5-1 represents changes made in enclosure 35g of Supplement 2 to the SLRA (Reference 1). Black bold font information in Table 3.5.2-10 represents changes made in enclosure 31f of Supplement 2 to the SLRA (Reference 1).

References:

1. L-MT-23-025, Monticello Nuclear Generating Plant, Docket No. 50-263, Renewed Facility Operating License No. DPR-22, Subsequent License Renewal Application Supplement 2, ML23177A218

Table 3.5-1 Item 3.5.1-067 on page 3.5-66 is revised as follows:

Table 3.5-1: Summary of Aging Management Evaluations for Plant Structures and Component Supports					
Item Number	**Component**	**Aging Effect Requiring Management**	**Aging Management Program**	**Further Evaluation Recommended**	**Discussion**
3.5.1-067	Groups 1-5, 7, 9: Concrete: interior; above-grade exterior, Groups 1-3, 5, 7-9 - concrete: below-grade exterior; foundation, Group 6: concrete: all	Increase in porosity and permeability, Cracking, Loss of material (spalling, scaling) due to aggressive chemical attack	AMP XI.S6 "Structures Monitoring"	No	Group 7 and Group 8 structures are not applicable to Monticello. **Concrete associated with missile barriers are evaluated with the associated structure and the Condensate Storage Tank foundations are evaluated with Group 3 Structures.** Consistent with NUREG-2191. The Structures Monitoring (B.2.3.33) AMP is credited with managing potential increase in porosity and permeability, cracking, and loss of material due to aggressive chemical attack for ~~inaccessible plant structure~~ concrete in uncontrolled indoor air, outdoor air, and groundwater/soil environments~~.~~

Table 3.5.2-3 on pages 3.5-86 and 3.5-88 is revised to add the following additional lines:

Table 3.5.2-3: Diesel Fuel Oil Transfer House – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Basemat, Foundation (Inaccessible)	Structural Support	Concrete (Reinforced)	Groundwater/Soil	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-212	3.5.1-065	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A

Table 3.5.2-4 on pages 3.5-89 and 3.5-90 is revised as follows to remove the use of NUREG-2192 Item 3.5.1-063 for inaccessible concrete and add Items 3.5.1-065 and 3.5.1-067:

Table 3.5.2 4: Emergency Diesel Generator Building – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
~~Concrete: Basemat, Foundation (Inaccessible)~~	~~Structural Support~~	~~Concrete (Reinforced)~~	~~Water - Flowing~~	~~Increase in Porosity and Permeability Loss of Strength~~	~~Structures Monitoring (B.2.3.33)~~	~~III.A3.TP-24~~	~~3.5.1-063~~	~~A, 1~~
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Basemat, Foundation (Inaccessible)	Structural Support	Concrete (Reinforced)	Groundwater/Soil	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-212	3.5.1-065	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A

Table 3.5.2-5 on pages 3.5-92 and 3.5-94 is revised to add the following additional lines:

Table 3.5.2-5: Emergency Filtration Train Building – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A

Table 3.5.2-7 on page 3.5-100 is revised to add Loss of Material to the following line:

Table 3.5.2-7: Hangers and Supports Commodity Group – Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Concrete: Diesel Fuel Oil Storage Tank Deadmen	Structural Support	Concrete (Reinforced)	Groundwater/ Soil	Cracking Increase in Porosity and Permeability **Loss of Material**	Structures Monitoring (B.2.3.33)	III.A3.TP-29	3.5.1-067	A

Table 3.5.2-8 on pages 3.5-104, 3.5-105, and 3.5-107 is revised to add the following additional lines:

Table 3.5.2-8: High Pressure Coolant Injection Building – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier Missile Barrier Pressure Boundary Radiation Shielding Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier Missile Barrier Pressure Boundary Radiation Shielding Shelter, Protection Structural Support	Concrete (Reinforced)	Water-Flowing	Increase in Porosity and Permeability Loss of Strength	Structures Monitoring (B.2.3.33)	III.A3.TP-67	3.5.1-047	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier Missile Barrier Pressure Boundary Radiation Shielding Shelter, Protection Structural Support	Concrete (Reinforced)	Groundwater/Soil	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-212	3.5.1-065	A

Table 3.5.2-9 on pages 3.5-109, 3.5-110, 3.5-111, and 3.5-112 is revised to add the following additional lines:

Table 3.5.2-9: Intake Structure – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Flood Barrier Structural Support	Concrete (Reinforced)	Water - Flowing	Cracking Loss of Bond Loss of Material	Inspection of Water-Control Structures Associated with Nuclear Power Plants (B.2.3.34)	III.A6.TP-38	3.5.1-059	A
Concrete: Basemat, Foundation (Accessible)	Flood Barrier Structural Support	Concrete (Reinforced)	Water - Flowing	Increase in Porosity and Permeability Loss of Strength	Inspection of Water-Control Structures Associated with Nuclear Power Plants (B.2.3.34)	III.A6.TP-37	3.5.1-061	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air – Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air – Indoor Uncontrolled Air – Outdoor	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A6.TP-104	3.5.1-065	A

Concrete: Intake Structure and Access Tunnel Roof Slabs (Accessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Intake Structure and Access Tunnel Roof Slabs (Accessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A3,TP-26	3.5.1-066	A
Concrete: Intake Structure and Access Tunnel Roof Slabs (Inaccessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Intake Structure and Access Tunnel Roof Slabs (Inaccessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Groundwater/ Soil	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A6.TP-107	3.5.1-067	A

Concrete: Intake Structure and Access Tunnel Roof Slabs (Inaccessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air – Outdoor Groundwater/ Soil	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A6.TP-104	3.5.1-065	A

Table 3.5.2-10 on pages 3.5-114 and 3.5-115 is revised to add the following additional line and add Cracking in two locations as follows:

Table 3.5.2-10: Miscellaneous Station Blackout Yard Structures – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: 115/345 kV Substation Control House, Foundations, Trenches, Duct Bank (Accessible)	**Structural Support**	**Concrete (Reinforced)**	**Air – Outdoor**	**Cracking Increase in Porosity and Permeability Loss of Material**	**Structures Monitoring (B.2.3.33)**	**III.A3.TP-28**	**3.5.1-067**	**A**
Concrete: **115/345 kV Substation Control House**, Foundations, Trenches, Duct Bank (Inaccessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	**Cracking** Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: **115/345 kV Substation Control House**, Foundations, Trenches, Duct Bank (Inaccessible)	Structural Support	Concrete (Reinforced)	Groundwater/ Soil	**Cracking** Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-29	3.5.1-067	A

Table 3.5.2-11 on page 3.5-117 is revised to add the following additional lines:

Table 3.5.2-11: Off-Gas Stack – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Pedestal, Walls Slabs (Accessible)	Flood Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A9.TP-28	3.5.1-067	A
Concrete: Pedestal, Walls Slabs (Accessible)	Flood Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A9.TP-27	3.5.1-065	A

Table 3.5.2-12 on pages 3.5-120 and 3.5-121 is revised to add the following additional lines:

Table 3.5.2-12: Off-Gas Storage and Compressor Building – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A

Table 3.5.2-13 on pages 3.5-123 and 3.5-124 is revised to remove lines for accessible concrete in a groundwater/soil environment and add the following additional lines:

Table 3.5.2-13: Plant Control and Cable Spreading Structure – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
~~Concrete: Basemat, Foundation (Accessible)~~	~~Structural support~~	~~Concrete (reinforced)~~	~~Groundwater/soil~~	~~Cracking~~ ~~Loss of bond~~ ~~Loss of material~~	~~Structures Monitoring (B.2.3.33)~~	~~III.A3.TP-27~~	~~3.5.1-065~~	~~A~~
~~Concrete: Basemat, Foundation (Accessible)~~	~~Structural support~~	~~Concrete (reinforced)~~	~~Groundwater/soil~~	~~Cracking~~	~~Structures Monitoring (B.2.3.33)~~	~~III.A3.TP-204~~	~~3.5.1-054~~	~~A~~
Concrete: Basemat, Foundation (Accessible)	**Structural Support**	**Concrete (Reinforced)**	**Air – Outdoor**	**Cracking Increase in Porosity and Permeability Loss of Material**	**Structures Monitoring (B.2.3.33)**	**III.A3.TP-28**	**3.5.1-067**	**A**
Concrete: Exterior Walls and Roof (Accessible)	**Flood Barrier Missile Barrier Pressure Boundary Shelter, Protection Structural Support**	**Concrete (Reinforced)**	**Air-Indoor Uncontrolled Air – Outdoor**	**Cracking Increase in Porosity and Permeability Loss of Material**	**Structures Monitoring (B.2.3.33)**	**III.A3.TP-28**	**3.5.1-067**	**A**

Table 3.5.2-14 on pages 3.5-128 and 3.5-129 is revised to add the following additional lines:

Table 3.5.2-14: Radioactive Waste Building – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A

Table 3.5.2-15 on pages 3.5-133, 3.5-134, and 3.5-135 is revised to add the following additional lines:

Table 3.5.2-15: Reactor Building – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A2.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier HELB Barrier Missile Barrier Pressure Boundary Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A2.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier HELB Barrier Missile Barrier Pressure Boundary Shelter, Protection Structural Support	Concrete (Reinforced)	Groundwater/Soil	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A2.TP-212	3.5.1-065	A

Table 3.5.2-16 on pages 3.5-140 and 3.5-141 is revised to add the following additional lines:

Table 3.5.2-16: Structures Affecting Safety – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A

Table 3.5.2-17 on pages 3.5-144 and 3.5-145 is revised to add the following additional lines:

Table 3.5.2-17: Turbine Building – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier HELB Barrier Missile Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air-Indoor Uncontrolled Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A

Table 3.5.2-18 on pages 3.5-148, 3.5-149, and 3.5-150 is revised to add the following additional lines:

Table 3.5.2-18: Underground Duct Bank – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Concrete: Basemat, Foundation (Accessible)	Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Accessible)	Flood Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Air – Outdoor	Cracking Increase in Porosity and Permeability Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-28	3.5.1-067	A
Concrete: Exterior Walls and Roof (Inaccessible)	Flood Barrier Shelter, Protection Structural Support	Concrete (Reinforced)	Groundwater/Soil	Cracking Loss of Bond Loss of Material	Structures Monitoring (B.2.3.33)	III.A3.TP-212	3.5.1-065	A

Enclosure 03

Clarification of Transients Not Counted in the Fatigue Monitoring AMP

Clarification of Transients Not Counted in the Fatigue Monitoring AMP

Provide clarification about transients that are not counted in the Fatigue Monitoring AMP

Affected SLRA Sections: 4.3.1, A.2.1.1, Table A-3, B.2.2.1

SLRA Page Numbers: 4.3-2, A-10, A-11, A-54, B-24

Description of Change:

There are six (6) transients listed in SLRA Section 4.3.1 that do not have Fatigue Monitoring (B.2.2.1) AMP data:

- Reactor Overpressure @ 1375 psig
- Hydrostatic Test to 1560 psig
- Rapid Blowdown
- Liquid Poison Flow @ 80˚F
- Operating Basis Earthquake (OBE) events
- Safety Relief Valve Actuations

Clarification is provided to address why these transients are missing from the Fatigue Monitoring (B.2.2.1) AMP.

OBE events are clarified to have a large enough margin that this event does not require monitoring by the Fatigue Monitoring (B.2.2.1) AMP.

Safety Relief Valve (SRV) actuations are monitored and tracked annually by plant surveillance. This transient will be added back into the Fatigue Monitoring (B.2.2.1) AMP via enhancement to the program.

SLRA Section 4.3.1 on page 4.3-2 is revised to add the following clarifications:

Fatigue Monitoring (B.2.2.1) program data does not list the following transients from the USAR list **because either the transient has not occurred to date or because of other reasons explicitly listed below. The analyzed limits in the MNGP fatigue analysis associated with each transient are included in the following list**:

• Reactor Overpressure @ 1375 psig	1 cycle
• Hydrostatic Test to 1560 psig	3 cycles
• Rapid Blowdown	1 cycle
• Liquid Poison Flow @ 80˚F	10 cycles
• Operating Basis Earthquake (OBE) events	50 cycles
• Safety/ Relief Valve Actuations	934 cycles

With the exception of the Hydrostatic Test to 1560 psig, which is performed prior to plant operation (2 events were listed in the LRA), and Safety/ Relieve Valve Actuations (506 events were listed in the LRA), none of these events **have** has occurred to date. Other than OBE and S/RV actuations, the above listed transients are typically classified as Emergency events and are not expected to occur during the remaining operating life of MNGP; so zero events are projected for 80 years of operation. For the OBE event, 1 cycle is projected to ensure that, in the unlikely event it occurs it will have been accounted for.

The OBE event, which has had zero occurrences in over 52 years of MNGP operations, is conservatively projected to have 1 cycle out of the analysis limit of 50 for the remaining licensed operation and throughout the SPEO. With this conservative projection of 1 OBE, there would remain a margin of 98% for the fatigue analysis limit. Therefore, OBE counting is excluded from the Fatigue Monitoring (B.2.2.1) AMP.

SLRA Section A.2.1.1 on pages A-10 and A-11 is revised to add the following clarification:

A.2.1.1 Fatigue Monitoring

The MNGP Fatigue Monitoring AMP is an existing preventive program that manages fatigue damage of the reactor pressure vessel components, reactor coolant pressure boundary (RCPB) piping components, and other components. This AMP provides an acceptable basis for managing fatigue of components that are subject to fatigue or other types of cyclical loading TLAAs (Sections A.3.3 **and A.3.5**) to provide reasonable assurance that they remain valid in accordance with 10 CFR 54.21 (c)(1)(iii). The program monitors and tracks the number of occurrences of design basis transients assessed in the applicable fatigue or cyclical loading analyses, including those in applicable American Society of Mechanical Engineers (ASME) Section III, Class 1 cumulative usage factor (CUF) analyses, fatigue waivers, environmental-assisted fatigue analyses (CUF_{en} analyses), and maximum allowable stress range reduction/expansion stress analyses for ANSI B31.1 components. No cycle-based flaw growth, flaw tolerance, or fracture mechanics analyses that are based on cycle-based loading assumptions have been dispositioned in accordance with 10 CFR 54.21(c)(1)(iii), therefore this program does not apply to flaw growth, flaw tolerance, or fracture mechanics analyses.

SLRA Table A-3 on page A-54 is revised to add the following clarification:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
1	Fatigue Monitoring (A.2.1.1)	X.M1	The Fatigue Monitoring AMP is an existing program that will be enhanced to: a) Update plant procedures to require periodic validation of chemistry parameters that are used as inputs to determine F_{en} factors; b) Update plant procedures to identify and require monitoring of the 80-year plant design cycles, or projected cycles that are utilized as inputs to component CUF_{en} calculations, as applicable**, including SRV actuations**; c) Update plant procedures to identify the corrective action options to take if the values assumed for fatigue parameters are approached, transient severities exceed the design or assumed severities, transient counts exceed the design or assumed quantities, transient definitions have changed, unanticipated new fatigue loading events are discovered, or the geometries of components are modified; d) Update plant procedures to require trending be performed to ensure that the fatigue parameter limits will not be exceeded during the SPEO; e) Update plant procedures to specify that acceptable corrective actions include repair of the component, replacement of the component, and a more rigorous analysis of the component to demonstrate that the design limit will not be exceeded during the SPEO. For CUF_{en} analyses, scope expansion includes consideration of other locations with the highest expected CUF_{en} values.	No later than 6 months prior to the SPEO, or no later than the last refueling outage prior to the SPEO

SLRA Section B.2.2.1 on page B-24 is revised to add the following clarification:

Enhancements

The MNGP Fatigue Monitoring AMP will be enhanced as follows, for alignment with NUREG-2191. The enhancements are to be implemented no later than 6 months prior to entering the SPEO.

