February 28, 2006

L-MT-06-015
10 CFR Part 54

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

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

Confirmatory Items Response Regarding the Monticello Nuclear Generating Plant License Renewal Application (TAC No. MC6440)

Reference: 1) NMC letter to NRC, "Application for Renewed Operating License," dated March 16, 2005 (ADAMS Accession No. ML050880241)

Pursuant to 10 CFR Part 54, the Nuclear Management Company, (NMC) LLC submitted a License Renewal Application (LRA) (Reference 1) to renew the operating license for the Monticello Nuclear Generating Plant (MNGP).

During their review of the NMC LRA for MNGP, the NRC Staff requested that the NMC confirm that information related to previous responses to NRC Request for Additional Information (RAI's) will be included in the MNGP LRA Annual Update.

Enclosure 1 provides the NMC confirmation that certain clarifications will be included in the MNGP LRA Annual Update.

This letter contains no new commitments or changes any previous commitments.

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

Executed on February 28, 2006.

John T. Conway

John T. Conway
Site Vice President, Monticello Nuclear Generating Plant
Nuclear Management Company, LLC

A113

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Monticello, USNRC
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ENCLOSURE 1

CONFIRMATORY ITEMS RESPONSE REGARDING THE MONTICELLO NUCLEAR GENERATING PLANT LICENSE RENEWAL APPLICATION

During their review of the Nuclear Management Company, LLC (NMC) License Renewal Application (LRA) for the Monticello Nuclear Generating Plant (MNGP) the NRC Staff requested that NMC confirm that information related to previous responses to NRC Request for Additional Information (RAI's) will be included in the MNGP LRA Annual Update. Following is each Confirmatory Item and the NMC clarification of changes that will be included in the MNGP LRA Annual Update:

A. Confirmatory Item

LRA Section 4.9 – Reactor Crane Load Calculations

LRA Section

4.9 Reactor Building Crane Load Cycles

BACKGROUND

In NMC letter dated August 16, 2005 (ADAMS Accession No. ML052340510), in response to NRC RAI 4.9-01, NMC stated that the reactor building crane upgrade calculations have not been completed. Upon completion of the modification analysis, an evaluation will be made to determine the effect, if any, on Section 4.9. If the results are not bounded by the current LRA evaluation/disposition, a revised Section 4.9 will be included with the first annual update of the LRA.

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

(NONE)

4.9 Reactor Building Crane Load Cycles

The MNGP Reactor Building Crane load calculation has been completed. NMC has reviewed the calculation and determined that it has no impact on the information provided in MNGP LRA Section 4.9, "Reactor Building Crane Load Cycles."

B. **Confirmatory Item**

LRA Section A4.2 – Commitment # 52 to be listed in USAR Supplement

LRA Section

APPENDIX A – USAR SUPPLEMENT

A4 TLAA SUPPORTING ACTIVITIES

And

A.5 COMMITMENTS

BACKGROUND

The USAR Supplement, transmitted by NMC letter dated June 10, 2005 (ADAMS Accession No. ML051680145) was in response to the NRC Staff's RAI A2.1-1. The MNGP response specifically addressed Appendix A, Section A2 AMPs only. In retrospect, inclusion of commitments from TLAA supporting activities (Section A4) would have provided a more comprehensive reply to the RAI. NMC will add Commitment # 52, which incorporates requirements for inclusion of NUREG/CR-6260 locations in implementing procedures for the MNGP Thermal Fatigue Monitoring Program, to the MNGP LRA Section A4.2, Metal Fatigue of Reactor Coolant Pressure Boundary.

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

A4.2 Metal Fatigue of Reactor Coolant Pressure Boundary

The MNGP Metal Fatigue of the Reactor Coolant Pressure Boundary aging management program is part of the MNGP Thermal Fatigue Monitoring Program. The MNGP Thermal Fatigue Monitoring Program provides for the periodic review of plant transients for impact on selected components. In addition, MNGP has evaluated environmental effects in accordance with NUREG/CR-6260, "Application of NUREG/CR-5999 Interim Fatigue Curves for Selected Nuclear Power Plant Components." Selected components were evaluated using material specific guidance presented in NUREG/CR-6583 for carbon and low alloy steels and in NUREG/CR-5704 for austenitic stainless steels. The MNGP program ensures that limiting components remain within the acceptance criteria for cumulative fatigue usage throughout the licensed term and, that if trends indicate otherwise, appropriate corrective action can be implemented. **[NMC will also incorporate requirements for inclusion of NUREG/CR-6260 locations in implementing procedures for the MNGP Thermal Fatigue Monitoring Program.]**

