Constellation Energy
Nine Mile Point Nuclear Station

P.O. Box 63
Lycoming, New York 13093

January 26, 2005
NMP1L 1920

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

SUBJECT: Nine Mile Point Units 1 and 2
Docket Nos. 50-220 and 50-410
Facility Operating License Nos. DPR-63 and NPF-69

License Renewal Application – Responses to NRC Requests for Additional Information Regarding Aging Management of Auxiliary Systems (TAC Nos. MC3272 and MC3273)

Gentlemen:

By letter dated May 26, 2004, Nine Mile Point Nuclear Station, LLC (NMPNS) submitted an application to renew the operating licenses for Nine Mile Point Units 1 and 2.

In a letter dated December 27, 2004, the NRC requested additional information regarding the aging management review results for auxiliary systems, as described in Section 3.3 of the License Renewal Application. The NMPNS responses to these requests for additional information are provided in Attachments 1 and 2. This letter contains no new regulatory commitments.

If you have any questions about this submittal, please contact Peter Mazzaferro, NMPNS License Renewal Project Manager, at (315) 349-1019.

Very truly yours,

James A. Spina
Vice President Nine Mile Point

JAS/DEV/jm

A107

STATE OF NEW YORK :
: TO WIT:
COUNTY OF OSWEGO :

I, James A. Spina, being duly sworn, state that I am Vice President Nine Mile Point, and that I am duly authorized to execute and file this supplemental information on behalf of Nine Mile Point Nuclear Station, LLC. To the best of my knowledge and belief, the statements contained in this submittal are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other Nine Mile Point employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Oswego, this 26th day of January, 2005.

WITNESS my Hand and Notarial Seal:

SANDRA A. OSWALD
Notary Public, State of New York
No. 01OS6032276
Qualified in Oswego County
Commission Expires 10/25/05

Notary Public

My Commission Expires: 1/26/05
Date

Attachments:
1. Responses to NRC Requests for Additional Information (RAI) Regarding Aging Management of Auxiliary Systems, as Described in Section 3.3 of the License Renewal Application
2. Revisions to LRA Section 3.3 Tables for NMP1 and NMP2 Auxiliary Systems

cc: Mr. S. J. Collins, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR
Mr. N. B. Le, License Renewal Project Manager, NRR
Mr. J. P. Spath, NYSERDA

ATTACHMENT 1

Nine Mile Point Nuclear Station

Responses to NRC Requests for Additional Information (RAI)

Regarding Aging Management of Auxiliary Systems,

as Described in Section 3.3 of the License Renewal Application

This attachment provides the Nine Mile Point Nuclear Station, LLC (NMPNS) responses to the requests for additional information contained in the NRC letter dated December 27, 2004, regarding aging management of auxiliary systems. Each NRC RAI is repeated, followed by the NMPNS response for Nine Mile Point Unit 1 (NMP1) and/or Nine Mile Point Unit 2 (NMP2), as applicable. Revisions to the License Renewal Application (LRA) are described where appropriate. The revisions are highlighted by shading unless otherwise noted.

RAI 3.3.2-1

In the LRA, the applicant credited an aging management program (AMP), "System Walkdown Program," to manage the aging effects of cracking and loss of material for non safety-related (NSR) piping, fittings, and equipment for all 24 subsystems of NMP1 and NMP2 Auxiliary Systems. The applicant further stated that the "System Walkdown Program" will manage the aging effects for the above NSR components that are made from any material and exposed to any water environments (e.g., Demineralized Untreated Water, Treated Water or steam with various temperatures, Raw Water, etc.). However, the System Walkdown Program uses only visual inspections to identify the above aging effects. Please provide additional information to fully explain under what conditions, what sizes of cracks may occur, and what can be identified visually in those 24 subsystems. The staff does not consider leakage detection alone as an adequate AMP because the component has already degraded significantly when it leaks. Please provide justification for NMPs conclusion that Ultra-sound Testing (UT) or Eddy Current Testing (ECT) methods are not necessary for detecting cracking aging effects.

Response

As detailed in the response to RAI 3.3.2-2 below, NMPNS has revised the LRA tables for the subsystems of the NMP1 and NMP2 Auxiliary Systems containing non-safety-related (NSR) piping, fittings and equipment. The revisions delete the "Any" material description and replace it with the specific material for these components. The associated environments, aging effects, and aging management programs are also specified. As a result, the Systems Walkdown Program is no longer the only program credited for managing the aging effect of cracking. While the Systems Walkdown Program can detect surface cracks that are visible to the naked eye

as well as leakage and signs of leakage, it cannot detect cracks that originate on the interior surface of components. For those subsystems where cracking was identified as an aging effect for the NSR piping, fittings, and equipment, an appropriate aging management program was credited. For several subsystems, the One-Time Inspection Program was credited since the occurrence of cracking is expected to be insignificant for the period of extended operation.

Based on the revisions to the LRA tables for the subsystems of the NMP1 and NMP2 Auxiliary Systems shown in Attachment 2, whereby an aging management program other than the Systems Walkdown Program is credited to manage the aging effect of cracking, the requested information is no longer applicable.