Element Affected	Enhancement
3. Parameters Monitored or Inspected	Update Fatigue Monitoring AMP governing plant procedures to provide procedural direction to require periodic validation of chemistry parameters that are used as inputs to determine F_{en} factors.
3. Parameters Monitored or Inspected	Update the Fatigue Monitoring AMP governing plant procedure to identify and require monitoring of the 80-year plant design cycles, or projected cycles that are utilized as inputs to component CUF_{en} calculations, as applicable, **including SRV actuations**.

Enclosure 04

Reactor Vessel Internals – Appendix C Enhancements

Reactor Vessel Internals – Appendix C Enhancements

Addressing the seven limitations on use provided by BWRVIP-315 in SLRA Appendix C.

Affected SLRA Sections: B.2.3.7, Appendix C, Table C-1, C-2, and C-3

SLRA Page Numbers: B-61, C-2, C-3, C-4, C-5, C-6, and C-22

Description of Change:

SLRA Appendix C, Table C-3 is revised to add the licensee action items associated with the BWRVIP-315 proposed revision to BWRVIP-183-A as well as to add the seven (7) limitations on the applicability of BWRVIP-315 (Section 4.5.1). Formatting corrections are also made to document numbers and revision levels in Appendix C, Table C-1 and C-2. SLRA Section B.2.3.7 is revised to cite revision 4 for BWRVIP-41.

SLRA Section B.2.3.7 on page B-61 is revised as follows:

Jet Pump Assembly: Inspections and evaluations are performed in accordance with BWRVIP-41, Revision ~~3~~**4**, and BWRVIP-138-R1-A. The repair design criteria in BWRVIP-51-A would be used in preparing a repair plan for jet pump components.

SLRA Appendix C on page C-2 is revised as follows:

Of the BWRVIP reports credited within MNGPs SLR AMPs, the following include NRC SERs **or draft SERs** that include action items applicable to license renewal applicants:

- BWRVIP-18-R2-A~~;~~**,** BWR Core Spray Internals Inspection and Flaw Evaluation Guidelines
- BWRVIP-25-R1-A~~;~~**,** BWR Core Plate Inspection and Flaw Evaluation Guidelines
- BWRVIP-26-A~~;~~**,** BWR Top Guide Inspection and Flaw Evaluation Guidelines
- BWRVIP-27-A~~;~~**,** BWR Vessel and Internals Project, BWR Standby Liquid Control System/Core Plate Delta-P Inspection and Flaw Evaluation Guidelines
- Inspection and Flaw Evaluation Guidelines (Credited in BWR Penetrations AMP)
- BWRVIP-38~~;~~**,** BWR Shroud Support Inspection and Flaw Evaluation Guidelines
- BWRVIP-41**-R4-A,**~~;~~ BWR Jet Pump Assembly Inspection and Flaw Evaluation Guidelines ~~(Revision 4)~~
- BWRVIP-47-A, BWR Lower Plenum Inspection and Flaw Evaluation Guidelines (Credited in BWR Penetrations AMP)
- BWRVIP-48-A, BWR Vessel ID Attachment Weld Inspection and Flaw Evaluation Guidelines (Credited in BWR Vessel ID Attachment Weld AMP)
- BWRVIP-49-A, BWR Instrument Penetration Inspection and Flaw Evaluation Guidelines (Credited in BWR Penetrations AMP)
- BWRVIP-74-A, BWR Reactor Pressure Vessel Inspection and Flaw Evaluation Guideline for License Renewal
- BWRVIP-76**-R1**-A, BWR Core Shroud Inspection and Flaw Evaluation Guidelines ~~(Revision 1)~~
- BWRVIP-139-R1-A, Steam Dryer Inspection and Flaw Evaluation Guidelines
- BWRVIP-183-A, BWR Vessel and Internals Project, Top Guide Grid Beam Inspection and Flaw Evaluation Guidelines
- **BWRVIP-315, BWR Vessel and Internals Project, Reactor Internals Aging Management Evaluation for Extended Operations**

License renewal applicant action items identified in the corresponding SERs for each of the above BWRVIP reports are addressed in the following tables. BWRVIP reports without SERs for license renewal do not have action items and are therefore not included in the tables.

It is recognized that the first three action items ~~from each~~ **<u>for most</u>** of the license renewal SERs applicable to the above BWRVIP reports are fundamentally identical~~, with the exception of BWRVIP-139-R1-A~~. For that reason, they are combined in the table and addressed together. These are addressed in Table C-1, with BWRVIP-specific action items addressed in Table C-2. **<u>Additionally, BWRVIP-315 includes seven limitations on applicability of guidance which, for the purposes of the SLRA, are considered to be licensee action items.</u>**

The header of SLRA Appendix C Table C-1 on pages C-3 and C-4 is revised as follows:

Table C-1	
Common Action Items from BWRVIP-18-R2-A, -25-R1-A, -26-A, -27-A, -38, -41 R3-41-R4-A, -47-A, -48-A, -49-A, -74-A, -76-R1-A	
Action Item Description	MNGP Response

The header of SLRA Appendix C Table C-2 on page C-5 is revised as follows:

Table C-2	
BWRVIP-18-Revision 2-A, Core Spray Internals Inspection and Flaw Evaluation Guidelines	
Action Item Description	MNGP Response

The header of SLRA Appendix C Table C-2 on page C-6 is revised as follows:

Table C-2	
BWRVIP-25-Revision 1-A, Core Plate Inspection and Flaw Evaluation Guidelines	
Action Item Description	MNGP Response

SLRA Appendix C, Table C-3 on page C-22 is revised as follows:

Table C-3	
BWRVIP-315, Reactor Internals Aging Management Evaluation for Extended Operations	
Action Item Description	**MNGP Response**
BWRVIP-183-A (BWRVIP-315) To implement the guidance in BWRVIP-315, BWRVIP-183-A requires enhancement and revision as shown in BWRVIP-315 in order to address operation beyond 60 years. These changes include reporting requirements for flaw evaluations which do not conform to BWRVIP acceptance criteria.	The guidance provided regarding flaw evaluations and reporting requirements is incorporated into the BWR Vessel Internals AMP (B.2.3.7) through Table A-3 Commitment 10a.
BWRVIP-315 (Limitation 1) Core plate holddown bolting is subject to a plant-specific evaluation or to augmented inspections if the criteria for use of the generic evaluation documented in BWRVIP-25-R1-A cannot be met. BWRVIP-25-R1-A provides guidance for performing such a plant-specific evaluation. The relevant limitation applicable to extended operation is core plate holddown bolt fluence.	SLRA Appendix C Table C-2 addresses the BWRVIP-25-R1-A licensee action item. The TLAA in SLRA Section 4.2.9 describes the loss of preload for core plate rim holddown bolts. This evaluation concluded that the criteria of Appendix I of BWRVIP-25-R1-A are satisfied at MNGP.
BWRVIP-315 (Limitation 2) BWRVIP-47-A provides for a set of baseline examinations of CRGTs. Section 3.2.2 of BWRVIP-47-A states: Currently no additional inspections are recommended beyond the baseline inspections described in Section 3.2.2, and scope expansion and follow-on inspections deemed necessary in the event flaws are found as given in Section 3.2.3. Baseline inspection results will be reviewed by the BWRVIP and, if deemed necessary, reinspection recommendations will be developed at a later date and provided to the NRC. Since the BWRVIP has not yet completed	In 2009 MNGP completed the baseline examinations of the CRGT-1, CRGT-2, CRGT-3, and FS/GT-ARPIN-1 locations as described in Section 3.2.2 of BWRVIP-47-A with no recordable indications observed. MNGP is committed to implementing any reinspection recommendations provided by BWRVIP. While the potential for reinspection recommendations continues to be evaluated, MNGP currently shuffles the control rod blades each refueling outage which will provide indications of any gross failures. Control rod blade replacement has not been required in recent years but are expected to begin to

an evaluation to assess reinspection needs in a manner that considers extended operations, until such time as a new version of BWRVIP-47-A is developed, owners submitting an application for operation beyond 60 years (e.g., an SLRA in the U.S.) should either commit to implementing a future version of BWRVIP-47-A that addresses extended operations or propose a set of plant-specific activities to manage age-related degradation of CRGTs.	be required one year prior to the SPEO. Consistent with BWRVIP-47-A Section 3.2.5, during maintenance activities outside of normal outage activities a visual examination is performed to the extent practical with results reported to BWRVIP and subsequently forwarded to the NRC.
BWRVIP-315 (Limitation 3) Jet pump and LPCI coupling CASS components subjected to fluence exceeding $6x10^{20}$ n/cm^2 (E > 1.0 MeV) must be evaluated on a plant-specific basis or be included in a plant-specific aging management program. This limitation is based on the fluence criterion contained in BWRVIP-234-A.	The MNGP vessel internals do not include LPCI couplings and as such this component is not applicable for evaluation. Vessel internals components subject to screening for end of life fluence are evaluated in Section 3.1.2.2.13 and Section 4.2.1.2. The maximum fluence projected for the MNGP jet pump components exceeds the screening threshold and as such will be inspected periodically for cracking and loss of fracture toughness (embrittlement) during the SPEO in accordance with the BWR Vessel Internals AMP (B.2.3.7). For periodic jet pump assembly inspections, the MNGP BWR Vessel Internals AMP (B.2.3.7) utilizes the recommendations provided in BWRVIP-41-R4-A "BWR Jet Pump Assembly Inspection and Flaw Evaluation Guidelines". This is consistent with the BWRVIP-315 Action Item associated with BWRVIP-41-R4-A in this table.
BWRVIP-315 (Limitation 4) A scope expansion exemption is provided within BWRVIP-41-R4-A for large diameter jet pump diffuser, adapter, and lower ring welds (DF-1, DF-2, DF-3, AD-1, AD-2, and AD-3a,b) inspected by UT. As currently included in BWRVIP-41-R4-A, the exemption is based on an assumption of a 60-year service life. As	Consistent with the expected revision to BWRVIP-41-R4-A documented in BWRVIP-315 Section B.1.2, MNGP does not intend to implement the inspection exemptions for IGSCC in jet pump components for an interval longer than 24 continuous years. This is consistent with the BWRVIP-315

discussed in Section 4.3.8, this exemption will be revised to be interval-based (24-year intervals allowed) rather than based on a 60-year service life. Until such time as BWRVIP-41-R4-A is revised, use of the scope expansion exemption allowance should be limited to plants not intending to operate beyond 60 years.	Action Item associated with BWRVIP-41-R4-A in this table.
BWRVIP-315 (Limitation 5) Jet pump holddown beams subject to neutron fluence exceeding $5x10^{20}$ n/cm^2 (E > 1.0 MeV) in the BB-2 region require plant-specific evaluation to address IASCC concerns. This limitation is applicable to BWRVIP-41-R4-A.	Vessel internals components are subject to screening for end of life fluence values are evaluated in Section 3.1.2.2.12 and Section 4.2.10. The maximum fluence projected for the MNGP jet pump components exceeds the screening threshold and as such will be inspected periodically for cracking during the SPEO in accordance with the BWR Vessel Internals AMP (B.2.3.7). For periodic jet pump assembly inspections, the MNGP BWR Vessel Internals AMP (B.2.3.7) utilizes the recommendations provided in BWRVIP-41-R4-A "BWR Jet Pump Assembly Inspection and Flaw Evaluation Guidelines". This is consistent with the BWRVIP-315 Action Item associated with BWRVIP-41-R4-A in this table.
BWRVIP-315 (Limitation 6) Jet pump holddown beams having peak neutron fluence exceeding $7.0x10^{20}$ n/cm^2 (E > 1.0 MeV) for Group 2 beams or $5.8x10^{20}$ n/cm^2 (E > 1.0 MeV) for Group 3 beams require plant-specific disposition. This limitation ensures that sufficient preload to prevent jet pump disassembly and potential damage is maintained. Plant-specific disposition may include refined analysis to demonstrate adequate preload remains for operation at higher neutron fluences. Alternatively, plants may replace or re-tension beams with neutron fluence exceeding the threshold value.	Monticello has Group 2 beams subject to a screening threshold of $7.0x10^{20}$ n/cm^2 for irradiation-enhanced stress relaxation. The projected 72 EFPY fluence for the holddown beam is below the screening threshold. Additionally, all MNGP holddown beams were replaced in 1982 and as such, will not be exposed to the 72 EFPY of fluence assumed in the fast neutron fluence projections. Therefore, a plant-specific disposition is not necessary as there is no expected loss of intended function.

BWRVIP-315 (Limitation 7) **Core shroud tie rod repairs require plant-specific evaluation. Inspections should, as a minimum, meet the requirements listed in BWRVIP-76-R1-A. However, additional evaluations must be performed to address aging management associated with operation beyond the original repair hardware service life specified by the designer.**	**This limitation is not applicable to MNGP. MNGP does not have core shroud repair hardware installed.**

Enclosure 05

Components Susceptible to Irradiation-Assisted Stress Corrosion Cracking (IASCC)

Components Susceptible to Irradiation-Assisted Stress Corrosion Cracking (IASCC)

Components susceptible to IASCC

Affected SLRA Sections: 4.2.10, Table 4.2.10-1, Appendix A, Section A.3.2.10

SLRA Page Numbers: 4.2-30, 4.2-31, 4.2-32, A-45

Description of Change:

The dry tube and guide tube assemblies' neutron fluence values from SLRA Table 4.2.1.2-1 shows that the in-core instrument dry tubes and guide tubes exceed the 5E+20 fluence threshold for IASCC that is discussed in SLRA section 4.2.10. Section 4.2.10 is revised to add the detail as to why the dry tube and guide tube assemblies do not require a TLAA.

The core support plate neutron fluence values from SLRA Table 4.2.1.2-1 shows that the core support plate fluence exceeds the 5E+20 fluence threshold for IASCC that is discussed in SLRA section 4.2.10. Section 4.2.10 is revised to add the detail as to why the core support plate does not require a TLAA.

SLRA Section 4.2.10, TLAA Evaluation Subsection on page 4.2-30 is revised to insert the following:

TLAA Evaluation

BWRVIP-315, *Reactor Internals Aging Management Evaluation for Extended Operations* evaluated RVI components for various aging mechanisms including IASCC. Table C-1 of BWRVIP-315 identifies the components subjected to further evaluation for Item 3.1.2.2.12 (IASCC) and the corresponding BWRVIP assessment. The following components have plausible IASCC for a BWR during SPEO that would be managed by existing guidance with clarification specific to the aging mechanism of IASCC:

- Control rod guide tube (CRGT) Assembly
- Jet Pump Riser, Riser Brace, Inlet and Mixer
- Core Shroud Beltline Cylinder
- LPCI Coupling
- Top Guide
- **Instrument Dry Tubes***
- **Instrument Guide Tubes***
- **Core Support Plate**

***Table C-1 of BWRVIP-315 concludes that dry tubes (the components listed in this line item which are exposed to significant neutron fluence) do not require augmented inspections under the BWRVIP reactor internals AMP. This conclusion is based on an assessment of the safety impact of cracking and the potential to detect dry tube leakage by means other than direct inspection of the dry tubes.** For MNGP, the BWR-3 design does not include a LPCI coupling so this component does not apply. The projected fluence values for the remaining components are summarized in Table 4.2.10-1.