A.5 COMMITMENTS

ITEM	COMMITMENT	SOURCE	SCHEDULE
52.	Incorporate requirements for inclusion of NUREG/CR-6260 locations in implementing procedures for the MNGP Thermal Fatigue Monitoring Program.	LRA Section B3.2 **[And LRA Section A4.2]**	Prior to Period of Extended Operation

C. Confirmatory Item

Remove Stress Corrosion Cracking (SCC) as an aging effect for top head dollar plate, top head flange and top head torus

LRA Section

3.1 – Aging Management of Reactor Coolant System

BACKGROUND

As stated in NMC letter dated December 16, 2005 (ADAMS Accession No. ML053550250) in the response to RAI 3.1.2-1, these components were conservatively included in LRA Table 3.1.2-2 for the SCC aging mechanism due to industry experience with SCC in the cladding of these components. NMC agrees with the NRC staff that this is not an aging mechanism for the low alloy base material and will provide a clarification to the LRA accordingly.

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION
(additions are bold in brackets; deletions are strikethrough)

Table 3.1.2-2 Reactor Coolant System - Reactor Pressure Vessel - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG - 1801 Volume 2 Line Item	Table 1 Item	Notes
Top Head Enclosure - • Top Head Dollar Plate	Pressure Boundary	A533-65 GrB Cl 1, 308/309 Clad	288°C (550°F) Steam	Crack Initiation and Growth, **[**~~Stress Corrosion Cracking,~~**]** Intergranular Stress Corrosion Cracking	ASME Section XI In-Service Inspection, Subsections IWB, IWC, and IWD			H
					Plant Chemistry Program			H
				Cumulative Fatigue Damage/Fatigue	TLAA evaluated in accordance with 10 CFR 54.21 (c)	IV.A1.1-b	3.1.1-01	
Top Head Enclosure - • ~~Top Head~~	Pressure Boundary	A508 Cl 2, 308/309 Clad	288°C (550°F) Steam	Crack Initiation and Growth, **[**~~Stress Corrosion~~	ASME Section XI In-Service Inspection, Subsections IWB,			H

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG - 1801 Volume 2 Line Item	Table 1 Item	Notes
Flange				~~Cracking,~~] Intergranular Stress Corrosion Cracking	IWC, and IWD			
					Plant Chemistry Program			H
				Cumulative Fatigue Damage/Fatigue	TLAA evaluated in accordance with 10 CFR 54.21 (c)	IV.A1.1-b	3.1.1-01	
Top Head Enclosure - • Top Head Torus	Pressure Boundary	A533-65 GrB Cl 1, 308/309 Clad	288°C (550°F) Steam	Crack Initiation and Growth, [~~Stress Corrosion Cracking,~~] Intergranular Stress Corrosion Cracking	ASME Section XI In-Service Inspection, Subsections IWB, IWC, and IWD			H
					Plant Chemistry Program			H
				Cumulative Fatigue Damage/Fatigue	TLAA evaluated in accordance with 10 CFR 54.21 (c)	IV.A1.1-b	3.1.1-01	

D. Confirmatory Item

RAI 3.3.2.1.9-3 – AMR line items should show Fire Water System AMP

LRA Section

3.3 Aging Management of Auxiliary Systems

BACKGROUND

NMC stated in its letter dated November 22, 2005 (ADAMS Accession No. ML0533402690) in response to NRC RAI 3.3.2.1.9-3 that "...Although the Fire Water System AMP is credited in the license renewal database for managing the aging effect of loss of material for copper alloy filters and strainers in a raw water environment, it was inadvertently omitted from Table 3.3.2-9 of the LRA. The Fire Water System AMP is credited for managing these components in the water-based portion of the Fire System."

NMC will update MNGP LRA Table 3.3.2-9 to state that the Fire Water System AMP is credited for managing the aging effect of loss of material for copper alloy filters and strainers in a raw water environment.