RAI 3.3.2-2

For those 24 subsystems mentioned in RAI 3.3.2-1 above, the staff also finds that for the same component exposed to the same or similar environment with the same identified aging effects, one subsystem credits one AMP while the other uses two or three AMPs. For example, the NMP1 Hydrogen Water Chemistry System uses just the System Walkdown Program, while the NMP2 Process Sampling System uses Water Chemistry Control Program in addition to the System Walkdown Program, and the Reactor Water Cleanup Systems in both NMP1 and NMP2 credit three AMPs for each system. Please provide additional information to explain the above discrepancy.

Response

NMPNS recognizes that the proper identification of aging effects and aging management programs (AMPs) may not have occurred by using "Any" material for NSR piping, fittings, and equipment in the subsystems of the NMP1 and NMP2 Auxiliary Systems. Therefore, NMPNS is revising the applicable LRA tables to identify the specific material for the NSR piping, fittings, and equipment for each of the subsystems. The associated environments have also been revised to coordinate with the appropriate material. The aging effects and aging management programs are now aligned with the material-environment combination. This reevaluation has resolved the discrepancy sited in the RAI.

As a result of the reevaluation described above, the NSR piping, fittings, and equipment are assigned programs to adequately manage their aging during the period of extended operation. The most significant change is that the Systems Walkdown Program is no longer the only AMP credited. In several cases, the One-Time Inspection Program is credited in addition to the Systems Walkdown Program. This is appropriate since the aging effects are expected to be insignificant for the period of extended operation. For example, the NSR piping, fittings, and equipment in the NMP1 Miscellaneous Non-Contaminated Vents and Drains System and the NMP2 Process Sampling System are small bore components that may undergo cracking as an aging effect. However, since the extent of any cracking is not expected to affect the pressure boundary intended function of these components, the assignment of the One-Time Inspection Program is appropriate.

For other subsystems, the specific identification of the material-environment combination resulted in the determination that no aging effects were applicable. For example, the NSR piping, fittings, and equipment in the NMP1 Process Sampling System were determined to be constructed of wrought austenitic stainless steel and exposed to an environment of treated water with a temperature of less than 140°F. For this material-environment combination, there are no applicable aging effects and, therefore, no aging management programs are assigned. This situation also occurred for the NMP1 Shutdown Cooling and Spent Fuel Pool Filtering and Cooling Systems, and the NMP2 Makeup Water and Seal Water Systems. The remaining subsystems of the NMP1 and NMP2 Auxiliary Systems have specific AMPs credited.

LRA Revisions

LRA Section 3.3.2.A.2 is revised as follows:

Under the "Material" heading (page 3.3-12), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)" and "Copper Alloys (Zinc ≤ 15%)."

Under the "Aging Effects Requiring Management" heading (page 3.3-12), "Cracking" is deleted.

Under the "Aging Management Programs" heading (page 3.3-12), "One-Time Inspection Program" is added.

LRA Section 3.3.2.A.8 is revised as follows:

Under the "Materials" heading (page 3.3-20), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.A.9 is revised as follows:

Under the "Material" heading (page 3.3-21), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Wrought Austenitic Stainless Steel."

Under the "Environments" heading (page 3.3-21), "Treated Water, temperature <140°F" is deleted.

Under the "Aging Effects Requiring Management" heading (page 3.3-22), "Loss of Material" is deleted.

Under the "Aging Management Programs" heading (page 3.3-22), "Flow-Accelerated Corrosion Program" is replaced with "One-Time Inspection Program."

LRA Section 3.3.2.A.11 is revised as follows:

Under the "Material" heading (page 3.3-23), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)."

Under the "Environments" heading (page 3.3-23), "Raw Water" is deleted.

Under the "Aging Effects Requiring Management" heading (page 3.3-24), "Cracking" is deleted.

Under the "Aging Management Program" heading (page 3.3-24), "One-Time Inspection Program" is added.

LRA Section 3.3.2.A.14 is revised as follows:

Under the "Materials" heading (page 3.3-26), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Cast Austenitic Stainless Steel."

Under the "Aging Management Programs" heading (page 3.3-27), "One-Time Inspection Program" is added.

LRA Section 3.3.2.A.15 is revised as follows:

Under the "Materials" heading (page 3.3-27), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.A.17 is revised as follows:

Under the "Materials" heading (page 3.3-30), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.A.18 is revised as follows:

Under the "Materials" heading (page 3.3-32), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

Under the "Aging Management Programs" heading (page 3.3-33), "Systems Walkdown Program" is deleted.

LRA Section 3.3.2.A.19 is revised as follows:

Under the "Materials" heading (page 3.3-33), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.A.20 is revised as follows:

Under the "Materials" heading (page 3.3-34), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.A.21 is revised as follows:

Under the "Materials" heading (page 3.3-35), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.A.22 is revised as follows:

Under the "Material" heading (page 3.3-37), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)" and "Copper Alloys (Zinc ≤ 15%)."

Under the "Environment" heading (page 3.3-37), "Demineralized Untreated Water" is added.

Under the "Aging Effects Requiring Management" heading (page 3.3-37), "Cracking" is deleted.

LRA Section 3.3.2.B.4 is revised as follows:

Under the "Material" heading (page 3.3-44), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)."

Under the "Environment" heading (page 3.3-44), "Treated Water, temperature <140°F" is replaced with "Raw Water."