SLRA Section 4.2.10 on page 4.2-31 is revised to insert the following:

Instrument Dry Tubes and Instrument Guide Tubes

Fluence values for the MNGP instrument dry tubes and instrument guide tubes are projected to exceed the threshold of 5.0 x 10^{20} n/cm^2 before the end of the SPEO (Table 4.2.1.2-1). However, the dry tubes and instrument guide tubes do not require inspections. As indicated in BWRVIP-315, inspections are not required since there are no adverse safety consequences associated with failure. In addition to the conclusion in BWRVIP-315, both BWRVIP-06 Rev 1-A and BWRVIP-47-A also conclude that any failures would be detectable during normal operation by loss of monitor indications and that, regardless of such indications, failures would not impair shutdown capability.

Core Support Plate

Fluence values for the MNGP core support plate are projected to exceed the threshold of 5.0 x 10^{20} n/cm^2 before the end of the SPEO (Table 4.2.1.2-1). Section 4.3.1 of BWRVIP-315 discusses the Core Support Plate. There are no aging effects requiring management that are impacted by extended operation. Safety evaluation conclusions are not time-dependent. Elements supporting the degradation assessment conclusions are not time-dependent and are not considered a TLAA. The aging effect of IASCC on the core shroud, top guide, and jet assembly components will be managed in the SPEO in accordance with the MNGP BWR Vessel Internals AMP (B.2.3.7).

TLAA Disposition: 10 CFR 54.21(c)(1)(iii)

Aging effects of IASCC and embrittlement on the top guide, core shroud, and jet assembly components will be managed by the BWR Vessel Internals (B.2.3.7) AMP through the SPEO in accordance with **10 CFR 54.21(c)(1)(iii)**.

SLRA Section 4.2.10, Table 4.2.10-1 on page 4.2-32 is revised as follows:

Table 4.2.10-1: Projected Fluence for 72 EFPY for the Associated Components

Components	**Maximum Fast Neutron Fluence (n/cm^2) 72 EFPY**
Core Shroud Welds	3.68E+21
Top Guide Cells	1.48E+22
Top Guide Rim and Supports	9.81E+20
CRGT assembly	6.05E+19*
Jet Pump Components	6.40 E+20
Core Support Plate	1.17 E+21
Instrument Dry Tubes**	**1.55E+23**
Instrument Guide Tubes**	**2.46E+21**

*CRGT-1 weld value used for the CRGT assembly. According to Table 4.6 of BWRVIP-315, IASCC is applicable for relevant locations located at the upper end of the CRGT assembly. This includes only the uppermost CRGT welds (CRGT-1, potentially CRGT-2) and the fuel alignment pin weld (FS/GT-ARPIN-1). CRD housings, being below the bottom of the CRGT, experience negligible neutron fluence.

****The in-core instrumentation tube is that segment of the dry tube that resides between the fuel assemblies in the active fuel region. The in-core instrumentation guide tube is that segment of the dry tube that lies below the bottom of active fuel.**

SLRA Appendix A, Section A.3.2.10 on page A-45 is revised as follows:

A.3.2.10 Susceptibility to IASCC

MNGPs LRA presents a fluence threshold value of 5.0×10^{20} n/cm^2 beyond which IASCC and embrittlement may occur in BWR vessel internal components. The LRA concluded that top guide, core shroud, and incore instrumentation dry tubes and guide tubes are susceptible to IASCC for the PEO and concludes that aging management is required through the first PEO. Since this analysis was performed for 60 years, this analysis has been identified as a TLAA that requires evaluation for the SPEO.

Fluence values for the core shroud, top guide, ~~and~~ jet assembly components**, core support plate, dry tubes, and instrument guide tubes** are projected to exceed the threshold of 5.0×10^{20} n/cm^2 before the end of the SPEO. Therefore, the core shroud, top guide, and jet assembly components will be inspected periodically for cracking and loss of fracture toughness (embrittlement) during the SPEO in accordance with the BWR Vessel Internals (Section A.2.2.7) AMP. **The core support plate has no aging effects requiring management that are impacted by extended operations. The dry tubes and instrument guide tubes do not require inspections. As indicated in BWRVIP-315, inspections are not required since there are no adverse safety consequences associated with failure. In addition to the conclusion in BWRVIP-315, both BWRVIP-06 Rev 1-A and BWRVIP-47-A also conclude that any failures would be detectable during normal operation by loss of monitor indications and that, regardless of such indications, failures would not impair shutdown capability.**

The effects of aging on the intended function(s) of the core shroud, top guide, and jet assembly components will be adequately managed through the SPEO by the BWR Vessel Internals (Section A.2.2.7) program, in accordance with 10 CFR 54.21(c)(1)(iii).

Enclosure 06a

Fire Protection System Flow Test Clarification

Fire Protection System Flow Test Clarification

Clarify Annual Performance of Procedure to Perform Flow Testing

Affected SLRA Sections: B.2.3.27

SLRA Page Numbers: B-197

Description of Change:

SLRA Section B.2.3.27 is updated to clarify that the Fire Protection System Flow Test is performed annually.

SLRA Section B.2.3.27 on page B-197 is updated to include the following:

This AMP manages aging through preventive, mitigative, inspection and performance monitoring activities. The MNGP Buried and Underground Piping and Tanks AMP includes (a) preventive actions to mitigate degradation (e.g., external coatings or wrappings, cathodic protection and quality of backfill), (b) condition monitoring (inspections) (e.g., verification of cathodic protection effectiveness, nondestructive evaluation of pipe or tank wall thicknesses, and visual inspections of the external surfaces and coatings/wraps of pipe or tanks, and internal tank inspections capable of detecting loss of material on the external surface), and (c) performance monitoring activities (e.g., pressure testing of piping, performance monitoring of fire mains) to provide early warning of system leakage. The locations of these inspections will be based on plant OE and opportunities for inspection such as scheduled maintenance work. These inspections will occur once prior to the SPEO and at least every 10 years during the SPEO. If an opportunity for inspection on non-leaking piping occurs prior to the scheduled inspection, the opportunistic inspection can be credited for satisfying the scheduled inspection. **The MNGP Fire Protection System Flow Test is performed annually which provides data on the Fire Water System more frequently to detect piping degradation of this buried piping. The annual testing is a credited alternative method used at MNGP and is used in lieu of performing two additional inspections of buried piping during each 10-year interval.**

Enclosure 06b

Add Applicable AMR Items to Buried and Underground Piping and Tanks

Add Applicable AMR Items to Buried and Underground Piping and Tanks

Add Applicable AMR Items to Buried and Underground Piping and Tanks

Affected SLRA Sections: Table 2.3.3-4, 3.3.2.1.4, 3.3.2.2.3, 3.3.2.2.4, Table 3.3-1, Table 3.3.2-4, 3.4.2.1.5, Table 3.4-1, Table 3.4.2-5, B.2.3.27

SLRA Page Numbers: 2.3-32, 3.3-5, 3.3-6, 3.3-23, 3.3-25, 3.3-65, 3.3-84, 3.3-113, 3.4-6, 3.4-27, 3.4-95, B-198

Description of Change:

This supplement addresses piping between the Reactor and Turbine Buildings that is potentially subjected to wetting from groundwater due to its elevation. Specifically, it addresses piping in the CRD system. Additionally, the AMR of piping in the Off-Gas system that is located in a vault was inadvertently omitted from the SLRA and is being added.

For the CRD and Off-Gas systems, the identified piping was addressed by adding the underground environment to the respective AMRs. The Buried and Underground Piping and Tanks AMP was also added to address aging management for this change in the CRD system.

Additionally, the table of materials and required inspections in Section B.2.3.27 was updated.

Note that changes made to B.2.3.27 on page B-198 in Supplement 2, Enclosure 06a to the SLRA (Reference 1) and to Table 3.4-1, Item 3.4.1-50 on page 3.4-27 in Supplement 2, Enclosure 06b to the SLRA (Reference 1) are shown in bold, black font.

References:

1. L-MT-23-025, Monticello Nuclear Generating Plant, Docket No. 50-263, Renewed Facility Operating License No. DPR-22, Subsequent License Renewal Application Supplement 2, ML23177A218

SLRA Table 2.3.3-4 on page 2.3-32 is revised as follows:

Table 2.3.3-4

Control Rod Drive System Components Subject to Aging Management Review

Component Type	Component Intended Function(s)
Accumulator (Scram)	Pressure Boundary
Bolting (Closure)	Mechanical Closure
Heat Exchanger (CRD PMP Thrust BRG CLR) Shell	Pressure Boundary
Heat Exchanger (CRD PMP Thrust BRG CLR) Tubes	Heat Transfer Pressure Boundary
Orifice	Pressure Boundary Throttle
Piping, Piping Components	**Leakage Boundary** Pressure Boundary Structural Integrity (Attached)
Pump Casing (CRD)	Pressure Boundary
Pump Casing (Lubricating Oil)	Pressure Boundary
Speed Increaser Assembly	Pressure Boundary
Tanks (Scram Discharge)	Pressure Boundary
Valve Body	Pressure Boundary

The Environment Subsection of SLRA Section 3.3.2.1.4 on page 3.3-5 is revised as follows:

Environment

The CRD System components are exposed to the following environments:

- Air - Indoor Uncontrolled
- Air - Dry
- Closed-Cycle Cooling Water
- Condensation
- Gas
- Lubricating Oil
- Treated Water
- Treated Water >140°F
- **Underground**

The Aging Management Programs Subsection of SLRA Section 3.3.2.1.4 on page 3.3-6 is revised as follows:

Aging Management Programs

The following AMPs manage the aging effects for the CRD System components:

- Bolting Integrity (B.2.3.10)
- **Buried and Underground Piping and Tanks (B.2.3.27)**
- Closed Treated Water Systems (B.2.3.12)
- Compressed Air Monitoring (B.2.3.14)
- External Surfaces Monitoring of Mechanical Components (B.2.3.23)
- Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components (B.2.3.24)
- Lubricating Oil Analysis (B.2.3.25)
- One-Time Inspection (B.2.3.20)
- Water Chemistry (B.2.3.2)

The further evaluation of SLRA Section 3.3.2.2.3 on page 3.3-23 is revised to add the following paragraph:

Plant-specific OE associated with insulated stainless steel components in the auxiliary systems has been evaluated to determine if prolonged exposure to a condensation environment has resulted in cracking due to SCC. Cracking has not been identified as an aging effect at MNGP for insulated stainless steel components for this environment indicating that moisture intrusion into the insulation and leaching of contaminants present in the insulation onto component surfaces, or onto other components below the insulated component, resulting in SCC has not occurred.

Plant-specific OE associated with underground piping that is occasionally wetted in the CRD system indicates that corrosion of the carbon steel piping is an aging mechanism that requires management. The carbon steel piping was replaced with stainless steel piping to better mitigate future corrosion. Consistent with the recommendation of GALL-SLR, the Buried and Underground Piping and Tanks AMP will confirm that cracking is not occurring in stainless steel components exposed to an underground environment. Deficiencies will be documented in accordance with the site's 10 CFR Part 50, Appendix B, Section XVI, CAP. The Buried and Underground Piping and Tanks AMP is described in Section B.2.3.27.

The further evaluation of SLRA Section 3.3.2.2.4 on page 3.3-25 is revised to add the following paragraph and make the following correction:

> Plant-specific OE associated with insulated stainless steel components in the auxiliary systems has been evaluated to determine if prolonged exposure to a condensation environment has resulted in loss of material due to **pitting and crevice corrosion**~~SCC~~. Loss of material has not been identified as an aging effect at MNGP for insulated stainless steel components for this environment indicating that moisture intrusion into the insulation and leaching of contaminants present in the insulation onto component surfaces, or onto other components below the insulated component, resulting in loss of material has not occurred.
>
> **Plant-specific OE associated with underground piping that is occasionally wetted in the CRD system indicates that corrosion of the carbon steel piping is an aging mechanism that requires management. The carbon steel piping was replaced with stainless steel piping to better mitigate future corrosion. Consistent with the recommendation of GALL-SLR, the Buried and Underground Piping and Tanks AMP will confirm that loss of material is not occurring in stainless steel components exposed to an underground environment. Deficiencies will be documented in accordance with the site's 10 CFR Part 50, Appendix B, Section XVI, CAP. The Buried and Underground Piping and Tanks AMP is described in Section B.2.3.27.**

Table 3.3-1 on page 3.3-65 is being revised as follows:

Table 3.3-1: Summary of Aging Management Evaluation for the Auxiliary Systems					
Item Number	**Component**	**Aging Effect / Mechanism**	**Aging Management Program (AMP)/TLAA**	**Further Evaluation Recommended**	**Discussion**
3.3.1-146	Stainless steel underground piping, piping components, tanks	Cracking due to SCC	AMP XI.M32, "One-Time Inspection," AMP XI.M41, "Buried and Underground Piping and Tanks," or AMP XI.M42, "Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks"	Yes (SRP-SLR Section 3.3.2.2.3)	~~Not applicable.~~ ~~There are no underground stainless steel components in the Auxiliary Systems.~~ **Consistent with NUREG-2191.** **Buried and Underground Piping and Tanks (B.2.3.27) AMP is used to manage cracking of stainless steel piping and piping components exposed to underground in the Auxiliary Systems.** Further evaluation is documented in Section 3.3.2.2.3.

Table 3.3-1 on page 3.3-84 is being revised as follows:

Table 3.3-1: Summary of Aging Management Evaluation for the Auxiliary Systems					
Item Number	**Component**	**Aging Effect / Mechanism**	**Aging Management Program (AMP)/TLAA**	**Further Evaluation Recommended**	**Discussion**
3.3.1-246	Stainless steel, nickel alloy underground piping, piping components, tanks	Loss of material due to pitting, crevice corrosion	AMP XI.M32, "One-Time Inspection," AMP XI.M41, "Buried and Underground Piping and Tanks," or AMP XI.M42, "Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks"	Yes (SRP-SLR Section 3.3.2.2.4)	~~Not applicable.~~ ~~There are no stainless steel underground components in the Auxiliary Systems.~~ **Consistent with NUREG-2191.** **Buried and Underground Piping and Tanks (B.2.3.27) AMP is used to manage loss of material of stainless steel piping and piping components exposed to underground in the Auxiliary Systems.** Further evaluation is documented in Section 3.3.2.2.4.

Table 3.3.2-4 on page 3.3-113 is being revised to insert the following information:

Table 3.3.2-4: Control Rod Drive – Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping, Piping Components	Leakage Boundary	Stainless Steel	Underground (External)	Loss of Material	Buried and Underground Piping and Tanks (B.2.3.27)	VII.I.A-775b	3.3.1-246	B
Piping, Piping Components	Leakage Boundary	Stainless Steel	Underground (External)	Cracking	Buried and Underground Piping and Tanks (B.2.3.27)	VII.I.A-714b	3.3.1-146	B

The Environment Subsection of SLRA Section 3.4.2.1.5 on page 3.4-6 is revised as follows:

Environments

The Off-Gas System components are exposed to the following environments:

- Air - Indoor Uncontrolled
- Closed-Cycle Cooling Water
- Condensation
- Gas
- Soil
- Steam
- Treated Water
- Treated Water >140°F
- **Underground**

Table 3.4-1 on page 3.4-27 is being revised as follows:

Table 3.4-1: Summary of Aging Management Evaluation for the Steam and Power Conversion Systems					
Item Number	**Component**	**Aging Effect / Mechanism**	**Aging Management Program (AMP)/TLAA**	**Further Evaluation Recommended**	**Discussion**
3.4.1-050	Steel piping, piping components, tanks, closure bolting exposed to soil, concrete, underground	Loss of material due to general, pitting, crevice corrosion, MIC (soil only)	AMP XI.M41, "Buried and Underground Piping and Tanks"	No	Consistent with NUREG-2191 **with exception for the Buried and Underground Piping and Tanks (B.2.3.27) AMP**. The Buried and Underground Piping and Tanks (B.2.3.27) AMP is used to manage loss of material of steel piping and piping components exposed to soil **and underground in the S&PC Systems**.