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

Table 3.3.2-9 Auxiliary Systems- Fire System - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG - 1801 Volume 2 Line Item	Table 1 Item	Notes
Filters / Strainers	Filtration	Copper Alloy	Plant Indoor Air (Ext)	None	None			J, 327
			Raw Water (Int)	Loss of Material - Crevice Corrosion	Fire Protection	VII.G.6-b	3.3.1-21	E, 319
					[Fire Water System	**VII.G.6-b**	**3.3.1-21**	**A]**
				Loss of Material - MIC	Fire Protection	VII.G.6-b	3.3.1-21	E, 319
					[Fire Water System	**VII.G.6-b**	**3.3.1-21**	**A]**
				Loss of Material - Pitting Corrosion	Fire Protection	VII.G.6-b	3.3.1-21	E, 319
					[Fire Water System	**VII.G.6-b**	**3.3.1-21**	**A]**
				Loss of Material - Selective Leaching	Fire Protection	VII.G.6-b	3.3.1-21	E, 312, 319
					[Fire Water System	**VII.G.6-b**	**3.3.1-21**	**A, 312]**

E. Confirmatory Item

RAI 3.3.2.3.5-1 – Selective Leaching is managed by Fire Protection, Fire Water System, and Buried Piping AMPs. These AMPs need to be revised to address how the applicant will manage selective leaching.

LRA Sections

B2.1 Aging Management Program Details

BACKGROUND

NMC stated in its letter dated November 22, 2005 (ADAMS Accession No. ML0533402690), in response to NRC RAI 3.3.2.2[3].5-1, that "Sections B2.1.5 for the Buried Piping and Tanks Inspection Program, B2.1.17 for the Fire Protection Program, and B2.1.18 for the Fire Water System Program, under "Scope of Program" in Appendix B of the LRA, although not specifically stated, credit the Selective Leaching of Materials Program for managing loss of material due to selective leaching and is intended to be included in these sections also."

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

B2.1.5 Buried Piping & Tanks Inspection

Aging Management Program Elements

Scope of Program

The Buried Piping and Tanks Inspection Program provides for managing loss of material for all buried carbon steel and cast iron components in scope for license renewal. Buried components are coated or wrapped as appropriate to help prevent loss of material caused by corrosion. Buried components in scope for license renewal include piping, bolting, conduit and tanks.

A representative sample of buried underground pipes are periodically uncovered and inspected. Program implementing procedures will be enhanced to include periodic inspections of components when they are uncovered.

Since buried components are not routinely uncovered, internal tank inspections and several systems monitoring and functional testing activities are relied upon to provide an early warning of leaking such that repairs can be made and loss of component intended function is prevented.

[The Buried Piping and Tanks Inspection Program also provides for managing loss of material due to selective leaching by crediting the Selective Leaching of Materials Program.]

B2.1.17 Fire Protection

Aging Management Program Elements

Scope of Program

The Fire Protection Program is credited for detecting and managing age-related degradation of fire barrier walls, ceilings, and floors, penetration seals, fire doors, and halon fire suppression system components. It also manages the aging effects on the intended function of the fuel supply line for the diesel fire pump **[and the loss of material due to selective leaching by crediting the Selective Leaching of Materials Program.]**

B2.1.18 Fire Water System

Aging Management Program Elements

Scope of Program

The MNGP Fire Water System Program focuses on managing loss of material due to corrosion of carbon steel, cast-iron, stainless steel, and copper alloys in fire protection system components exposed to water. Hose stations and standpipes are considered as piping in this AMP. **[The program also manages loss of material due to selective leaching by crediting the Selective Leaching of Materials Program.]**

F. Confirmatory Item

LRA Section 3.6.2.3 – The licensee stated that it will look into expanding the current thermography program to include cable connectors and the switchyard bus connections as well as transmission conductor connections that are within the scope of license renewal.

LRA Sections

3.6 Aging Management of Electrical and Instrumentation and Controls

A2.1 Aging Management Programs

B2.1 Aging Management Program Details

BACKGROUND

NMC will implement a MNGP program which is consistent with the NUREG-1801, Rev. 1, XI.E6, "Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements" program. The details of this program will be consistent with the program description and the ten elements described in the NUREG-1801, Revision 1, XI.E6 program and will be provided in the March 2006 annual update as follows:

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

3.6 Aging Management of Electrical and Instrumentation and Controls

3.6.2.1.1 Electrical Penetrations Commodity Group

Aging Management Programs

The following aging management programs manage the aging effects for the Electrical Penetrations Commodity Group components:

- Electrical Cables & Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program
- Electrical Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits
- **[Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements]**

3.6.2.1.3 Non-EQ Cables and Connections Commodity Group

Aging Management Programs

The following aging management programs manage the aging effects for the Non-EQ Cables and Connections Commodity Group components:

- Electrical Cables & Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program
- Electrical Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits
- Inaccessible Medium Voltage (2kV to 34.5kV) Cables Not Subject to 10 CFR 50.49 EQ Requirements
- **[Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements]**

3.6.2.1.4 Off Site Power/SBO Recovery Path Commodity Group

Aging Management Programs

The following aging management programs manage the aging effects for the Off Site Power/SBO Recovery Path Commodity Group components:

- Electrical Cables & Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program
- Bus Duct Inspection Program
- Inaccessible Medium Voltage (2kV to 34.5kV) Cables Not Subject to 10 CFR 50.49 EQ Requirements
- **[Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements]**

Table 3.6.2-3 Electrical Components - Non-EQ Cables and Connections Commodity Group - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Line Item	Table 1 Item	Notes
Electrical cables and connections not subject to 10 CFR 50.49 EQ requirements	Provide electrical connections to specified sections of an electrical circuit to deliver voltage, current, or signals.	Various organic polymers	Adverse localized environment caused by heat, radiation, or moisture in the presence of oxygen	Embrittlement, cracking, melting, discoloration, swelling, or loss of dielectric strength leading to reduced insulation resistance, electrical failure	Electrical Cables & Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program	VI.A.1-a	3.6.1-02	A
		Various metals	Adverse localized environment caused by thermal cycling, ohmic heating, electrical transients, vibration, chemical contamination, corrosion, and oxidation.	**[~~None~~ Loosening of connection]**	**[~~None~~ Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements]**			J, 609

Table 3.6.2-4 Electrical Components - Off Site Power/SBO Recovery Path Commodity Group - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Line Item	Table 1 Item	Notes
Electrical cables and connections not subject to 10 CFR 50.49 EQ requirements	Provide electrical connections to specified sections of an electrical circuit to deliver voltage, current, or signals.	Various organic polymers	Adverse localized environment caused by heat, and radiation in the presence of oxygen	Embrittlement, cracking, melting, discoloration, swelling, or loss of dielectric strength leading to reduced insulation resistance, electrical failure	Electrical Cables & Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program	VI.A.1-a	3.6.1-02	A
		Various metals	Adverse localized environment caused by thermal cycling, ohmic heating, electrical transients, vibration, chemical contamination, corrosion, and oxidation.	**[~~None~~ Loosening of connection]**	**[~~None~~ Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements]**			J, 609

Notes for Tables 3.6.2-1 through 3.6.2-4

Plant-specific notes:

609 As supported by the DOE Cable AMG (SAND96-0344) and MNGP operating experience, the likelihood of substantially increased effects or failure rates resulting from the aging mechanisms of thermal cycling, ohmic heating, electrical transients, mechanical stress (vibration), chemical contamination, corrosion, oxidation, and cable subject to frequent manipulation (at connections and terminal blocks) as applied to the metallic components of electrical cables and connections is considered low. **[~~Therefore, the above listed mechanisms are not considered aging effects requiring management.~~]**

A2.1 Aging Management Programs

[A2.1.34 Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements

Cable connections are used to connect cable conductors to other cables or electrical devices. Connections associated with cables within the scope of license renewal are part of this program. The most common types of connections used in nuclear power plants are splices (butt or bolted), crimp-type ring lugs, connectors, and terminal blocks. Most connections involve insulating material and metallic parts. This aging

management program for electrical cable connections (metallic parts) account for the following aging stressors: thermal cycling, ohmic heating, electrical transients, vibration, chemical contamination, corrosion, and oxidation.

GALL XI.E1, "Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements," manages the aging of insulating material but not the metallic parts of the electrical connections. GALL XI.E1 is based on only a visual inspection of accessible cables and connections. Visual inspection is not sufficient to detect the aging effects from thermal cycling, ohmic heating, electrical transients, vibration, chemical contamination, corrosion, and oxidation.

Circuits exposed to appreciable ohmic or ambient heating during operation may experience loosening related to repeated cycling of connected loads or of the ambient temperature environment. Different materials used in various cable system components can produce situations where stresses existing between these components change with repeated thermal cycling. For example, under loaded conditions, appreciable ohmic heating may raise the temperature of a compression termination and cable conductor well above the ambient temperature, thereby causing thermal expansion of both components. Different thermal expansion coefficients may alter mechanical stresses between the components so that the termination may tighten on the conductor. When the load or current is reduced, the affected components cool and contract. Repeated cycling in this fashion can produce loosening of the termination under ambient conditions, and may lead to high electrical resistance joints or eventual separation to compression-type terminations. Threaded connectors, splices, and terminal blocks may loosen if subjected to significant thermally induced stress and cycling.