Under the "Aging Effects Requiring Management" heading (page 3.3-44), "Cracking" is deleted.

LRA Section 3.3.2.B.8 is revised as follows:

Under the "Materials" heading (page 3.3-47), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)."

Under the "Aging Effects Requiring Management" heading (page 3.3-48), "Cracking" is deleted.

LRA Section 3.3.2.B.11 is revised as follows:

Under the "Materials" heading (page 3.3-51), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

Under the "Aging Effects Requiring Management" heading (page 3.3-52), "Cracking" is deleted.

Under the "Aging Management Program" heading (page 3.3-52), "One-Time Inspection Program" is added.

LRA Section 3.3.2.B.13 is revised as follows:

Under the "Materials" heading (page 3.3-53), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

Under the "Environments" heading (page 3.3-54), "Liquid Foam Concentrate" is added.

LRA Section 3.3.2.B.14 is revised as follows:

Under the "Materials" heading (page 3.3-55), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.B.16 is revised as follows:

Under the "Material" heading (page 3.3-57), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)."

Under the "Aging Effects Requiring Management" heading (page 3.3-57), "Cracking" is deleted.

Under the "Aging Management Program" heading (page 3.3-58), "One-Time Inspection Program" is added.

LRA Section 3.3.2.B.17 is revised as follows:

Under the "Material" heading (page 3.3-58), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)."

Under the "Aging Effects Requiring Management" heading (page 3.3-58), "Cracking" is deleted.

Under the "Aging Management Programs" heading (page 3.3-58), "One-Time Inspection Program" is added.

LRA Section 3.3.2.B.18 is revised as follows:

Under the "Material" heading (page 3.3-59), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Wrought Austenitic Stainless Steel."

Under the "Aging Effects Requiring Management" heading (page 3.3-59), "Cracking" and "Loss of Material" are deleted and replaced with "None."

Under the "Aging Management Program" heading (page 3.3-59), "Systems Walkdown Program" is deleted and replaced with "None."

LRA Section 3.3.2.B.21 is revised as follows:

Under the "Material" heading (page 3.3-61), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)" and "Wrought Austenitic Stainless Steel."

Under the "Aging Management Programs" heading (page 3.3-62), "One-Time Inspection Program" is added.

LRA Section 3.3.2.B.22 is revised as follows:

Under the "Materials" heading (page 3.3-62), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)."

Under the "Aging Effects Requiring Management" heading (page 3.3-62), "Cracking" is deleted.

LRA Section 3.3.2.B.24 is revised as follows:

Under the "Materials" heading (page 3.3-64), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

Under the "Environments" heading (page 3.3-65), "Treated Water, temperature <140°F, Low Flow" is added.

Under the "Aging Effects Requiring Management" heading (page 3.3-65), "Cracking" is deleted.

LRA Section 3.3.2.B.25 is revised as follows:

Under the "Material" heading (page 3.3-66), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Wrought Austenitic Stainless Steel."

Under the "Aging Effects Requiring Management" heading (page 3.3-66), "Cracking" and "Loss of Material" are deleted and replaced with "None.".

Under the "Aging Management Programs" heading (page 3.3-66), "Systems Walkdown Program" and "Water Chemistry Control Program" are deleted and replaced with "None."

LRA Section 3.3.2.B.26 is revised as follows:

Under the "Materials" heading (page 3.3-67), "Any (this applies to NSR piping, fittings, and equipment)" is deleted.

LRA Section 3.3.2.B.27 is revised as follows:

Under the "Materials" heading (page 3.3-68), "Any (this applies to NSR piping, fittings, and equipment)" is replaced with "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)."

Under the "Aging Effects Requiring Management" heading (page 3.3-68), "Cracking" is deleted.

The changes to the applicable LRA Section 3.3 tables are shown in Attachment 2.

RAI 3.3.2-3

For several auxiliary subsystems identified in the LRA, the applicant stated that various components of these subsystems are made from copper alloys (Zinc less than or equal to 15%) and exposed to demineralized untreated water. For these components, the applicant has identified that its aging effects require no management program in order to maintain its pressure boundary integrity; and therefore, no AMPs are credited. Since demineralized water is not treated with corrosion inhibitors and thus is not chemically treated to remove or add oxygen, please provide additional information to justify NMP's conclusion that components of NMP1 and NMP2 auxiliary subsystems require no AMP to manage its aging effects.

In LRA Table 3.3.2.B-10 for NMP2 Diesel Generator Building Ventilation System, the applicant identified the loss of material aging effect for the Unit Cooler. The applicant also stated that components of the Unit Cooler are made from copper alloy (Zinc less than or equal to 15%), and exposed to raw water. Since raw water is also an untreated water, it is not chemically treated to remove or add oxygen. Please provide information to compare and explain the discrepancy between the loss of material aging effect that had been identified for the Unit Cooler with the above case for the NMP1 and NMP2 auxiliary subsystems, with its components are also made from copper alloy (Zinc less than or equal to 15%), the same material found in the Unit Cooler, and exposed to demineralized untreated water; but with no identified aging effects that require an AMP.