Table 3.4.2-5 on page 3.4-95 is being revised to insert the following information:

Table 3.4.2-5: Off-Gas – Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping, Piping Components	Holdup and Plateout	Carbon Steel	Underground (External)	Loss of Material	Buried and Underground Piping and Tanks (B.2.3.27)	VIII.H.SP-161	3.4.1-050	B

Section B.2.3.27 on page B-198 is being revised as follows:

Material	No. of Inspections	Notes
Steel piping (buried)[1]	**1** inspection	The smaller of 0**.5**% of the piping length or **1** inspection.
Steel piping (underground)[1]	2 inspections	The smaller of 2% of the piping length or 2 inspections.
Stainless steel piping (buried)	1 inspection	None
Stainless steel piping (underground)	1 inspection	None
Steel tank (buried)	1 inspection	Only one tank is buried at MNGP. If the diesel fuel oil storage tank is properly cathodically protected with a refurbishment to the system in the future, no inspections would be required per NUREG-2191 XI.M41 Section 4.b.vii.

Note 1: This AMP treats carbon steel as “steel” as the aging effects are identical for these materials. This includes buried and underground piping found in the Off-Gas systems.

Enclosure 06c

Supplement to Indicate If Alternatives Are Credited They Will Conform To NUREG-2191

Supplement to Indicate If Alternatives Are Credited They Will Conform To NUREG-2191

Indicate If Alternatives Are Credited they will Conform to NUREG-2191

Affected SLRA Sections: Table A-3, Commitment 30; B.2.3.27

SLRA Page Numbers: A-84, B-198, B-200

Description of Change:

Supplement to indicate that if alternatives are credited, then the alternate tests will conform to NUREG-2191 Section XI.M41, Subsection 4.e.

Black bold font information in Section B.2.3.27 on page B-198 represents changes made in Enclosure 06a of Reference 1.

References:

1. L-MT-23-025, Monticello Nuclear Generating Plant, Docket No. 50-263, Renewed Facility Operating License No. DPR-22, Subsequent License Renewal Application Supplement 2, ML23177A218

Table A-3, Commitment 30 on page A-84 is being revised as follows:

No.	Aging Management Program or Activity (Section)	NUREG-2191 Section	Commitment	Implementation Schedule
			s) If alternatives to visual inspections are performed, they will be performed in accordance with NUREG-2191, Section XI.M41, Subsection 4.e.	

Section B.2.3.27 on page B-198 (2nd full paragraph) is being revised as follows:

> The number of inspections for each 10 year inspection period, commencing 10 years prior to the start of SPEO, are based on the inspection quantities noted in NUREG-2191, Table XI.M41-2 for Category **C**. However, changes in plant specific conditions can result in transitioning to a **higher** number of inspections than originally planned at the beginning of a 10 year period. For example, **degradation** of the cathodic protection system**, coatings, backfill, or the condition of exposed piping that does not** meet acceptance criteria could result in transitioning from **Preventive Action** Category **C to** Preventive Action Category F**. If alternatives to visual inspections are performed, they will be performed in accordance with NUREG-2191, Section XI.M41, Subsection 4.e.**

Section B.2.3.27 on page B-200 (Element 4 of the Enhancement table) is being revised as follows:

Element Affected	Enhancement
4. Detection of Aging Effects	Update MNGP BUPT AMP procedures as appropriate: • Clarify that inspections of buried and underground piping and tanks within the applicable plant systems will be conducted in accordance with NUREG-2191 Table XI.M41-2 Preventive Action Category F for buried steel and stainless steel piping, unless a reevaluation of cathodic protection performance, future OE, or soil conditions determines that another Preventive Action Category is more applicable. When the inspections for a given material type is based on percentage of length and results in an inspection quantity of less than 10 feet, then 10 feet of piping is inspected. If the entire run of piping of that material type is less than 10 feet in total length, then the entire run of piping is inspected. • Clarify that the visual inspections will be supplemented with surface and/or volumetric nondestructive testing if evidence of wall loss beyond minor surface scale is observed. • **Clarify that, if alternatives to visual inspections are performed, they will be performed in accordance with NUREG-2191, Section XI.M41, Subsection 4.e.** • Clarify the guidance for piping inspection location selection as follows: (a) a risk ranking system software incorporates inputs that include coating type, coating condition, cathodic protection efficacy, backfill characteristics, soil resistivity, pipe contents, and pipe function; (b) opportunistic examinations of nonleaking pipes may be credited toward examinations if the location selection criteria are met; and (c) the use of guided wave ultrasonic examinations may not be substituted for the required inspections.

Enclosure 07a

Revise σ_i Value for Circumferential Welds in SLRA Tables 4.2.3-1 and 4.2.3-2

Revise σ_i Value for Circumferential Welds in SLRA Tables 4.2.3-1 and 4.2.3-2

Revise SLRA Tables 4.2.3-1 and 4.2.3-2 to cite the correct σ_i value of 12.7 for the circumferential welds.

Affected SLRA Sections: Tables 4.2.3-1 and 4.2.3-2

SLRA Page Numbers: 4.2-18 and 4.2-19

Description of Change:

SLRA Tables 4.2.3-1 and 4.2.3-2 are revised to cite 12.7 for the value of sigma i for the circumferential welds. The tables incorrectly cites σ_i (the standard deviation for the initial nil ductility transition reference temperature) to be 0. The tables are revised to correct all other values for circumferential welds. Additionally, the Fluence, Fluence Factor, ΔRT_{NDT} and 72EFPY 0T ART values for Lower Shell Plates (Course 1) I-16 and I-17 are corrected.

SLRA Table 4.2.3-1 on page 4.2-18 is revised to change existing information and add a new row to show information for circumferential weld VCBB-3 as follows:

Table 4.2.3-1 0T ART Values for MNGP RPV Components at 72 EFPY

Component No.	Heat	Lot	% Cu	% NI	CF	Initial RT_{NDT} (°F)	72EFPY 0T Fluence (n/cm^2)	Fluence Factor f	ΔRT_{NDT} (°F)	σ_i (°F)	σ_Δ (°F)	72 EFPY 0T ART (°F)
Lower Shell Plates (Course 1)												
I-16	A0946 -1	N/A	0.14	0.56	98	27	~~1.06~~ 3.79E+18	~~0.429~~ 0.732	~~42.1~~ 71.8	0	17.0	~~90.1~~ 132.8
I-17	C2193 -1	N/A	0.17	0.5	119	0	~~1.06~~ 3.79E+18	~~0.429~~ 0.732	~~50.8~~ 86.7	0	17.0	~~107.8~~ 120.7
Circumferential Welds												
VCBA-2 ~~& VCBA-3~~	-	E8018N	0.1	0.99	135	-65.6	3.79E+18	0.732	98.7	~~0~~12.7	28.0	~~89.1~~94.6
VCBB-3	-	E8018N	0.1	0.99	135	-65.6	3.23E+17	0.229	30.9	12.7	15.5	5.3

SLRA Table 4.2.3-2 on page 4.2-19 is revised to change existing information and add a new row to show information for circumferential weld VCBB-3 as follows:

Table 4.2.3-2 1/4T ART Values for MNGP RPV Components at 72 EFPY

Component No.	Heat	Lot	% Cu	% NI	CF	Initial RT_{NDT} (°F)	72EFPY 0T Fluence (n/cm^2)	Fluence Factor f	ΔRT_{NDT} (°F)	σ_i (°F)	σ_Δ (°F)	72 EFPY 0T ART (°F)
Circumferential Welds												
VCBA-2 ~~& VCBA-3~~	-	E8018N	0.1	0.99	135	-65.6	2.80E+18	0.653	88.0	~~0~~**12.7**	28.0	~~78.4~~**83.9**
VCBB-3	**-**	**E8018N**	**0.1**	**0.99**	**135**	**-65.6**	**2.38E+17**	**0.191**	**25.8**	**12.7**	**12.9**	**-3.6**

Enclosure 07b

Upper Shelf Energy Reference to EPRI Report Removed

Upper Shelf Energy Reference to EPRI Report Removed

USE reference revised to remove EPRI report that is not approved

Affected SLRA Sections: 4.2.2, 4.7

SLRA Page Numbers: 4.2-12, 4.7-1

Description of Change:

Reference 4.7.12, "*Bounding Upper Shelf Energy Analysis for Long Term Operation*, Report sponsored by EPRI, Final Report, April 2017," has not been approved and is not required to support the SLRA conclusion that regulatory limits are met. The reference to the EPRI report will be deleted. A reference is provided for an analysis performed to extend the 54 EFPY criteria to 72 EFPY using BWRVIP-74-A methodology to determine regulatory limits are met.

SLRA Section 4.2.2, the first paragraph on page 4.2-12 is revised as follows:

> For beltline materials lacking initial USE data, EMA evaluations using the method and criteria for performing an EMA for BWR vessels for 72 EFPY is used. Extrapolation of the percent drop in USE from the curves in Figure 2 of RG 1.99 R2 were obtained from the equations in the NRC RVID2 database. These equations are valid for fluence values between 1 x 10^{18} n/cm^2 and 6 x 10^{19} n/cm^2. ~~Reference 4.7.12establishes the maximum~~ **Maximum** allowable percent decrease in USE for **both plates and welds for** 72 EFPY operation **were conservatively obtained from the EMA in Appendix B of Reference 4.7.14.** ~~For BWR/3-6 plate materials, the maximum allowable percent decrease is given in Reference 4.7.12~~.

SLRA Section 4.7, Reference 4.7.12 on page 4.7-1 is revised as follows:

4.7.12 ~~*Bounding Upper Shelf Energy Analysis for Long Term Operation*, Report sponsored by EPRI, Final Report, April 2017.~~**Not used.**

Enclosure 07c

Justify the Differences in 1/4T Fluence Values

Justify the Differences in 1/4T Fluence Values

Provide justification for the differences in the 1/4T fluence values in Section 4.2

Affected SLRA Sections: 4.2.1.1, 4.2.2, 4.2.3

SLRA Page Numbers: 4.2-4, 4.2-11, 4.2-16

Description of Change:

Two different fluence values are identified for the 1/4T locations for each component between the tables in Sections 4.2.1.1 and those in 4.2.2 and 4.2.3 of the SLRA. These sections are being updated to clarify the different 1/4T values are the results of the methods used that are prescribed and accepted in RG 1.99 Revision 2.

SLRA Section 4.2.1.1 on page 4.2-4 is revised to insert an additional paragraph as follows:

Maximum fast neutron fluence (Energy >1.0 MeV) is specifically reported for the following RPV components. Figure 4.2.1.1-1 illustrates the location of the welds, shell plates, and nozzles in the RPV.

- RPV Welds
  - The maximum fluence is reported at 0T, 1/4T, and 3/4T for the following horizontal and vertical welds in the RPV beltline and extended beltline region: VCBA-2, VCBB-3, VLAA-1, VLAA-2, VLBA-1, VLBA-2, VLCB-1, and VLCB-2.
- RPV Shell Courses
  - The maximum fluence is reported at 0T, 1/4T, and 3/4T for the following shells in the RPV extended beltline region: Shell Course 1, Shell Course 2, and Shell Course 3.
- RPV Nozzles and Extraction Paths
  - The maximum fluence is reported at 0T, 1/4T, and 3/4T for each N2 nozzle along the forging-to-base metal welds and the extraction path in the nozzle forgings.

The maximum fluence at 1/4T and 3/4T for each of the components listed above and in the tables within this section of the SLRA was calculated using a plant-specific displacements per atom (dpa) attenuation method of the reactor vessel components and their materials as prescribed and accepted in RG 1.99, Revision 2 ($f_x = f_{surf} * dpa_x / dpa_{surf}$).

SLRA Section 4.2.2 on page 4.2-11 is revised to insert an additional sentence as follows:

Since the USE value is a function of neutron fluence which is associated with a specified operating period, the MNGP USE calculations meet the criteria of 10 CFR 54.3(a) and have been identified as TLAAs requiring evaluation for the 80-year SPEO. The projected 80-year EFPY for MNGP is assumed to be 72 EFPY. **The maximum fluence at 72 EFPY at 1/4T for each of the components listed in the tables within this section of the SLRA was calculated using the generic attenuation method as prescribed and accepted in RG 1.99, Revision 2 ($f_x = f_{surf} * e^{-0.24x}$).**

SLRA Section 4.2.3 on page 4.2-16 is revised to insert an additional sentence as follows:

> Tables 4.2.3-1 and 4.2.3-2, below, provide the surface (0T) and 1/4T fluence and fluence factor (FF) values for MNGP at 72 EFPY and the ART calculation results for 72 EFPY. **The maximum fluence at 72 EFPY at 1/4T for each of the components listed in the tables within this section of the SLRA was calculated using the generic attenuation method as prescribed and accepted in RG 1.99, Revision 2 ($f_x = f_{surf} * e^{-0.24x}$).**

Enclosure 07d

Referencing of Surveillance Capsule Data

Referencing of Surveillance Capsule Data

Identify the sources of the surveillance data used for the USE and ART evaluations

Affected SLRA Sections: 4.2.2, 4.2.3, 4.7, A.3.2.2, Table 4.2.2-1, Table, 4.2.2-2, Table 4.2.2-3, Table 4.2.2-4, and Table 4.2.2-5

SLRA Page Numbers: 4.2-11, 4.2-12, 4.2-13, 4.2-14, 4.2-15, 4.2-16, 4.7-3, A-40

Description of Change:

The current TLAA section 4.2.2 states:

For the other beltline materials lacking initial USE data, EMA was performed to evaluate the impact of revised fluence projections and available surveillance data on EOL USE reductions.

This statement does not specify the surveillance data considered in the USE evaluation. Section 4.2.3 does not provide a discussion of surveillance data being considered when determining ART.

Sections 4.2.2 and 4.2.3 are supplemented to identify the sources of the surveillance data used for the USE and ART evaluations. Tables 4.2.2-1, 4.2.2-2, 4.2.2-3, 4.2.2-4, and 4.2.2-5 are changed to reflect corrections to the information in the tables and provide clarification. Editorial changes and references are also added in this change.

Note that the change from Enclosure 07c has been incorporated and shown in bold black font on page 4.2-16.

Black bold font information in SLRA section 4.7 on page 4.7-3 represents changes made in Enclosure 1 of Supplement 1 to the SLRA (Reference 1).

References:

1. L-MT-23-010, Monticello Nuclear Generating Plant, Docket No. 50-263, Renewed Facility Operating License No. DPR-22, Subsequent License Renewal Application Supplement 1, ML23094A136

The first paragraph of SLRA Section 4.2.2 on page 4.2-11 is revised as follows:

4.2.2 RPV Materials Upper Shelf Energy (USE) Reduction Due to Neutron Embrittlement

TLAA Description

Upper-shelf energy (USE) is the standard industry parameter used to indicate the maximum **impact** toughness of a material at high temperature. 10 CFR 50 Appendix G requires the predicted EOL USE for RPV materials to be at least 50 ft-lb (absorbed energy) unless an approved analysis supports a lower value. The predicted USE drop is determined in accordance with NRC RG 1.99, Revision 2 (Reference 4.7.6), using the equations in the Reactor Vessel Integrity Database Version 2.0 (RVID2) (Reference 4.7.7) that accurately model the USE decrease curves in RG 1.99. For BWRs that cannot meet the 50 ft-lb criterion, the Boiling Water Reactor Vessel and Internals Project (BWRVIP) has provided a bounding equivalent margins USE analysis (EMA) for plants in Appendix B of BWRVIP-74-A (Reference 4.7.8), which is valid for up to 54 EFPY of operation.