Cable connections within the scope of license renewal are tested to provide an indication of the integrity of the cable connections. The specific type of test performed will be determined prior to the initial test, and will be a proven test for detecting loose connections, such as thermography, contact resistance testing, or other appropriate testing.

This program, as described, can be thought of as a sampling program. The following factors are considered for sampling: application (high, medium and low voltage), circuit loading, and location (high temperature, high humidity, vibration, etc.). The technical basis for the sample selections is documented. If an unacceptable condition or situation is identified in the selected sample, a determination is made as to whether the same condition or situation is applicable to other connections not tested.

SAND 96-0344, "Aging Management Guidelines for Electrical Cable and Terminations," indicated loose terminations were identified by several plants. The major concern is that failures of a deteriorated cable system (cables, connections including fuse holders, and penetrations) might be induced during accident conditions. Since the connections are not subject to the environmental qualification requirements of 10 CFR 50.49, an aging management program is required to manage the aging effects.

This program will ensure that electrical cable connections will perform their intended function for the period of extended operation.]

B2.1 Aging Management Program Details

[B2.1.34 Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements

Program Description

Cable connections are used to connect cable conductors to other cables or electrical devices. Connections associated with cables within the scope of license renewal are part of this program. The most common types of connections used in nuclear power plants are splices (butt or bolted), crimp-type ring lugs, connectors, and terminal blocks. Most connections involve insulating material and metallic parts. This aging management program for electrical cable connections (metallic parts) account for the following aging stressors: thermal cycling, ohmic heating, electrical transients, vibration, chemical contamination, corrosion, and oxidation.

GALL XI.E1, "Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements," manages the aging of insulating material but not the metallic parts of the electrical connections. GALL XI.E1 is based on only a visual inspection of accessible cables and connections. Visual inspection is not sufficient to detect the aging effects from thermal cycling, ohmic heating, electrical transients, vibration, chemical contamination, corrosion, and oxidation on the metallic parts of cable connections.

Circuits exposed to appreciable ohmic or ambient heating during operation may experience loosening related to repeated cycling of connected loads or of the ambient temperature environment. Different materials used in various cable system components can produce situations where stresses existing between these components change with repeated thermal cycling. For example, under loaded conditions, appreciable ohmic heating may raise the temperature of a compression termination and cable conductor well above the ambient temperature, thereby causing thermal expansion of both components. Different thermal expansion coefficients may alter mechanical stresses between the components so that the termination may tighten on the conductor. When the load or current is reduced, the affected components cool and contract. Repeated cycling in this fashion can produce loosening of the termination under ambient conditions, and may lead to high electrical resistance joints or eventual separation to compression-type terminations. Threaded connectors, splices, and terminal blocks may loosen if subjected to significant thermally induced stress and cycling.

Cable connections within the scope of license renewal are tested to provide an indication of the integrity of the cable connections. The specific type of test performed will be determined prior to the initial test,

and will be a proven test for detecting loose connections, such as thermography, contact resistance testing, or other appropriate testing.

This program, as described, can be thought of as a sampling program. The following factors are considered for sampling: application (high, medium and low voltage), circuit loading, and location (high temperature, high humidity, vibration, etc.). The technical basis for the sample selections is documented. If an unacceptable condition or situation is identified in the selected sample, a determination is made as to whether the same condition or situation is applicable to other connections not tested.

SAND 96-0344, "Aging Management Guidelines for Electrical Cable and Terminations," indicated loose terminations were identified by several plants. The major concern is that failures of a deteriorated cable system (cables, connections including fuse holders, and penetrations) might be induced during accident conditions. Since the connections are not subject to the environmental qualification requirements of 10 CFR 50.49, an aging management program is required to manage the aging effects. This program will ensure that electrical cable connections will perform their intended function for the period of extended operation.

NUREG-1801 Consistency

The Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements Program is a new program. It is consistent with the recommendations of NUREG-1801 Rev. 1, Chapter XI, Program XI.E6.

Exceptions to NUREG-1801

None

Enhancements

None

Aging Management Program Elements

The program elements, which are part of the Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements Program, are described below. The results of an evaluation of each element against NUREG-1801, *Generic Aging Lessons Learned (GALL) Report*, Chapter XI Program XI.E6, Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements is provided.