Response

NMPNS acknowledges that there are inconsistencies with the aging management of components made of copper alloys (Zinc less than or equal to 15%) exposed to demineralized untreated water. A review of LRA Section 3.3.2 tables identified four subsystems in the NMP1 Auxiliary Systems with component types having the subject material-environment combination and no aging management program credited. These subsystems are the NMP1 Containment, Control Room HVAC, Reactor Building Closed Loop Cooling, and Spent Fuel Pool Cooling Systems. The component types are Heat Exchangers, Pumps, and Valves. NMPNS is revising the LRA to

identify an aging effect of loss of material and an aging management program of the Closed Cycle Cooling Water System Program. These changes adequately address the discrepancies noted in the RAI and provide for aging management of the subject components.

LRA Revisions

LRA Tables 3.3.2.A-4 (page 3.3-115), 3.3.2.A-5 (pages 3.3-120, 121, and 122), 3.3.2.A-15 (page 3.3-157), and 3.3.2.A-21 (page 3.3-182), are revised to incorporate the changes described above, as shown in Attachment 2.

RAI 3.3.2.A-3.1

In LRA Table 3.3.2.A-3 for NMP1 Compressed Air System, the applicant credited the Compressed Air Monitoring Program (CAMP) for managing the aging effects of cracking, hardening, shrinkage, and loss of strength for polymers in valves exposed to air environment. However, the CAMP for NMP1 does not include the management of aging effects of polymer hardening, shrinkage, and loss of strength. Please provide information to justify the use of this aging management program (AMP) for managing the aging effects of polymers by providing the methods of detection, test intervals, acceptance criteria, monitoring, trending, and preventive action, or provide other acceptable AMP.

In LRA Table 3.3.2.A-1 for the NMP1 Circulating Water System, the applicant identified polymer cracking and loss of strength as aging effects for traveling screens and rakes exposed to raw water. The applicant also stated that the Open-Cycle Cooling Water System Program is used for managing the above identified aging effects. Please provide information to explain how the Open-Cycle Cooling Water System Program can manage the above identified aging effects.

Response

(a) Compressed Air Monitoring Program

The component type "Polymers" in an environment of "Air" in LRA Table 3.3.2.A-3 refers to ten solenoid valves associated with the Instrument Air Dryers. The aging effects requiring management for the polymers in each of these valves include "Cracking," "Hardening & Shrinkage," and "Loss of Strength."

The NMP1 Compressed Air Monitoring Program credits an existing Instrument Air Dryer preventive maintenance procedure for managing the aging of these ten solenoid valves. Currently, this procedure does not include the specific methods of detection, test intervals, acceptance criteria, monitoring, trending, or preventive actions for these valves. This is an identified enhancement which is included in the enhancements listed in LRA Sections A1.1.14 and B2.1.14. The basis for the procedure enhancement will be proven industry practices.

(b) Open-Cycle Cooling Water System Program

The component type "Polymers" in a "Raw Water" environment in LRA Table 3.3.2.A-1 refers to the fiberglass subcomponents of the Circulating Water System traveling screens and trash

rakes. The aging effects requiring management include "Cracking" and "Loss of Strength," both due to the aging mechanism of "Polymer Degradation."

The assignment of the Open-Cycle Cooling Water System (OCCWS) Program for management of aging effects in the NMP1 Circulating Water System is unclear since the inspections will be performed within a preventive maintenance procedure. Therefore, NMPNS is revising LRA Table 3.3.2.A-1 to replace the OCCWS Program with the Preventive Maintenance Program. NMP1 has an existing procedure that performs preventive maintenance on the traveling screens every six months. However, this procedure does not currently inspect the fiberglass subcomponents (debris catch baskets) for aging effects. NMPNS has identified this procedure as requiring enhancement and will incorporate proven industry techniques to detect cracking and loss of strength. As a minimum, a visual inspection will be performed.

LRA Revisions

In LRA Section 3.3.2.A.1 (page 3.3-12), under the "Aging Management Program" heading, "Open-Cycle Cooling Water System Program" is replaced with "Preventive Maintenance Program."

In LRA Table 3.3.2.A-1 (page 3.3-102), the Open-Cycle Cooling Water System Program is replaced with the Preventive Maintenance Program for managing aging effects for the Circulating Water System traveling screens and rakes, as shown in Attachment 2.

RAI 3.3.2.A-4.1

In LRA Table 3.3.2.A-4 for NMP1 Containment System, the applicant credited the Preventive Maintenance Program (PMP) as an aging management program (AMP) for managing the aging effect of loss of material for valves made from carbon or low alloy steel (yield strength less than 100 ksi) and ductile/malleable cast iron, exposed to air environment. The ten-elements description of the PMP indicates that the PMP is a condition-monitoring program performed on a specific schedule with specific acceptance criteria established for each component inspection. Please provide the following information:

(1) For valves in NMP1 Containment System, provide information related to its inspection schedule and acceptance criteria for the inspections; and

(2) Components for NMP2 Reactor Building Closed Loop Cooling Water System are made from the same material (e.g., carbon or low alloy steel (yield strength less than 100 ksi) and ductile/malleable cast iron) and are exposed to a similar environment with similar identified aging effects. Please provide additional information to explain and justify why the One-Time Inspection Program is used instead of the Preventive Maintenance Program.