The last paragraph of SLRA Section 4.2.2 on page 4.2-11 is revised as follows:

TLAA Evaluation

Evaluation of RPV USE reduction due to neutron embrittlement for MNGP was performed for 80 years. The MNGP RPV materials have limited unirradiated USE data available. Initial unirradiated test data are available for only one plate heat for the MNGP RPV to demonstrate a minimum 50 ft-lb USE by standard methods (Reference 4.7.11). Consequently, for beltline materials lacking initial USE data, EOL USE requirements were evaluated using the EMA methodology.~~ Available surveillance data from the MNGP RPV surveillance programs are included in the present EMA analysis.~~ Initial USE for the surveillance plate materials is provided in BWRVIP-199 (Reference 4.7.11) and percent copper content for the RPV beltline materials are provided in the most recent evaluation ~~or~~**of** ART. Measured USE reduction for the surveillance plate material was obtained **for the 30º, 120º, and 300º capsules** from **BWRVIP-135 (Reference 4.7.39), BWRVIP-347 (Reference 4.7.40), and** BWRVIP-199 **(Reference 4.7.11), respectively**. **EOL** USE **values**~~percent reductions~~ are predicted for all beltline materials **with unirradiated USE values** at 72 EFPY based on RG 1.99 **(Position 1.2 and 2.2) with comparison** ~~and compared~~ to the bounding USE ~~reductions~~ acceptance **criterion of 50 ft-lb**~~criteria~~. The EOL USE satisfies the requirements of 10 CFR 50 Appendix G if **value is above 50 ft-lb.** ~~t~~**T**he **alternate analysis by EMA satisfies the requirements of 10 CFR 50 Appendix G for a** predicted reduction **for EOL**~~in~~ USE values **that are a smaller reduction**~~is less~~ than the **EMA criteria**~~bounding~~ percent reductions.~~ The predicted reduction uses EMA analysis to determine if the minimum USE exceeds 50 ft-lb, or a value below these thresholds.~~

SLRA Section 4.2.2 on page 4.2-12 is revised as follows:

Values for unirradiated (initial) USE exist only for the surveillance materials (~~C-2220~~**C2220** and weld materials) and are not available for the other beltline materials. These initial USE values, along with the updated fluence projection, are used to determine the revised USE value for 72 EFPY. For the other beltline materials lacking initial USE values, EMA is performed.

Table 4.2.2-1 shows the predicted EOL USE values for MNGP beltline materials having initial USE data**. The percent USE decrease for the weld material is**~~,~~ based on the RG 1.99 Position 1**.2** method. ~~For conservatism, the percent drop in USE for the plates are increased by 14.77 percent which is the difference in percent decrease between the measured~~ **The** percent USE decrease~~, and the RG 1.99 predicted percent USE decrease~~ for the surveillance plate heat C2220 **was based on the Position 2.2 method (with surveillance data), with the 30° capsule limiting the evaluation for 72 EFPY**.

The projected 72 EFPY 1/4T USE value is greater than 50 ft-lbs for beltline plate heat No. C2220 materials **and for the weld materials** ~~for which initial USE data are available~~. Therefore, the EMA per BWRVIP-74-A is not required for these materials. For the other beltline materials lacking initial USE data, EMA was performed to evaluate the impact of revised fluence projections~~ and available surveillance data~~ on EOL USE reductions **and shown to be acceptable**. The MNGP EMA evaluations are shown in Table 4.2.2-2 through Table 4.2.2-5.

The EMA evaluations were compared against the 54 EFPY limits defined in Appendix B of BWRVIP-74-A. The percent decrease is larger due to 80-year fluence, but the USE/EMA remains within the prescribed 54 EFPY limits.

These evaluations demonstrate that EOL USE values for the MNGP beltline materials remain bounded by the EMA evaluation and remain within the limits of RG 1.99 and satisfy the margin requirements of 10 CFR 50 Appendix G for at least 72 EFPY of operation.

TLAA Disposition: 10 CFR 54.21(c)(1)(ii)

The USE analyses have been projected to the end of the SPEO in accordance with **10 CFR 54.21(c)(1)(ii)**.

SLRA Table 4.2.2-1 on page 4.2-13 is revised as follows:

Table 4.2.2-1: USE Assessment for 72 EFPY

	Description	ID No.	Heat No.	Filler Material	%Cu	Unirradiated USE[1] (ft-lbs)	1/4t Fluence[2] (n/cm²)	% Drop in USE	USE @ 1/4t[3] (ft-lbs)	Requires EMA
Plates	Upper/Int Shell I-12 (Course 3)	-	C2089-1	-	0.35	EMA[4]	2.38E+17	18.76~~21.53~~	-	YES
	Upper/Int Shell I-13 (Course 3)	-	C2613-1	-	0.35	EMA[4]	2.38E+17	18.76~~21.53~~	-	YES
	Lower/Int Shell I-14 (Course 2)	-	C2220-1	-	0.16	86.5	4.38E+18	37.59~~23.65~~	54.0~~66.0~~	NO
	Lower/Int Shell I-15 (Course 2)	-	C2220-2	-	0.16	86.5	4.38E+18	37.59~~23.65~~	54.0~~66.0~~	NO
	Lower Shell I-16 (Course 1)	-	A0946-1	-	0.14	EMA[4]	2.80E+18	17.08~~19.60~~	-	YES
	Lower Shell I-17 /Course 1)	-	C2193-1	-	0.17	EMA[4]	2.80E+18	19.35~~22.12~~	-	YES
Welds	Horizontal Weld **(VCBA-2)**	-	-	E8018N	0.10	84.5	2.80E+18	17.79	69.5	NO
	Horizontal Weld (VCBB-3)	-	-	**E8018N**	**0.10**	**84.5**	**2.38E+17**	**10.03**	**76.0**	**NO**
	Lower (Course 1) Axial Welds	-	-	E8018N	0.10	84.5	1.73E+18	15.90	71.1	NO
	Lower/Int (Course 2) Axial Welds	-	-	E8018N	0.10	84.5	1.55E+18	15.50	71.4	NO
	Upper/Int (Course 3) Axial Welds	-	-	E8018N	0.10	84.5	1.56E+17	9.09	76.8	NO
Nozzles	Bounding N-2 Nozzle	-	E21VW	-	0.18	70	5.23E+17	13.62	60.5	NO

SLRA Table 4.2.2-2 on page 4.2-14 is revised as follows:

Table 4.2.2-2: MNGP EMA for Upper Intermediate Shell I-12 for 72 EFPY BWR/3-6 Plate

Surveillance Plate (Heat C2220) USE:
%Cu = 0.16
30º Capsule Fluence = 2.93E+17 n/cm²
300º Capsule Fluence = 9.05E+17 n/cm²
120º Capsule Fluence = 1.34E+18 n/cm²
30º Capsule Measured % Decrease = ~~16.40~~**22.7** (Charpy Curves)
30º Capsule RG 1.99 Predicted % Decrease = ~~14.29~~**10.8** (RG 1.99, Fig. 2)
~~Difference in % Decrease = 14.77~~
Upper/Int Shell I-12 (C2089-1) USE:
%Cu = 0.35
72 EFPY Peak ID Fluence = 3.23E+17 n/cm²
72 EFPY 1/4t Fluence = 2.38E+17 n/cm²
RG 1.99 Predicted % Decrease = 18.76 (RG 1.99, Fig. 2)
Adjusted % Decrease = ~~21.53~~**N/A** (RG 1.99, Position 2.2)
Comparison of Limiting % Decrease Value to Limit
~~21.53~~**18.76**% ≤ 23.5, ~~as the allowable % Decrease Design Limit from BWRVIP-74-A,~~ so vessel plates are bounded by EMA

SLRA Table 4.2.2-3 on page 4.2-14 is revised as follows:

Table 4.2.2-3: MNGP EMA for Upper Intermediate Shell I-13 for 72 EFPY BWR/3-6 Plate

Surveillance Plate (Heat C2220) USE:
%Cu = 0.16
30º Capsule Fluence = 2.93E+17 n/cm^2
300º Capsule Fluence = 9.05E+17 n/cm^2
120º Capsule Fluence = 1.34E+18 n/cm^2
30º Capsule Measured % Decrease = ~~16.40~~**22.7** (Charpy Curves)
30º Capsule RG 1.99 Predicted % Decrease = ~~14.29~~**10.8** (RG 1.99, Fig. 2)
~~Difference in % Decrease = 14.77~~
Upper/Int Shell I-13 (C2613-1) USE:
%Cu = 0.35
72 EFPY Peak ID Fluence = 3.23E+17 n/cm^2
72 EFPY 1/4t Fluence = 2.38E+17 n/cm^2
RG 1.99 Predicted % Decrease = 18.76 (RG 1.99, Fig. 2)
Adjusted % Decrease = ~~21.53~~ **N/A** (RG 1.99, Position 2.2)
Comparison of Limiting % Decrease Value to Limit
~~21.53~~**18.76**% ≤ 23.5, ~~as the allowable % Decrease Design Limit from BWRVIP-74-A,~~ so vessel plates are bounded by EMA

SLRA Table 4.2.2-4 on page 4.2-15 is revised as follows:

Table 4.2.2-4: MNGP EMA for Lower Shell I-16 for 72 EFPY
BWR/3-6 Plate

Surveillance Plate (Heat C2220) USE:
%Cu = 0.16
30º Capsule Fluence = 2.93E+17 n/cm^2
300º Capsule Fluence = 9.05E+17 n/cm^2
120º Capsule Fluence = 1.34E+18 n/cm^2
30º Capsule Measured % Decrease = ~~16.40~~**22.7** (Charpy Curves)
30º Capsule RG 1.99 Predicted % Decrease = ~~14.29~~**10.8** (RG 1.99, Fig. 2)
~~Difference in % Decrease = 14.77~~
Upper/Int Shell I-16 (A0946-1) USE:
%Cu = 0.14
72 EFPY Peak ID Fluence = 3.79E+18 n/cm^2
72 EFPY 1/4t Fluence = 2.80E+18 n/cm^2
RG 1.99 Predicted % Decrease = 17.08 (RG 1.99, Fig. 2)
Adjusted % Decrease = ~~19.60~~ **N/A** (RG 1.99, Position 2.2)
Comparison of Limiting % Decrease Value to Limit
~~19.60~~**17.08**% ≤ 23.5,~~ as the allowable % Decrease Design Limit from BWRVIP-74-A,~~ so vessel plates are bounded by EMA

SLRA Table 4.2.2-5 on page 4.2-15 is revised as follows:

Table 4.2.2-5: MNGP EMA for Lower Shell I-17 for 72 EFPY BWR/3-6 Plate

Surveillance Plate (Heat C2220) USE:
%Cu = 0.16
30º Capsule Fluence = 2.93E+17 n/cm^2
300º Capsule Fluence = 9.05E+17 n/cm^2
120º Capsule Fluence = 1.34E+18 n/cm^2
30º Capsule Measured % Decrease = ~~16.40~~**22.7** (Charpy Curves)
30º Capsule RG 1.99 Predicted % Decrease = ~~14.29~~**10.8** (RG 1.99, Fig. 2)
~~Difference in % Decrease = 14.77~~
Upper/Int Shell I-17 (C2193-1) USE:
%Cu = 0.17
72 EFPY Peak ID Fluence = 3.79E+18 n/cm^2
72 EFPY 1/4t Fluence = 2.80E+18 n/cm^2
RG 1.99 Predicted % Decrease = 19.35 (RG 1.99, Fig. 2)
Adjusted % Decrease = ~~22.12~~ **N/A** (RG 1.99, Position 2.2)
Comparison of Limiting % Decrease Value to Limit
~~22.12~~**19.35**% ≤ 23.5, ~~as the allowable % Decrease Design Limit from BWRVIP-74-A,~~ so vessel plates are bounded by EMA

SLRA Section 4.2.3 on page 4.2-16 is revised to add two sentences as follows:

Tables 4.2.3-1 and 4.2.3-2, below, provide the surface (0T) and 1/4T fluence and fluence factor (FF) values for MNGP at 72 EFPY and the ART calculation results for 72 EFPY (Reference 4.7.38). **The maximum fluence at 72 EFPY at 1/4T for each of the components listed in the tables within this section of the SLRA was calculated using the generic attenuation method as prescribed and accepted in RG 1.99, Revision 2 ($f_x = f_{surf} * e^{-0.24x}$).** **MNGP surveillance data used for ART evaluation (of heat number C2220) have been provided by BWRVIP-135 (Reference 4.7.39) (30° and 300° capsules) and BWRVIP-347 (Reference 4.7.40) (120° capsule). The limiting conditions (for heat number C2220) are determined based on review of the capsule data.**

SLRA section 4.7 on page 4.7-3 is revised to add two references as follows:

4.7.37 MNGP, License Amendment Request: Extended Power Uprate (TAC MD9990), November 2008 (ADAMS Accession No. ML083230111).

4.7.38 Structural Integrity Associates Calculation No. 2100300.302, Revision 3, "Evaluation of Adjusted Reference Temperatures and Reference Temperature Shifts," March 14, 2023.

4.7.39 BWRVIP-135-R4, "BWR Vessel and Internals Project, Integrated Surveillance Program (ISP) Data Source Book and Plant Evaluations," EPRI, Palo Alto, CA, 2021.

4.7.40 BWRVIP-347, "BWR Vessel and Internals Project: Testing and Evaluation of the Monticello 120° ISP(E) Surveillance Capsule," EPRI, Palo Alto, CA, 2022.

The first paragraph of SLRA Section A.3.2.2 on page A-40 is revised as follows:

A.3.2.2 RPV Materials Upper Shelf Energy (USE) Reduction Due to Neutron Embrittlement

Upper-shelf energy (USE) is the parameter used to indicate the **maximum impact** toughness of a material at elevated temperature. There are two sets of rules that govern USE acceptance criteria. 10 CFR Part 50, Appendix G, Paragraph IV.A.1.a, states that RPV beltline materials must have Charpy USE of no less than 75 ft-lb initially and must maintain Charpy USE throughout the life of the vessel of no less than 50 ft-lb, unless it is demonstrated in a manner approved by the Director, Office of Nuclear Reactor Regulation, that lower values of Charpy USE will provide margins of safety against fracture equivalent to those required by Appendix G of ASME Code, Section XI.

Enclosure 08

Addition of Loss of Recirculation Pumps Transient

Addition of Loss of Recirculation Pumps Transient

Revise SLRA to clarify how the Loss of Recirculation Pumps Transient is addressed.

Affected SLRA Sections: Table 4.3.1-1, 4.3.7

SLRA Page Numbers: 4.3-4, 4.3-19

Description of Change:

There is nothing explicit in the SLRA regarding the loss of recirculation pumps events. Table 4.3.1-1 and the notes were revised to include this transient and associated design data. Section 4.3.7 was revised to include that loss of recirculation pumps are clarified to have a large enough margin that this event does not have an effect on the EAF.