Scope of Program

The Electrical Cables Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements Program consists of MNGP activities that manage the aging effects of connections associated with cables that have been identified as within scope of License

Renewal activities, regardless of their association with active or passive components.

Preventive Actions

This is a testing program and no actions are taken as part of this program to prevent or mitigate aging degradation.

Parameters Monitored or Inspected

This program will focus on the metallic parts of the connection. The monitoring includes loosening of bolted connections due to thermal cycling, ohmic heating, electrical transients, vibration, chemical contamination, corrosion, and oxidation. A representative sample of electrical cable connections will be tested. The following factors will be considered for sampling: application (high, medium and low voltage), circuit loading, and location (high temperature, high humidity, vibration, etc.). The technical basis for the sample selected will be documented in the site work instruction document.

Detection of Aging Effects

Electrical connections within the scope of license renewal will be tested at least once every 10 years. Testing may include thermography, contact resistance testing, or other appropriate testing methods. This is an adequate period to preclude failures of the electrical connections since experience has shown that aging degradation is a slow process. A 10-year testing interval will provide two data points during a 20-year period, which can be used to characterize the degradation rate. The first tests for license renewal will be completed before the period of extended operation.

Monitoring and Trending

Trending actions are not included as part of this program because the ability to trend test results is dependent on the specific type of test chosen. However, if tests selected produce results that are trendable, then these results will be used to provide additional information on the rate of degradation.

Acceptance Criteria

The acceptance criteria for each test will be defined by the specific type of test performed and the specific type of cable connections tested.

Corrective Actions

An engineering evaluation is performed when the test acceptance criteria are not met in order to ensure that the intended functions of the cable connections can be maintained consistent with the current licensing basis. Such an evaluation is to consider the significance of the test results, the operability of the component, the reportability of the event, the extent of the concern, the potential root causes for not meeting the test acceptance criteria, the corrective action necessary, and the likelihood of recurrence. When an unacceptable condition or

situation is identified, a determination is made on whether the same condition or situation is applicable to other in-scope cable connections not tested.

[Insert TR-013, Element 7, Corrective Actions, discussion here.]

Confirmation Process

[Insert TR-013, Element 8, Confirmation Process, discussion here.]

Administrative Controls

[Insert TR-013, Element 9, Administrative Controls, discussion here.]

Operating Experience

The Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements Program is a new site-specific program and therefore does not have any operating experience.

However, industry operating experience has shown that loosening of connections and corrosion of connections are aging mechanisms that, if left unmanaged, could lead to a loss of electrical continuity and potential arcing or fire.

Conclusion

Implementation of the MNGP Electrical Cable Connections Not Subject To 10 CFR 50.49 Environmental Qualification Requirements Program will provide reasonable assurance that the aging effects will be managed so that the systems and components within the scope of this program will continue to perform their intended functions consistent with the current licensing basis through the period of extended operation.]

G. Confirmatory Item

LRA Section B2.1.30 – Revise scope of the Selective Leaching of Materials Program to include the Fire System

LRA Section

B2.1.30 Selective Leaching of Materials

BACKGROUND

NMC stated in its letter dated November 22, 2005 (ADAMS Accession No. ML0533402690), in response to NRC RAI 3.3.2.2.5-1, that "...the Fire Water System was inadvertently omitted from the applicable MNGP systems table in B2.1.30 (under "Scope of Program") for the Selective Leaching of Materials Program in Appendix B of the LRA and is intended to be included in this table."

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

B2.1.30 Selective Leaching of Materials

Aging Management Program Elements

Scope of Program

The Selective Leaching of Materials Program consists of activities that manage the aging effects for components of the following MNGP systems and/or structures:

Circulating Water	High Pressure Coolant Injection
Condensate Storage	Instrument and Service Air
Core Spray	Radwaste Solid & Liquid
Demineralized Water	Reactor Building Closed Cooling Water
Emergency Diesel Generators	Residual Heat Removal
Emergency Filtration Train	Reactor Core Isolation Cooling
Emergency Service Water	Service & Seal Water
Fuel Pool Cooling and Cleanup	Turbine Generator
Heating & Ventilation	Wells and Domestic Water
[Fire System]	

H. Confirmatory Item

LRA Section B2.1.17 – Revise the Fire Protection AMP to address how the applicant credits the Fire Water System AMP to manage loss of material in water-based systems