Response

(1) There are eighteen valves in the NMP1 Containment System made of carbon or low alloy steel (yield strength less than 100 ksi) and ductile/malleable cast iron and exposed to air.

Based upon a reevaluation of the extent of aging effects expected, the Preventive Maintenance Program is replaced by the One-Time Inspection Program. The reason for this change is that the aging effect for these valves in air is loss of material due to general corrosion only. Since these valves are exposed to an air environment a majority of the time and a nitrogen environment the remainder of the time, the extent of corrosion expected to occur during the period of extended operation is insignificant. However, to validate this expectation, these valves will be included in the One-Time Inspection Program. They will be included in the grouping of components made of the same material and exposed to the same environment. A sample of these components will be inspected and the results applied to the grouping. If the inspection results show that the loss of material is greater than expected, an evaluation will be performed with respect to placing these components into a periodic inspection program. More information on the One-Time Inspection Program is provided in LRA Section B2.1.20.

Based on the above-described change in aging management programs from the Preventive Maintenance Program to the One-Time Inspection Program, the requested information is considered not applicable.

LRA Revision

In LRA Table 3.3.2.A-4 (page 3.3-116), for valves with a material of "Carbon or Low Alloy Steel (Yield Strength < 100 Ksi) and Ductile/Malleable Cast Iron," and an environment of "Air," the Preventive Maintenance Program is replaced with the One-Time Inspection Program, as shown in Attachment 2.

(2) As stated above, the One-Time Inspection Program is the appropriate aging management program for components made of carbon or low alloy steel (yield strength less than 100 ksi) and ductile/malleable cast iron and exposed to an air environment. The applicable aging effect for this material-environment combination is loss of material due to general corrosion. However, the extent of corrosion is expected to be insignificant for the period of extended operation. As such, the intended function for these components is not expected to be adversely affected due to this aging effect. Therefore, using the One-Time Inspection Program to validate this expectation is appropriate and is consistent with components in several other systems identified in the LRA.

RAI 3.3.2.B-6.1

In LRA Table 3.3.2.B-6 for NMP2 Containment Atmosphere Monitoring System, the applicant credited the System Walkdown Program for managing the aging effects of cracking and loss of material for bolting (made from martensitic, precipitation hardenable, and superferritic stainless steels) exposed to air, moisture or wetting, with temperature equal to or greater than 140 degree F environments. Please provide information (1) to explain what sizes of crack may occur in the Containment Atmosphere Monitoring System that can be identified visually under the System Walkdown Program; and (2) to justify NMP's conclusion that it is not necessary to use the Ultra-sound Testing or Eddy current Testing methods to detect aging effects of cracking.

Response

In NMPNS letter NMP1L 1919, dated January 20, 2005, responses to NRC requests for additional information were submitted regarding the aging management of bolting for NMP1 and NMP2. In this letter, LRA Table 3.3.2.B-6 was revised to replace the Systems Walkdown Program with the Bolting Integrity Program (BIP) for bolting in the NMP2 Containment Monitoring System (CMS). The BIP was added to the LRA and is described in new LRA Section B2.1.36. The BIP is consistent with NUREG-1801, with exceptions and enhancements, and will adequately manage the aging effects of the bolting in the NMP2 CMS system. The exceptions are not related to bolting in the NMP2 CMS system, and the enhancements are not related to the detection of cracking.

RAI 3.3.2.A-17.1

In LRA Table 3.3.2.B-24 for NMP2 Reactor Water Cleanup System, the applicant credited three aging management programs (AMPs), namely, BWR Reactor Water Cleanup System Program, System Walkdown Program, and Flow-Accelerated Corrosion Program, for managing the aging effects of cracking and loss of material for non safety-related (NSR) piping, fittings, and equipment exposed to five different treated water or steam environments.

In LRA Table 3.3.2.A-17 for the NMP1 Reactor Water Cleanup System, the applicant also credited the same three aging management programs (AMPs) to manage the aging effects for similar NSR piping, fittings, and equipment, but exposed only to treated water with temperature less than 140 degree F. Please provide information to explain the above discrepancy.

Response

As described in the NMPNS response to RAI 3.3.2-2 above, the applicable aging effects and AMPs for the NMP1 and NMP2 Reactor Water Cleanup Systems have been revised based upon identifying the specific material for the non-safety-related (NSR) piping, fittings, and equipment component type. The environments have also been revised to be consistent between the two units. Based on the revised material-environment combinations, the applicable aging effects are loss of material and cracking. The associated aging management programs are the BWR Reactor Water Cleanup System, Flow-Accelerated Corrosion, Water Chemistry Control, One-Time Inspection, and Systems Walkdown Programs, except that the BWR Reactor Water Cleanup System Program is not applicable for the NMP2 NSR components. These revisions bring the credited AMPs into consistency between the two units.

LRA Revisions

LRA Tables 3.3.2.A-17 (page 3.3-163) and 3.3.2.B-24 (pages 3.3-246 and 247) are revised to incorporate the changes described above, as shown in Attachment 2.