Table 4.3.1-1 on page 4.3-4 is revised as follows:

Table 4.3.1-1:80-Year Transient Cycle Projections

Cycle Description	USAR 4.2-1 Cycle Limits	Total Cycles as of May 31, 2021	SLRA Cycles (Projected to 80 Years)	% of USAR Cycles
Bolt Up / Unbolt	120	39	59	49%
Startup /Shutdown @ 100F/hr. (**Note 2**)	289	153	203	70%
Scram (**Note 3**)	270	135	165	61%
Design Hydro Test @ 1250 psig	130	62	82	63%
Reactor Overpressure @ 1375 psig	1	0	0	0%
Hydrostatic Test to 1560 psig	3	2	2	67%
Rapid Blowdown	1	0	0	0%
Liquid Poison Flow @80F	10	0	0	0%
Feedwater Heater Bypass	70	1	4	6%
Loss of Feedwater Heater	10	0	1	10%
Loss of Feedwater Pumps	30	15	18	60%
Improper Start of Shutdown Recirc Loop (**Note 2**)	10	5	6	60%
Sudden Start	**(Note 1)**	0	1	N/A
Hot Standby with Drain Shutoff	**(Note 1)**	0	1	N/A
Core Spray Injection	**(Note 1)**	0	1	N/A
Operating Basis Earthquake (OBE)	**(Note 1)**	0	1	N/A
Safety/Relief Valve Lifts	**(Note 4)**	619	699	75%
Loss of Recirculation Pumps (Note 5)	**(Note 1)**	**0**	**0**	**N/A**

Notes:

(1) These transient events are not included in the USAR listed transient cycles.

(2) Accumulation rate assumed in the 60-year projection is higher than actual accumulation with the latest cycle counts as of May 2021. Accumulation rate calculated for 80-years results in accumulated cycles less than those originally projected to 60 years.

(3) 15 scrams were identified in Fatigue Monitoring data from 2011 to 2021. This accumulation rate is smaller than what was calculated for 60 years and results in total cycles projected to 80 years equal to that originally projected to 60 years.

(4) Although this transient is not included in the USAR listed transient cycles, the number of design cycles (934) is provided in the MNGP LRA.

(5) The design number of cycles assumed for this event is 20 for the analysis in SLRA Section 4.3.7.

SLRA Section 4.3.7 on page 4.3-19 is revised as follows:

For initial screening, U_{en} was calculated using the bounding F_{en} for the applicable material and dissolved oxygen zone. Of the four additional locations above, the recirculation outlet nozzle screened out because its bounding U_{en} was less than 1.0. The three remaining locations screened in and were compared by thermal zone.

The loss of recirculation pumps event, which has had zero occurrences in over 52 years of MNGP operation, was assumed to be at the design limit of 20 cycles in the EAF analysis for the remaining licensed operation and throughout the SPEO. With no recorded occurrences, the margin to the design limit is significantly high and therefore is not included in the Fatigue Monitoring (B.2.2.1) AMP.

Enclosure 09

ASME Section III, Class 1 Fatigue Waivers

ASME Section III, Class 1 Fatigue Waivers

For SLRA Section 4.3.2, clarify whether the design limits discussed in the TLAA Disposition are the transient cycles used that are described in SLRA Section 4.3.2.

Affected SLRA Section: 4.3.2

SLRA Page Number: 4.3-6

Description of Change:

MNGP SLRA Section 4.3.2 is clarified to show that the design limits presented in SLRA Table 4.3.1-1 are for the transients listed in SLRA Table 4.3.2-1.

The TLAA Disposition title change made in Enclosure 14 to Reference 1 is shown in bold, black font in this enclosure.

References:

1. L-MT-23-025, Monticello Nuclear Generating Plant, Docket No. 50-263, Renewed Facility Operating License No. DPR-22, Subsequent License Renewal Application Supplement 2, ML23177A218

SLRA Section 4.3.2 on page 4.3-6 is revised as follows:

TLAA Disposition: 10 CFR 54.21(c)(1)(iii)

The ASME Code, Section III, Class 1 component fatigue waivers will be managed by the Fatigue Monitoring (B.2.2.1) AMP through the SPEO in accordance with **10 CFR 54.21(c)(1)(iii)**. The Fatigue Monitoring (B.2.2.1) AMP will monitor the transient cycles which are the inputs to the fatigue waiver reevaluations and require action prior to exceeding design limits that would invalidate their conclusions. **The design limits for the transients listed in Table 4.3.2-1 that are tracked by the Fatigue Monitoring (B.2.2.1) AMP are provided in Table 4.3.1-1. Note that Table 4.3.2-1 Main Closure Flange Startup/Shutdown is the same transient as Table 4.3.1-1 Bolt up/Unbolt. Transients listed in Table 4.3.2-1 that are not included in Table 4.3.1-1 were part of the original exemption analyses, but were not evaluated in the updated analyses in accordance with the requirements of NB-3222.4(d).**

Enclosure 10a

Resolve Jet Pump Instrumentation and Instrumentation Nozzles Fatigue Waiver Inconsistency

Resolve Jet Pump Instrumentation and Instrumentation Nozzles Fatigue Waiver Inconsistency

Clarify that Instrumentation nozzles and jet pump instrumentation nozzles were addressed by a qualitative evaluation.

Affected SLRA Sections: 4.3.2

SLRA Page Numbers: 4.3-5

Description of Change:

A note is added to SLRA Section 4.3.2 to clarify that there is no formal fatigue waiver evaluation done for instrumentation nozzles and jet pump instrumentation nozzles. The original stress analysis used a qualitative approach to show that thermal transients would not result in stresses that exceed allowable values. The statements regarding these nozzles were reviewed and found to remain valid for the 80-year plant life.

SLRA Section 4.3.2 on page 4.3-5 is revised to add the following:

> Since the ASME Section III, Paragraph N-415.1 and NB-3222.4(d) fatigue waiver criteria require postulated cycle input for the intended operating life of the plant, these fatigue waiver evaluations are TLAAs and have been reevaluated for SPEO using the 80-year projected number of transients in Table 4.3.1-1. **Note that while there is no formal fatigue waiver evaluation done for instrumentation nozzles and jet pump instrumentation nozzles, the original stress analysis used a qualitative approach to show that thermal transients would not result in stresses that exceed allowable values.**

Enclosure 10b

Clarify the Non-USAR Listed Transients Impact on the Existing Fatigue Wavier

Clarify the Non-USAR Listed Transients Impact on the Existing Fatigue Wavier

Clarification that the non-USAR listed transients do not have an impact on the existing fatigue waiver evaluations.

Affected SLRA Sections: 4.3.2

SLRA Page Numbers: 4.3-6

Description of Change:

There are four transient events listed in SLRA Table 4.3.1-1 that are not included in the USAR listed transient cycles:

- Sudden Start
- Hot Standby with Drain Shutoff
- Core Spray Injection
- Operating Basis Earthquake (OBE)

Clarification is given that the first three of these transients are faulted events, they do not have an effect on the fatigue waiver evaluations.

The OBE event is clarified to have a large enough margin that this event does not have an affect on the fatigue waiver evaluations.

SLRA Section 4.3.2 TLAA Evaluation on page 4.3-6 is revised as follows:

All components reviewed in this reevaluation were found acceptable regarding fatigue usage for 80 years, including effects of rerate and EPU. The ASME Section III Class 1 fatigue waiver acceptance criterion continues to be satisfied based on 80-year projected transient cycles through the SPEO.

Fatigue exemption includes pressure and temperature cycles due to normal operation; fatigue exemption analyses do not include emergency and faulted events. Sudden Start, Hot Standby with Drain Shutoff, and Core Spray Injection are not part of normal operation and are faulted events. Therefore, they are not tracked in the Fatigue Monitoring (B.2.2.1) AMP.

The OBE event, which has had zero occurrences in over 52 years of MNGP operations, is conservatively projected to have 1 cycle out of the analysis limit of 50 for the remaining licensed operation and throughout the SPEO. With this conservative projection of 1 OBE, there would remain a margin of 98% for the fatigue analysis limit. Therefore, OBE is not tracked in the Fatigue Monitoring (B.2.2.1) AMP.

Enclosure 11a

TLAA Correct Section References and Addition of Turbine Exhaust Penetrations

TLAA Correct Section References and Addition of Turbine Exhaust Penetrations

Change incorrect section references for refueling bellows skirt TLAA, and add HPCI and RCIC turbine exhaust penetrations as TLAA.

Affected SLRA Sections: 3.5.2.2.1.5, Table 3.5-1, Table 3.5.2-1

SLRA Page Numbers: 3.5-24, 3.5-46, 3.5-80

Description of Change:

Revise SLRA Section 3.5.2.2.1.5 on page 3.5-24, SLRA Table 3.5-1, Item 3.5.1-009 on page 3.5-46, and SLRA Table 3.5.2-1 on page 3.5-80 to correctly reference SLRA Sections 4.3.3 and 4.6.2, as well as the current reference to SLRA Section 4.5.

Update SLRA Table 3.5.2-1 on page 3.5-80 to specifically include the HPCI and RCIC turbine exhaust penetrations dispositioned as a TLAA in SLRA Section 4.6.2 and the refueling bellows skirt dispositioned as a TLAA in SLRA Section 4.3.3.

The first paragraph in the MNGP further evaluation for SLRA Section 3.5.2.2.1.5 on page 3.5-24 is revised as follows:

> As summarized in item 3.5.1-009 cumulative fatigue damage is identified as a TLAA in Section**s 4.3.3,** 4.5**, and 4.6.2**. Components with an existing CLB fatigue analysis include the downcomers, torus penetrations **(including the HPCI and RCIC turbine exhaust penetrations)**, torus shell, ECCS suction header, vent header, vent lines, and vent line bellows, as well as drywell penetration bellows (hot pipe penetration bellows) and refueling bellows skirt (the limiting condition for the drywell to reactor building refueling seal and RPV to drywell refueling seal).

The discussion for SLRA Table 3.5-1 on page 3.5-46 is revised as follows:

Table 3.5-1: Summary of Aging Management Evaluations for Plant Structures and Component Supports

Item Number	Component	Aging Effect Requiring Management	Aging Management Program	Further Evaluation Recommended	Discussion
3.5.1-009	Metal liner, metal plate, personnel airlock, equipment hatch, control rod drive (CRD) hatch, penetration sleeves; penetration bellows, steel elements: torus; vent line; vent header; vent line bellows; downcomers, suppression pool shell; unbraced downcomers, steel elements: vent header; downcomers	Cumulative fatigue damage due to fatigue	TLAA, SRP-SLR "Containment Liner Plate, Metal Containments, and Penetrations Fatigue Analysis"	Yes (SRP-SLR Section 3.5.2.2.1.5)	Fatigue is a TLAA for the downcomers, torus penetrations **(including the HPCI and RCIC turbine exhaust penetrations)**, torus shell, vent header, vent line, and vent line bellow; as well as for drywell penetration bellows (hot pipe penetration bellows) and refueling bellows skirt (the limiting condition for the drywell to reactor building refueling seal and RPV to drywell refueling seal) components. ~~This~~**These** TLAA**s are** ~~is~~ evaluated in Section**s 4.3.3,** 4.5**, and 4.6.2**. Further evaluation is documented in Section 3.5.2.2.1.5.

SLRA Table 3.5.2-1 on page 3.5-80 is revised as follows:

Table 3.5.2-1: Primary Containment - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Penetration Assemblies - Mechanical Piping (Torus Penetrations, Drywell Penetration Bellows)	Flood Barrier HELB Barrier Pressure Boundary Shelter/ Protection Structural Support	Steel; Stainless Steel; Dissimilar Metal Welds	Air – Indoor Uncontrolled	Cumulative Fatigue Damage	TLAA – Section 4.5, Containment Liner Plate, Metal Containments and Penetrations Fatigue **and Section 4.6.2, Fatigue Analyses of High-Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) Turbine Exhaust Penetrations**	II.B4.C-13	3.5.1-009	A
RPV to Drywell Refueling Seal (Refueling Bellows Skirt)	Structural Support Watertight Seal	Stainless Steel	Air – Indoor Uncontrolled	Cumulative Fatigue Damage	TLAA Section ~~4.5, Containment Liner Plate, Metal Containments and Penetrations Fatigue~~**4.3.3, RPV Fatigue Analysis**	II.B1.1.C-21	3.5.1-009	C

Enclosure 11b

Clarify the Transients Associated with Containment Liner Plate, Metal Containments and Penetration Fatigue That Will Be Part of the Fatigue Monitoring AMP

Clarify the Transients Associated with Containment Liner Plate, Metal Containments and Penetration Fatigue TLAAs That Will Be Part of the Fatigue Monitoring AMP

Clarify the specific transients associated with TLAAs in Sections 4.5.1, 4.5.2, and 4.5.3 that will be managed using the Fatigue Monitoring AMP

Affected SLRA Sections: 4.5.1, 4.5.2, and 4.5.3

SLRA Page Numbers: 4.5-2, 4.5-3, and 4.5-4

Description of Change:

Revise Sections 4.5.1, 4.5.2, and 4.5.3 to state the specific transients in the TLAA evaluations that will be monitored by the Fatigue Monitoring Aging Management Program. Also, state how the SRV cycles are being tracked for the program.

SLRA Section 4.5.1 on page 4.5-2 is revised as follows:

TLAA Evaluation

The maximum usage value for 60-years was for a vent system component and occurred in the vent header at the downcomer-vent header intersection. This included 934 SRV discharges under a normal operating condition (NOC) and 50 SRV discharges under a small break accident (SBA)**, including 1000 SBA Seismic cycles**.

Fatigue usage was recalculated for 80 years based on 699 projected SRV discharges under NOC and 74 SRV discharges under SBA**, including 1000 SBA Seismic cycles**, resulting in a maximum cumulative usage of 0.630.

Projected usage for the torus shell was recalculated using projected SRV cycles for NOC and increasing cycles for EPU for small break accident conditions by 47 percent from original design. Of the 699 projected SRV lifts, 506 were taken as single SRV lifts and 193 were taken as multiple SRV lifts. The ratio is consistent with the original design which had 676 single SRV lifts and 258 multiple SRV lifts.

Fatigue usage for the torus shell was 0.981 for 60 years. The largest impact on reducing this usage factor for 80 years of operation was using 699 projected SRV lifts, whereas the original evaluation assumed a total of 934 SRV lifts. The calculated cumulative usage factor for the torus shell for 80 years was 0.788.