ATTACHMENT 2

Nine Mile Point Nuclear Station

Revisions to LRA Section 3.3 Tables for NMP1 and NMP2 Auxiliary Systems

Revisions are provided for the following LRA Section 3.3 tables:

LRA Table Number	LRA Page Number
3.3.1.A	3.3-82
3.3.2.A-1	3.3-102
3.3.2.A-2	3.3-103
3.3.2.A-4	3.3-115, 116
3.3.2.A-5	3.3-120, 121, 122
3.3.2.A-8	3.3-135
3.3.2.A-9	3.3-140
3.3.2.A-11	3.3-144
3.3.2.A-14	3.3-147
3.3.2.A-15	3.3-155, 156, 157
3.3.2.A-17	3.3-163
3.3.2.A-18	3.3-170
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3.3.2.B-22	3.3-239
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3.3.2.B-25	3.3-256
3.3.2.B-26	3.3-258, 259
3.3.2.B-27	3.3-263

Table 3.3.1.A NMP1 Summary of Aging Management Programs for the Auxiliary Systems Evaluated in Chapter VII of NUREG-1801

Item Number	Component	Aging Effect/ Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.3.1.A-17	Components in or serviced by open-cycle cooling water systems	Loss of material due to general, pitting, crevice, and galvanic corrosion, MIC, and biofouling; buildup of deposit due to biofouling	Open-cycle cooling water system	No	Consistent with NUREG-1801. Additionally, the following components are consistent with, but not addressed in NUREG-1801: • Circulating water gates, traveling screens, and rakes • Containment Spray System raw water filters/strainers (Table 3.2.2.A-1) • Flow elements • Heat exchangers Additionally, for the NMP1 Circulating Water System circulating water gates and traveling screens and rakes, NMP1 credits the Preventive Maintenance Program for aging management. For the Core Spray System heat exchangers (Table 3.2.2.A-2), NMP1 also credits the Preventive Maintenance Program (Appendix B2.1.32) for managing the aging effect/mechanism of buildup of deposit due to biofouling. For carbon steel piping and fittings in the NMP1 Containment Spray System (Table 3.2.2.A-1), NMP1 credits the ASME Section XI Inservice Inspection (Subsections IWB, IWC, IWD) Program (Appendix B2.1.1) and the One-Time Inspection Program (Appendix B2.1.20) since these components are already part of the ISI Program.

Table 3.3.2.A-1 Auxiliary Systems
NMP1 Circulating Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Circulating Water Gates	NFS	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Raw Water	Loss of Material	Preventive Maintenance Program	VII.C1.6-a	3.3.1.A-17	E, 8
Traveling Screens and Rakes	FLT	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Air	Loss of Material	Preventive Maintenance Program			G
			Raw Water	Loss of Material	Preventive Maintenance Program	VII.C1.6-a	3.3.1.A-17	E, 8
		Fiberglass	Raw Water	Cracking	Preventive Maintenance Program			F
				Loss of Strength	Preventive Maintenance Program			F
		Wrought Austenitic Stainless Steel	Raw Water	Cracking	Preventive Maintenance Program			H
				Loss of Material	Preventive Maintenance Program	VII.C1.6-a	3.3.1.A-17	E, 8

Table 3.3.2.A-2 Auxiliary Systems
NMP1 City Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength <100 Ksi)	Demineralized Untreated Water	Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q
		Copper Alloys (Zinc ≤ 15%)	Demineralized Untreated Water	None	None			None

Table 3.3.2.A-4 Auxiliary Systems
NMP1 Containment Systems – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat Exchangers	PB	Copper Alloys (Zinc ≤ 15%)	Air, Moisture or Wetting, temperature ≥ 140°F	None	None			None
			Demineralized Untreated Water	Loss of Material	Closed-Cycle Cooling Water Program			K
Valves	PB	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Air	Loss of Material	10 CFR 50 Appendix J Program	VII.F3.4-a	3.3.1.A-05	C, 2
					One-Time Inspection Program	VII.F3.4-a	3.3.1.A-05	C, 2
					Systems Walkdown Program	VII.I.1-b	3.3.1.A-05	A, 3

Table 3.3.2.A-5 Auxiliary Systems
NMP1 Control Room HVAC System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat Exchangers	PB	Copper Alloys (Zinc ≤ 15%)	Air	None	None			None
			Demineralized Untreated Water	Loss of Material	Closed-Cycle Cooling Water Program			K
Pumps	PB	Copper Alloys (Zinc ≤ 15%)	Demineralized Untreated Water	Loss of Material	Closed-Cycle Cooling Water Program			K
Valves and Dampers	PB	Copper Alloys (Zinc ≤ 15%)	Demineralized Untreated Water	Loss of Material	Closed-Cycle Cooling Water Program			K

Table 3.3.2.A-8 Auxiliary Systems
NMP1 Fire Detection and Protection System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Raw Water, Low Flow	Loss of Material	Fire Water System Program			Q

Table 3.3.2.A-9 Auxiliary Systems
NMP1 Hydrogen Water Chemistry System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Wrought Austenitic Stainless Steel	Treated Water or Steam; temperature ≥ 212°F, but <482°F	Cracking	One-Time Inspection Systems Walkdown Program Water Chemistry Control Program			Q, 31

Table 3.3.2.A-11 Auxiliary Systems
NMP1 Miscellaneous Non Contaminated Vents and Drains System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Demineralized Untreated Water	Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q, 1

Table 3.3.2.A-14 Auxiliary Systems
NMP1 Radioactive Waste System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Demineralized Untreated Water, Low Flow Treated Water, temperature ≥ 140°F, but < 212°F, Low Flow	Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q
		Cast Austenitic Stainless Steel; Wrought Austenitic Stainless Steel	Demineralized Untreated Water, Low Flow Treated Water, temperature ≥ 140°F, but < 212°F, Low Flow	Cracking Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q

Table 3.3.2.A-15 Auxiliary Systems
NMP1 Reactor Building Closed Loop Cooling Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength <100 Ksi)	Demineralized Untreated Water Demineralized Untreated Water, Low Flow	Loss of Material	Closed-Cycle Cooling Water System Program Systems Walkdown Program			Q
Valves	PB	Copper Alloys (Zinc ≤ 15%)	Demineralized Untreated Water	Loss of Material	Closed-Cycle Cooling Water System Program			K

Table 3.3.2.A-17 Auxiliary Systems
NMP1 Reactor Water Cleanup System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength ≥ 100 Ksi)	Treated Water, temperature <140°F Treated Water or Steam, temperature ≥ 212°F, but <482°F Treated Water or Steam, temperature ≥ 482°F	Loss of Material	Water Chemistry Control Program Flow-Accelerated Corrosion Program Systems Walkdown Program			Q, 31
			Treated Water, temperature <140°F, Low Flow Treated Water or Steam, temperature ≥ 482°F, Low Flow	Cracking Loss of Material	One-Time Inspection Program Water Chemistry Control Program Systems Walkdown Program			Q, 1
		Cast Austenitic Stainless Steel; Wrought Austenitic Stainless Steel	Treated Water, temperature <140°F Treated Water, temperature <140°F, Low Flow	None	None			None

Table 3.3.2.A-17 Auxiliary Systems
NMP1 Reactor Water Cleanup System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment (cont'd)	PFASRE (cont'd)	Cast Austenitic Stainless Steel; Wrought Austenitic Stainless Steel (cont'd)	Treated Water or Steam; temperature ≥ 482°F Treated Water or Steam; temperature ≥ 482°F; Low Flow	Cracking	BWR Reactor Water Cleanup System Program System Walkdown Program			Q

Table 3.3.2.A-18 Auxiliary Systems
NMP1 Sampling System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Wrought Austenitic Stainless Steel	Treated Water, temperature <140°F Treated Water, temperature <140°F, Low Flow	None	None			None

Table 3.3.2.A-19 Auxiliary Systems
NMP1 Service Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength ≥ 100 Ksi)	Raw Water	Loss of Material	Open-Cycle Cooling Water System Program Systems Walkdown Program			Q
		Wrought Austenitic Stainless Steel	Raw Water	Loss of Material	Open-Cycle Cooling Water System Program Systems Walkdown Program			Q

Table 3.3.2.A-20 Auxiliary Systems
NMP1 Shutdown Cooling System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Cast Austenitic Stainless Steel; Wrought Austenitic Stainless Steel	Treated Water, temperature <140°	None	None			None

Table 3.3.2.A-21 Auxiliary Systems
NMP1 Spent Fuel Pool Filtering and Cooling System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat Exchangers	PB	Copper Alloys (Zinc ≤ 15%)	Demineralized Untreated Water	Loss of Material	Closed-Cycle Cooling Water System Program			K
NSR piping, fittings, and equipment	PFASRE	Wrought Austenitic Stainless Steel	Demineralized Untreated Water	None	None			None

Table 3.3.2.A-22 Auxiliary Systems
NMP1 Turbine Building Closed Loop Cooling Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength ≥ 100 Ksi)	Demineralized Untreated Water Demineralized Untreated Water, Low Flow	Loss of Material	Closed-Cycle Cooling Water System Program Systems Walkdown Program			Q
		Copper Alloys (Zinc ≤ 15%)	Demineralized Untreated Wate Demineralized Untreated Water, Low Flow	None	None			None

Table 3.3.2.B-4 Auxiliary Systems
NMP2 Chilled Water Ventilation System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength ≤ 100 Ksi)	Raw Water	Loss of Material	Open-Cycle Cooling Water System Program Systems Walkdown Program			Q

Table 3.3.2.B-8 Auxiliary Systems
NMP2 Control Building Chilled Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Treated Water, temperature <140°F Treated Water, temperature < 140°F, Low Flow	Loss of Material	Closed-Cycle Cooling Water System Program Systems Walkdown Program			Q

Table 3.3.2.B-11 Auxiliary Systems
NMP2 Domestic Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength ≤ 100 Ksi)	Demineralized Untreated Water	Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q
		Wrought Austenitic Stainless Steel	Demineralized Untreated Water	None	None			None