Projected usage was calculated for 80-years including EPU and is presented in Table 4.5-1. Projected usage is below 1.0 ~~and therefore~~ **, which is** acceptable **and will be managed by the Fatigue Monitoring (B.2.2.1) AMP**. **SRV cycles (for NOC and SBA, including SBA Seismic cycles) are tracked by the plant surveillance schedule for annual performance and will be tracked by the Fatigue Monitoring (B.2.2.1) AMP as well.**

SLRA Section 4.5.2 on page 4.5-3 is revised as follows:

TLAA Evaluation

The SRV piping fatigue usage value of 0.309 was increased by 26 percent to 0.389 for power rerate. Projected usage was calculated for normal operating condition (NOC) plus DBA and NOC plus small/intermediate break accident (SBA/IBA) with 50 SRV actuations postulated during accident (SBA/IBA) conditions and 934 SRV actuations postulated during normal operating conditions for a total of 984 postulated SRV actuations. Since projected SRV actuations during normal operation for 80-years are less than the 934 postulated, the usage of 0.309 is conservatively increased by 47 percent to account for EPU for 80-years. The conservatively calculated 80-year usage is therefore 0.309 x 1.47 = 0.454 and is presented in Table 4.5-1, which is less than 1.0**.** ~~and therefore~~ **This is** acceptable **and will be managed by the Fatigue Monitoring (B.2.2.1) AMP**. **SRV cycles (for NOC plus DBA and NOC plus SBA/IBA) are tracked by the plant surveillance schedule for annual performance and will be tracked by the Fatigue Monitoring (B.2.2.1) AMP as well.**

SLRA Section 4.5.3 on page 4.5-4 is revised as follows:

The ring header fatigue evaluation for power uprate documented the controlling component as the tee to penetration X-204C. The usage at the location was increased by 26 percent to account for an increase in SRV lifts due to power rerate. The EPU usage factor includes a 47 percent increase in cycles, resulting in an 80-year cumulative usage factor of 0.154. Projected usage is below 1.0 ~~and therefore~~ **, which is** acceptable **and will be managed by the Fatigue Monitoring (B.2.2.1) AMP**. **SRV cycles (for NOC, OBE, and accidents) are tracked by the plant surveillance schedule for annual performance and will be tracked by the Fatigue Monitoring (B.2.2.1) AMP as well**. The usage values associated with this TLAA are presented in Table 4.5-1.

Enclosure 11c

HPCI and RCIC Turbine Exhaust Penetrations Consistency

HPCI and RCIC Turbine Exhaust Penetrations Consistency

Revise SLRA to provide consistent details for HPCI and RCIC Turbine Exhaust Penetrations.

Affected SLRA Sections: 4.6.2, A.3.6.2

SLRA Page Numbers: 4.6-4, A-53

Description of Change:

SLRA Section 4.6.2 is being revised to include the load combinations that make up the fatigue usage factor for the HPCI and RCIC Turbine Exhaust Penetrations. The change will also add the TLAA disposition to Section A.3.6.2. These revisions provide consistency with the sections that surround them.

SLRA Section 4.6.2 TLAA Evaluation Subsection on page 4.6-4 is revised as follows:

TLAA Evaluation

HPCI Turbine Exhaust Penetration

The 40-year fatigue usage calculation of this location, which is also referred to as torus-attached penetration (TAP) X-221, resulted in a fatigue usage factor of 0.111. **The fatigue usage factor is based on normal operating conditions load combinations plus design basis accident with OBE conditions load combinations.** This is different from the value for the HPCI turbine exhaust penetration fatigue calculated in the MNGP LRA of 0.053 (Reference 4.7.22, Section 4.10). This difference is based on the method of evaluation.

The higher fatigue usage of 0.111 is conservatively multiplied by (80 years/40 years) to obtain a usage of 0.222 for 80 years of operation. Given this conservatism and the fact that, except for thermal and pressure cycles, none of the stresses increase due to EPU, 0.222 is bounding for 80 years with EPU.

RCIC Turbine Exhaust Penetration

The 40-year fatigue usage calculation of this location, which is also referred to as torus-attached penetration (TAP) X-212, resulted in a fatigue usage factor of 0.343. **The fatigue usage factor is based on normal operating conditions load combinations plus design basis accident with OBE conditions load combinations.** This is different from the value for the RCIC turbine exhaust penetration fatigue calculated in the MNGP LRA of 0.271 (Reference 4.7.22, Section 4.10). This difference is based on the method of evaluation.

For SLR, as with the HPCI turbine exhaust penetration, the total fatigue usage of 0.343 is conservatively multiplied by (80 years)/(40 years) to yield 0.686. Given this conservatism and the fact that, except for thermal and pressure cycles, none of the stresses increase due to EPU, 0.686 is bounding for 80 years with EPU.

SLRA Section A.3.6.2 on page A-53 is revised as follows:

A.3.6.2 Fatigue Analyses of High-Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) Turbine Exhaust Penetrations

To evaluate the effects of testing the operability and performance of the turbine-pump units on a periodic basis MNGP conducted a detailed evaluation of the thermal cycles experienced during testing for initial LR. Since the number of cycles used in the evaluation is based on a 60-year plant life this is a TLAA.

For the HPCI turbine exhaust penetration, a higher fatigue usage of 0.111 is conservatively multiplied by (80 years/40 years) to obtain a usage of 0.222 for 80 years of operation. Given this conservatism and the fact that, except for thermal and pressure cycles, none of the stresses increase due to EPU, 0.222 is bounding for 80 years with EPU.

For the RCIC turbine exhaust penetration, the total fatigue usage is conservatively multiplied by (80 years)/(40 years). Given this conservatism and the fact that, except for thermal and pressure cycles, none of the stresses increase due to EPU, 0.686 is bounding for 80 years with EPU.

The HPCI and RCIC turbine exhaust penetration fatigue analyses have been projected to the end of the SPEO in accordance with 10 CFR 54.21(c)(1)(ii).

Enclosure 12

Fatigue Related Item and Further Evaluation Voluntary Supplements

Fatigue Related Item and Further Evaluation Voluntary Supplements

Supplement to address fatigue related items and further evaluation.

Affected SLRA Sections: 3.2.2.1.1, 3.2.2.1.2, 3.2.2.1.4, 3.2.2.1.5, 3.2.2.2.1, Table 3.2-1, Table 3.2.2-1, Table 3.2.2-2, Table 3.2.2-4, Table 3.2.2-5, 3.3.2.1.2, 3.3.2.1.4, 3.3.2.1.13, 3.3.2.1.15, 3.3.2.2.1, Table 3.3-1, Table 3.3.2-2, Table 3.3.2-4, Table 3.3.2-13, Table 3.3.2-15, 3.4.2.1.2, 3.4.2.1.4, 3.4.2.2.1, Table 3.4-1, Table 3.4.2-2, and Table 3.4.2-4

SLRA Page Numbers: 3.2-2, 3.2-3, 3.2-5, 3.2-6, 3.2-8, 3.2-19, 3.2-49, 3.2-58, 3.2-59, 3.2-60, 3.2-79, 3.2-80, 3.2-81, 3.2-91, 3.2-92, 3.3-3, 3.3-5, 3.3-15, 3.3-17, 3.3-21, 3.3-32, 3.3-95, 3.3-113, 3.3-114, 3.3-259, 3.3-260, 3.3-266, 3.3-279, 3.3-280, 3.4-3, 3.4-5, 3.4-8, 3.4-18, 3.4-59, 3.4-60, 3.4-85, and 3.4-86

Description of Change:

Revise to include the following Table 2 items as appropriate: V.D2.E-10, VII.E3.A-34, VII.E3.A-62, VII.E4.A-62, VIII.B2.S-08, and VIII.D2.S-11. The change addresses fatigue evaluations for the Residual Heat Removal, Reactor Core Isolation Cooling, High Pressure Coolant Injection, Core Spray, Chemistry Sampling System (because the Reactor Building Sampling System is included in its boundaries), Reactor Water Cleanup, Control Rod Drive, Radwaste Solid and Liquid (because of the Backwash Receiving Tank), Main Steam, and Feedwater systems.

Black bold font information in section 3.3.2.2.1 on page 3.3-21 and Table 3.3.1-001 on page 3.3-32 represents changes made in enclosure 01 of supplement 2 to reference 1.

References:

1. L-MT-23-025, Monticello Nuclear Generating Plant, Docket No. 50-263, Renewed Facility Operating License No. DPR-22, Subsequent License Renewal Application Supplement 2, ML23177A218.

The Aging Effects Requiring Management portion of SLRA Section 3.2.2.1.1 on page 3.2-2 is revised as follows:

Aging Effects Requiring Management
The following aging effects associated with the CSP System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Long-Term Loss of Material
- Loss of Material
- Loss of Preload

The Aging Effects Requiring Management portion of SLRA Section 3.2.2.1.2 on page 3.2-3 is revised as follows:

Aging Effects Requiring Management
The following aging effects associated with the HPCI System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Long-Term Loss of Material
- Loss of Material
- Loss of Preload
- Reduced Thermal Insulation Resistance
- Reduction of Heat Transfer
- Wall Thinning

The Aging Effects Requiring Management portion of SLRA Section 3.2.2.1.4 on page 3.2-5 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the RCIC System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Long-Term Loss of Material
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer
- Wall Thinning

The Aging Effects Requiring Management portion of SLRA Section 3.2.2.1.5 on page 3.2-6 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the RHR System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Flow Blockage
- Long-Term Loss of Material
- Loss of Coating or Lining Integrity
- Loss of Material
- Loss of Preload
- Reduced Thermal Insulation Resistance
- Reduction of Heat Transfer
- Wall Thinning

SLRA Section 3.2.2.2.1 on page 3.2-8 is revised as follows:

3.2.2.2.1 Cumulative Fatigue Damage

Evaluations involving time-dependent fatigue or cyclical loading parameters may be time-limited aging analyses (TLAAs), as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c)(1). This TLAA is addressed separately in Section 4.3, "Metal Fatigue," or Section 4.7, "Other Plant-Specific Time-Limited Aging Analyses," of this SRP-SLR. For plant-specific cumulative usage factor calculations that are based on stress-based input methods, the methods are to be appropriately defined and discussed in the applicable TLAAs.

Cumulative fatigue damage of **steel** ESF components **in the CSP, HPCI, RCIC, and RHR systems**, as described in SRP-SLR Item 3.2.2.2.1, is addressed in Section 4.3, *Metal Fatigue*.

~~Identification of components subject to this aging effect are addressed in Section 4.3 only and not in AMR Tables 3.2.2-X because all ESF Systems components have been dispositioned as 10 CFR 54.21(c)(1)(i) and do not require aging management.~~

SLRA Table 3.2-1, Item 3.2.1-001 on page 3.2-19 is revised as follows:

Table 3.2-1: Summary of Aging Management Evaluations for the Engineered Safety Features					
Item Number	**Component**	**Aging Effect / Mechanism**	**Aging Management Program / TLAA**	**Further Evaluation Recommended**	**Discussion**
3.2.1-001	Stainless steel, steel piping, piping components exposed to any environment	Cumulative fatigue damage due to fatigue	TLAA, SRP-SLR Section 4.3, "Metal Fatigue"	Yes (SRP-SLR Section 3.2.2.2.1)	Consistent with NUREG-2191. Cumulative fatigue damage of steel piping and piping components is an aging effect assessed by a fatigue TLAA in Section 4.3. Identification of components **in the CSP, HPCI, RCIC, and RHR systems** subject to this aging effect are addressed in Section 4.3 ~~only and not in AMR Tables 3.2.2-X because all ESF Systems components have been dispositioned as 10 CFR 54.21(c)(1)(i) and do not require aging management~~. **Cumulative fatigue damage of stainless steel piping and piping components in the CSP, HPCI, RCIC, and RHR systems that are susceptible to fatigue is assessed by a fatigue TLAA in Section 4.3 and are addressed with item 3.3.1-002.** Further evaluation is documented in Section 3.2.2.2.1.

SLRA Table 3.2.2-1 on page 3.2-49 is revised to insert the following:

Table 3.2.2-1: Core Spray – Summary of Aging Management Evaluation								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Piping, Piping Components	Pressure Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	V.D2.E-10	3.2.1-001	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A

SLRA Table 3.2.2-2 on pages 3.2-58, 3.2-59, and 3.2-60 is revised to insert the following:

Table 3.2.2-2: High Pressure Coolant Injection – Summary of Aging Management Evaluation								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Piping, Piping Components	Pressure Boundary	Carbon Steel	Condensation (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	V.D2.E-10	3.2.1-001	A
Piping, Piping Components	Pressure Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	V.D2.E-10	3.2.1-001	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water >140F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A

SLRA Table 3.2.2-4 on pages 3.2-79, 3.2-80, and 3.2-81 is revised to insert the following:

Table 3.2.2-4: Reactor Core Isolation Cooling – Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping, Piping Components	Pressure Boundary	Carbon Steel	Treated Water (External)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	V.D2.E-10	3.2.1-001	A
Piping, Piping Components	Pressure Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	V.D2.E-10	3.2.1-001	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A

SLRA Table 3.2.2-5 on pages 3.2-91 and 3.2-92 is revised to insert the following:

Table 3.2.2-5: Residual Heat Removal – Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping, Piping Components	Pressure Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	V.D2.E-10	3.2.1-001	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A

The Aging Effects Requiring Management portion of SLRA Section 3.3.2.1.2 on page 3.3-3 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the CHM System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Long-Term Loss of Material
- Loss of Material
- Loss of Preload

The Aging Effects Requiring Management portion of SLRA Section 3.3.2.1.4 on page 3.3-5 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the CRD System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Loss of Material
- Loss of Preload
- Reduction of Heat Transfer

The Aging Effects Requiring Management portion of SLRA Section 3.3.2.1.13 on page 3.3-15 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the RAD System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Flow Blockage
- Long-Term Loss of Material
- Loss of Coating or Lining Integrity
- Loss of Material
- Loss of Preload

The Aging Effects Requiring Management portion of SLRA Section 3.3.2.1.15 on page 3.3-17 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the RWC System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Long-Term Loss of Material
- Loss of Material
- Loss of Preload
- Wall Thinning

SLRA Section 3.3.2.2.1 on page 3.3-21 is revised as follows:

3.3.2.2.1 Cumulative Fatigue Damage

Evaluations involving time-dependent fatigue or cyclical loading parameters may be time-limited aging analyses (TLAAs), as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c)(1). This TLAA is addressed separately in Section 4.3, "Metal Fatigue," or Section 4.7, "Other Plant-Specific Time-Limited Aging Analyses," of this SRP-SLR. For plant-specific cumulative usage factor calculations that are based on stress-based input methods, the methods are to be appropriately defined and discussed in the applicable TLAAs.

Cumulative fatigue damage of **steel** Auxiliary Systems components **in the CHM, CRD, and RWC systems**, as described in SRP-SLR Item 3.3.2.2.1, is addressed as a TLAA in Section 4.3, *Metal Fatigue*. **Cumulative fatigue of stainless steel components in the ESF and S&PC systems, as described in SRP-SLR Item 3.3.2.2.1, is addressed as a TLAA in Section 4.3, *Metal Fatigue*.**

Cumulative fatigue of cranes and lifting devices is evaluated and dispositioned as a TLAA for the Cranes, Heavy Loads, Rigging System as discussed in Section 4.6.1.

Cumulative fatigue of the Condensate Backwash Receiving Tank is evaluated and dispositioned as a TLAA for the RAD system as described in Section 4.6.3.