Table 3.3.2.B-13 Auxiliary Systems
NMP2 Fire Detection and Protection System– Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Liquid Foam Concentrate/ Raw Water; Low Flow	Loss of Material	Fire Water System Program	VII.G.6-a	3.3.1.B-21	A
		Copper Alloys (Zinc ≤ 15%)	Liquid Foam Concentrate/ Raw Water; Low Flow	Loss of Material	Fire Water System Program	VII.G.6-b	3.3.1.B-21	A
		Wrought Austenitic Stainless Steel	Liquid Foam Concentrate/ Raw Water; Low Flow	Loss of Material	Fire Water System Program	VII.G.6-a	3.3.1.B-21	A
		Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Raw Water; Low Flow	Loss of Material	Fire Water System Program	VII.G.6-a	3.3.1.B-21	A
		Copper Alloys (Zinc ≤ 15%)	Raw Water; Low Flow	Loss of Material	Fire Water System Program	VII.G.6-b	3.3.1.B-21	A
		Wrought Austenitic Stainless Steel	Raw Water; Low Flow	Loss of Material	Fire Water System Program	VII.G.6-a	3.3.1.B-21	A

Table 3.3.2.B-14 Auxiliary Systems
NMP2 Floor and Equipment Drains System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi) Grey Cast Iron	Raw Water Treated Water, temperature <140°F	Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q
		Wrought Austenitic Stainless Steel	Treated Water, temperature ≥ 140°F, but <212°F	Cracking Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q
		Carbon or Low Alloy Steel (Yield Strength < 100 Ksi) Grey Cast Iron	Treated Water, temperature ≥ 140°F, but <212°F, Low Flow	Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q
		Wrought Austenitic Stainless Steel	Treated Water, temperature ≥ 140°F, but <212°F, Low Flow	Cracking Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q

Table 3.3.2.B-16 Auxiliary Systems
NMP2 Glycol Heating System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength < 100 Ksi)	Treated Water, temperature ≥ 140°F, but <212°F	Loss of Material	One-Time Inspection Program Systems Walkdown Program			Q

Table 3.3.2.B-17 Auxiliary Systems
NMP2 Hot Water Heating System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength <100 Ksi)	Treated Water, temperature ≥ 140°F, but <212°F Treated Water or Steam, temperature ≥ 212°F, but <482°F	Loss of Material	One-Time Inspection Program Systems Walkdown Program Water Chemistry Control Program			Q

Table 3.3.2.B-18 Auxiliary Systems
NMP2 Makeup Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Wrought Austenitic Stainless Steel	Treated Water, temperature <140°F	None	None			None

Table 3.3.2.B-21 Auxiliary Systems
NMP2 Process Sampling System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength ≤100 Ksi)	Treated Water, temperature <140°F Treated Water, temperature ≥ 140°F, but < 212°F Treated Water or Steam, temperature ≥ 212°F, but < 482°F	Cracking Loss of Material	One-Time Inspection Program Systems Walkdown Program Water Chemistry Control Program			Q; 1
		Wrought Austenitic Stainless Steel	Treated Water; temperature <140°F	None	None			None
			Treated Water; temperature ≥ 140°F, but <212°F Treated Water or Steam; temperature ≥ 212°F, but <482°F	Cracking Loss Of Material	One-Time Inspection Program Systems Walkdown Program Water Chemistry Control Program			Q, 1

Table 3.3.2.B-22 Auxiliary Systems
NMP2 Reactor Building Closed Loop Cooling Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength <100 Ksi)	Demineralized Untreated Water Demineralized Untreated Water, Low Flow	Loss of Material	Closed-Cycle Cooling Water System Program Systems Walkdown Program			Q
		Wrought Austenitic Stainless Steel	Demineralized Untreated Water Demineralized Untreated Water, Low Flow	None	None			None

Table 3.3.2.B-24 Auxiliary Systems
NMP2 Reactor Water Cleanup System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength <100 Ksi)	Treated Water, temperature <140°F Treated Water or Steam, temperature ≥ 212°F, but <482°F Treated Water or Steam, temperature ≥ 482°F	Loss of Material	Water Chemistry Control Program Flow-Accelerated Corrosion Program Systems Walkdown Program			Q, 1, 31
			Treated Water, temperature <140°F, Low Flow Treated Water or Steam, temperature ≥ 482°F, Low Flow	Loss of Material	One-Time Inspection Program Water Chemistry Control Program Systems Walkdown Program			Q
		Wrought Austenitic Stainless Steel	Treated Water, temperature <140°F, Low Flow	None	None			None

Table 3.3.2.B-25 Auxiliary Systems
NMP2 Seal Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Wrought Austenitic Stainless Steel	Treated Water, temperature <140°F	None	None			None

Table 3.3.2.B-26 Auxiliary Systems
NMP2 Service Water System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength ≤100 Ksi)	Raw Water Raw Water, Low Flow	Loss of Material	Open-Cycle Cooling Water System Program Systems Walkdown Program			Q
		Wrought Austenitic Stainless Steel	Raw Water Raw Water, Low Flow	Cracking Loss Of Material	Open-Cycle Cooling Water System Program Systems Walkdown Program			Q

Table 3.3.2.B-27 Auxiliary Systems
NMP2 Spent Fuel Pool Cooling and Cleanup System – Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
NSR piping, fittings, and equipment	PFASRE	Carbon or Low Alloy Steel (Yield Strength <100 Ksi)	Demineralized Untreated Water Treated Water, temperature <140°F, Oxygenated	Loss of Material	Closed-Cycle Cooling Water System Program Systems Walkdown Program Water Chemistry Control Program			Q
		Wrought Austenitic Stainless Steel	Demineralized Untreated Water Treated Water, temperature <140°F, Oxygenated	None	None			None