~~Identification of components subject to this aging effect are addressed in Sections 4.3 and 4.6.1 only and not in AMR Tables 3.3.2-X because all Auxiliary Systems components have been dispositioned as 10 CFR 54.21(c)(1)(i) **and 10 CFR 54.21(c)(ii) respectively** and do not require aging management.~~

SLRA Table 3.3-1, Items 3.3.1-001 and 3.3.1-002 on page 3.3-32 are revised as follows:

Table 3.3-1: Summary of Aging Management Evaluations for the Auxiliary Systems

Item Number	Component	Aging Effect / Mechanism	Aging Management Program / TLAA	Further Evaluation Recommended	Discussion
3.3.1-001	Steel cranes: bridges, structural members, structural components exposed to any environment	Cumulative fatigue damage due to fatigue	TLAA, SRP-SLR Section 4.7, "Other Plant-Specific TLAAs"	Yes (SRP-SLR Section 3.3.2.2.1)	Consistent with NUREG-2191. The Crane Cycle Limits TLAA is used to manage cumulative fatigue damage of steel cranes and associated components. This line item is used to evaluate structural items in Section 3.5 . Identification of components subject to this aging effect are addressed in Section 4.6.1 ~~only~~ and ~~not~~ in AMR Table~~s~~ 3.**5**~~3~~.2-**2**~~X~~ ~~because all Auxiliary Systems components have been dispositioned as 10 CFR 54.21(c)(1)(**ii**) and do not require aging management~~. Further evaluation is documented in Section 3.3.2.2.1.
3.3.1-002	Stainless steel, steel heat exchanger components and tubes, piping, piping components exposed to any environment	Cumulative fatigue damage due to fatigue	TLAA, SRP-SLR Section 4.3, "Metal Fatigue"	Yes (SRP-SLR Section 3.3.2.2.1)	Consistent with NUREG-2191. The Section 4.3 Metal Fatigue TLAA is used to manage cumulative fatigue damage in steel and stainless steel piping~~,~~ and piping components exposed to any environment. Identification of components **in the CHM, CRD, and RWC systems that are** subject to this aging effect are addressed in Section 4.3 ~~only and not in AMR Tables 3.3.2-X because all Auxiliary Systems components have been dispositioned as 10 CFR~~

					~~54.21(c)(1)(i) and do not require aging management~~. **Identification of components in the RAD system that are subject to this aging effect are addressed in Section 4.6.3** **This line is also used for the stainless steel components susceptible to fatigue in the CFW, MST, CSP, HPCI, RCIC, and RHR systems.** Further evaluation is documented in Section 3.3.2.2.1.

SLRA Table 3.3.2-2 on page 3.3-95 is revised to insert the following:

Table 3.3.2-2: Chemistry Sampling – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Piping, Piping Components	Leakage Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-34	3.3.1-002	A
Piping, Piping Components	Leakage Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-62	3.3.1-002	A
Piping, Piping Components	Leakage Boundary	Stainless Steel	Treated Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-62	3.3.1-002	A

SLRA Table 3.3.2-4 on pages 3.3-113 and 3.3-114 is revised to insert the following:

Table 3.3.2-4: Control Rod Drive – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Piping, Piping Components	Pressure Boundary	Carbon Steel	Condensation (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-34	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-34	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Condensation (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-62	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-62	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-62	3.3.1-002	A

SLRA Table 3.3.2-13 on pages 3.3-259 and 3.3-260 is revised to insert the following:

Table 3.3.2-13: Radwaste Solid and Liquid – Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Tanks (Condensate Backwash Receiving)	Holdup and Plateout	Stainless Steel	Condensation (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.6.3	VII.E3.A-62	3.3.1-002	C
Tanks (Condensate Backwash Receiving)	Holdup and Plateout	Stainless Steel	Waste Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.6.3	VII.E3.A-62	3.3.1-002	C
Tanks (Condensate Backwash Receiving)	Holdup and Plateout	Stainless Steel	Waste Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.6.3	VII.E3.A-62	3.3.1-002	C
Tanks (Condensate Backwash Receiving)	Leakage Boundary	Stainless Steel	Condensation (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.6.3	VII.E3.A-62	3.3.1-002	C
Tanks (Condensate Backwash Receiving)	Leakage Boundary	Stainless Steel	Waste Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.6.3	VII.E3.A-62	3.3.1-002	C
Tanks (Condensate Backwash Receiving)	Leakage Boundary	Stainless Steel	Waste Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.6.3	VII.E3.A-62	3.3.1-002	C

SLRA Table 3.3.2-13 on page 3.3-266 is revised as follows:

General Notes

C. Component is different, but consistent with material, environment, aging effect, and AMP listed for NUREG-2191 line item. AMP is consistent with NUREG-2191 AMP description.

SLRA Table 3.3.2-15 on pages 3.3-279 and 3.3-280 is revised to insert the following:

Table 3.3.2-15: Reactor Water Cleanup – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Piping, Piping Components	Pressure Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-34	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-62	3.3.1-002	A
Piping, Piping Components	Pressure Boundary	Stainless Steel	Treated Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E3.A-62	3.3.1-002	A

The Aging Effects Requiring Management portion of SLRA Section 3.4.2.1.2 on page 3.4-3 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the CFW System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Hardening or Loss of Strength
- Long-Term Loss of Material
- Loss of Coating or Lining Integrity
- Loss of Material
- Loss of Preload
- Wall Thinning

The Aging Effects Requiring Management portion of SLRA Section 3.4.2.1.4 on page 3.4-5 is revised as follows:

Aging Effects Requiring Management

The following aging effects associated with the MST System require management:

- Cracking
- **Cumulative Fatigue Damage**
- Loss of Material
- Loss of Preload
- Wall Thinning

SLRA Section 3.4.2.2.1 on page 3.4-8 is revised as follows:

3.4.2.2.1 Cumulative Fatigue Damage

Evaluations involving time-dependent fatigue or cyclical loading parameters may be time-limited aging analyses (TLAAs), as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c)(1). This TLAA is addressed separately in SRP-SLR Section 4.3, "Metal Fatigue," or Section 4.7, "Other Plant-Specific Time-Limited Aging Analyses." For plant-specific cumulative usage factor calculations that are based on stress-based input methods, the methods are to be appropriately defined and discussed in the applicable TLAAs.

Cumulative fatigue damage of **steel** S&PC Systems components **in the CFW and MST systems**, as described in SRP-SLR Item 3.4.2.2.1, is addressed as a TLAA in Section 4.3, *Metal Fatigue*. ~~Identification of components subject to this aging effect are addressed in Section 4.3 only and not in AMR Tables 3.4.2-X because all S&PC Systems components have been dispositioned as 10 CFR 54.21(c)(1)(i) and do not require aging management.~~

SLRA Table 3.4-1, Item 3.4.1-001 on page 3.4-18 is revised as follows:

Table 3.4-1: Summary of Aging Management Evaluations for the Steam and Power Conversion Systems

Item Number	Component	Aging Effect / Mechanism	Aging Management Program / TLAA	Further Evaluation Recommended	Discussion
3.4.1-001	Steel piping, piping components exposed to any environment	Cumulative fatigue damage due to fatigue	TLAA, SRP-SLR Section 4.3, "Metal Fatigue"	Yes (SRP-SLR Section 3.4.2.2.1)	Consistent with NUREG-2191. Cumulative fatigue damage **of steel piping and piping components** is an aging effect assessed by a fatigue TLAA in Section 4.3. Identification of components subject to this aging effect are addressed in Section 4.3 ~~only and not in AMR Tables 3.2.2-X because all ESF Systems components have been dispositioned as 10 CFR 54.21(c)(1)(i) and do not require aging management~~ **for the components in the CFW and MST systems that are susceptible to fatigue.** **Cumulative fatigue damage of stainless steel piping and piping components in the CFW and MST systems that are susceptible to fatigue is assessed by a fatigue TLAA in Section 4.3 and is addressed with item 3.3.1-002.** Further evaluation is documented in Section 3.4.2.2.1.

SLRA Table 3.4.2-2 on pages 3.4-59 and 3.4-60 is revised to include the following:

Table 3.4.2-2: Condensate and Feedwater – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-2191 Item	Table 1 Item	Notes
Piping, Piping Components	Holdup and Plateout	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VIII.D2.S-11	3.4.1-001	A
Piping, Piping Components	Holdup and Plateout	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A
Piping, Piping Components	Holdup and Plateout	Stainless Steel	Treated Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA – Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A
Piping, Piping Components	Leakage Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VIII.D2.S-11	3.4.1-001	A
Piping, Piping Components	Leakage Boundary	Stainless Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A
Piping, Piping Components	Leakage Boundary	Stainless Steel	Treated Water > 140 F (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A

SLRA Table 3.4.2-4 on pages 3.4-85 and 3.4-86 is revised to include the following:

Table 3.4.2-2: Main Steam – Summary of Aging Management Evaluation								
Component Type	**Intended Function**	**Material**	**Environment**	**Aging Effect Requiring Management**	**Aging Management Program**	**NUREG-2191 Item**	**Table 1 Item**	**Notes**
Piping, Piping Components	Holdup and Plateout	Carbon Steel	Steam (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VIII.B2.S-08	3.4.1-001	A
Piping, Piping Components	Holdup and Plateout	Stainless Steel	Steam (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VII.E4.A-62	3.3.1-002	A
Piping, Piping Components	Leakage Boundary	Carbon Steel	Treated Water (Internal)	Cumulative Fatigue Damage	TLAA - Section 4.3, Metal Fatigue	VIII.B2.S-08	3.4.1-001	A

Attachment 2 Enclosures Index	
Enclosure No.	**Subject**
01	RCI 3.5.2-A
02	RCI 3.5.2-B

Enclosure 01

RCI 3.5.2-A

RCI 3.5.2-A:

Regulatory Basis:

Part 54 of Title 10 of the Code of Federal Regulations (10 CFR), "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," is designed to elicit application information that will enable the U.S. Nuclear Regulatory Commission (NRC) staff to perform an adequate safety review and the Commission to make the necessary findings. Reliability of application information is important and advanced by requirements that license applications be submitted in writing under oath or affirmation and that information provided to the NRC by a license renewal applicant or required to be maintained by NRC regulations be complete and accurate in all material respects. Information that must be submitted in writing under oath or affirmation includes the technical information required under 10 CFR 54.21(a) related to assessment of the aging effects on structures, systems, and components subject to an aging management review. Thus, both the general submission requirements for license renewal applications and the specific technical application information requirements require that submission of information material to NRC's safety findings (see 10 CFR 54.29 standards for issuance of a renewed license) be submitted by an applicant as part of the application.

Background:

By letter dated January 9, 2023, (Agencywide Documents Access and Management System [ADAMS] Package Accession No. ML23009A352), and supplemented by letter dated April 3, 2023 (ML23094A136), Northern States Power Company, a Minnesota corporation (NSPM, the applicant), submitted an application for the subsequent license renewal of Renewed Facility Operating License Nos. DPR-22 for the Monticello Nuclear Generating Plant, Unit 1 (MNGP), to the U.S. Nuclear Regulatory Commission (NRC). MNGP submitted the application pursuant to Title 10 of the Code of Federal Regulations Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," for subsequent license renewal.

Between February 27, 2023 and June 2, 2023, the NRC staff conducted audits of MNGP's records to confirm information submitted in the Monticello subsequent license renewal application.

Request:

During the audit, the staff reviewed several documents that contain information which will likely be used in conclusions documented in the Safety Evaluation Report (SER). To the best of the staff's knowledge, this information is not on the docket. Any information used to reach a conclusion in the SER must be included on the docket by the applicant. We request that you submit confirmation that the information gathered from the documents and listed below is correct or provide the associated corrected information.

RCI No. 3.5.2-A:

Subsequent License Renewal Application (SLRA), Table 3.5.2-6, cites Aging Management Review (AMR) item 3.3.1-059 for managing loss of material of steel fire rated doors exposed to indoor uncontrolled air and outdoor air by the Fire Protection Aging Management Program (AMP), which is consistent with Volume 1 of NUREG-2191, (ML17187A031). Doors with intended functions other than a fire barrier intended function (e.g., High Energy Line Break (HELB) barrier, flood barrier) are addressed in the SLRA in the individual structures where they are located and managed by the Structures Monitoring AMP.

Revision 63 of Procedure 1216-01, and Revision 47 of Procedure 0275-03, identified functions, in addition to Fire Barrier, for fire rated doors such as HELB barrier and flood barrier.

During the audit of the Fire Protection AMP, it was discussed that SLRA Table 3.5.2-6 includes fire barrier commodities and cites only the fire barrier intended function. Other intended functions associated with fire rated doors are addressed in the individual structures where they are located and managed by the Structures Monitoring AMP. Revision 1 of XCELMO00017-REPT-065 includes a reference to Procedure 0275-03, which references Procedure 1216-01. However, Revision 1 of XCELMO00017-REPT-080, does not include a reference to either Procedure 0275-03 or Procedure 1216-01, which address HELB barrier and flood barrier doors in addition to fire rated doors. The applicant stated during the audit that the Fire Protection AMP will manage aging of doors with a fire barrier intended function and the Structures Monitoring AMP will manage aging of doors with other intended functions. The applicant stated that the same procedure and the same inspector will perform the tests and inspections for aging that may impact the door's ability to perform its intended functions.

Please confirm that fire rated doors with intended functions other than a fire barrier intended function, will be managed by both the Fire Protection AMP and the Structures Monitoring AMP to ensure all intended functions are maintained during the subsequent period of extended operation (SPEO).

Response to RCI 3.5.2-A:

This information has been confirmed to be correct as stated.

Associated SLRA Revisions:

No SLRA changes have been identified as a result of this response.

Enclosure 02

RCI 3.5.2-B

RCI 3.5.2-B:

Regulatory Basis:

Part 54 of Title 10 of the Code of Federal Regulations (10 CFR), “Requirements for Renewal of Operating Licenses for Nuclear Power Plants,” is designed to elicit application information that will enable the U.S. Nuclear Regulatory Commission (NRC) staff to perform an adequate safety review and the Commission to make the necessary findings. Reliability of application information is important and advanced by requirements that license applications be submitted in writing under oath or affirmation and that information provided to the NRC by a license renewal applicant or required to be maintained by NRC regulations be complete and accurate in all material respects. Information that must be submitted in writing under oath or affirmation includes the technical information required under 10 CFR 54.21(a) related to assessment of the aging effects on structures, systems, and components subject to an aging management review. Thus, both the general submission requirements for license renewal applications and the specific technical application information requirements require that submission of information material to NRC’s safety findings (see 10 CFR 54.29 standards for issuance of a renewed license) be submitted by an applicant as part of the application.

Background:

By letter dated January 9, 2023, (Agencywide Documents Access and Management System [ADAMS] Package Accession No. ML23009A352), and supplemented by letter dated April 3, 2023 (ML23094A136), Northern States Power Company, a Minnesota corporation (NSPM, the applicant), submitted an application for the subsequent license renewal of Renewed Facility Operating License Nos. DPR-22 for the Monticello Nuclear Generating Plant, Unit 1 (MNGP), to the U.S. Nuclear Regulatory Commission (NRC). MNGP submitted the application pursuant to Title 10 of the Code of Federal Regulations Part 54, “Requirements for Renewal of Operating Licenses for Nuclear Power Plants,” for subsequent license renewal.

Between February 27, 2023 and June 2, 2023, the NRC staff conducted audits of MNGP’s records to confirm information submitted in the Monticello subsequent license renewal application.

Request:

During the audit, the staff reviewed several documents that contain information which will likely be used in conclusions documented in the Safety Evaluation Report (SER). To the best of the staff's knowledge, this information is not on the docket. Any information used to reach a conclusion in the SER must be included on the docket by the applicant. We request that you submit confirmation that the information gathered from the documents and listed below is correct or provide the associated corrected information.

RCI No. 3.5.2-B:

Revision 1 of FIREPROTECT, states that grout “is considered part of the material constituting the barrier in which it is installed,” and is inspected per Procedure 0275-02, as part of the fire barrier. SLRA Table 3.5.2-6 includes commodity types “cementitious fireproofing” and “non-metallic fireproofing.” Grout is not explicitly addressed in SLRA Table 3.5.2-6.

During the audit of the Fire Protection AMP, the applicant stated that grout is a cementitious fire barrier material and that it is addressed in the SLRA through the cementitious fire barrier commodity types.

Please confirm that grout is included as part of the cementitious fire barrier commodity types and will be inspected as part of the fire barrier per Procedure 0275-02 during the SPEO.

Response to RCI 3.5.2-B:

This information has been confirmed to be correct as stated.

Associated SLRA Revisions:

No SLRA changes have been identified as a result of this response.