LRA Section

B2.1.17 Fire Protection

BACKGROUND

NMC stated in its letter dated November 22, 2005 (ADAMS Accession No. ML0533402690), in response to NRC RAI 3.3.2.1.9-3, that "...The Fire Protection AMP provides for aging management of fire barriers, the diesel fire pump, and the halon fire suppression system. This is consistent with NUREG-1801 which states in XI.M26 for the Fire Protection AMP that, "For operating plants, the fire protection aging management program (AMP) includes a fire barrier inspection program and

a diesel fire pump inspection program." As a result, both the Fire Water System and Fire Protection AMPs are credited for line items such as filter/strainers, manifolds, pump casings and valve bodies in Table 3.3.2-9 (Fire System), since these line items are applicable to both the diesel fire pump (Fire Protection AMP) as well as the remainder of the water-based components (Fire Water System AMP). For copper alloy filters and strainers in a raw water environment, both the Fire Water System AMP and Fire Protection AMP are credited since this component/material/environment combination exists for both the diesel fire pump (Fire Protection AMP) as well as water-based components (Fire Water System AMP) such as P-110, Electric Fire Pump."

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

B2.1 Aging Management Program Details

B2.1.17 Fire Protection

Program Description

For license renewal purposes the MNGP Fire Protection Program includes a fire barrier inspection program, a diesel-driven fire pump inspection program, and a halon fire suppression system inspection.

The fire barrier inspection program requires periodic visual inspection of fire barrier penetration seals, fire barrier walls, ceilings, and floors, and periodic visual inspection and functional tests of associated fire rated doors to ensure that their operability is maintained.

The diesel-driven fire pump inspection program requires that the pump be periodically tested and the diesel engine inspected to ensure that the fuel supply line can perform the intended function.

The halon fire suppression system inspection included periodic inspection and testing of the cable spreading room halon fire suppression system.

[The Fire Protection AMP will adequately manage the effect of loss of material due to crevice, galvanic, general and pitting corrosion for these components in the Fire System by invoking the Fire Water System AMP for the water initiated aging effects related to the diesel fire pump water-based subsystem.

I. Confirmatory Item

LRA Section B2.1.6 - RAI B2.1.6-1 deleted the requirement for bolt torquing verification to better align with NUREG-1801, Revision 1. Revise the Program Description and Acceptance Criteria sections to agree with the Detection of Aging Effects section.

LRA Section

B2.1.6 Bus Duct Inspection Program

BACKGROUND

NMC stated in its letter dated December 07, 2005 (ADAMS Accession No. ML0534602420), in response to NRC RAI 2.1.6-1, that the "Detection of Aging Effects" program element would be replaced. In letter dated February 24, 2006, in response to NRC RAI 2.1.6-1a, NMC is making the following changes to the MNGP Bus Duct Inspection Program, Program Description and Acceptance Criteria sections:

DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

B2.1.6 Bus Duct Inspection Program

Program Description

The primary objective of the aging management program is to provide an inspection of bus ducts. Non-segregated bus duct insulation aging degradation from ingress of moisture or contaminants (dust and debris), or heat or radiation in the presence of oxygen causes insulation surface anomalies. In managing this aspect of the aging management program, visual inspection of interior portions of bus ducts will be performed to identify aging degradation of insulating and metallic components and water/debris intrusion. The external portions of bus ducts and structural supports will be inspected in accordance with a plant specific structural monitoring program. Additionally, bus ducts exposed to appreciable ohmic heating during operation may experience loosening of bolted connections. In managing this aspect of the aging management program, bolted connections at sample sections of the buses in the **[metal enclosed]** bus **[(MEB)** ~~ducts~~**]** will be checked for **[**~~proper torque, or~~ **loose connections by using thermography or by measuring** ~~the bolted joints will be checked to ensure low~~ **connection]** resistance **[using a low range ohmmeter. As an alternative to thermography or measuring connection resistance of bolted connections, for the accessible bolted connections that are covered with heat shrink tape, sleeving, insulating boots, etc., NMC will use visual inspection of insulation material to detect surface anomalies, such as discoloration, cracking, chipping or surface decontamination.]**

The purpose of the aging management program is to provide reasonable assurance that the intended functions of nonsegregated bus ducts that are not subject to the environmental qualification requirements of 10 CFR 50.49 and are exposed to adverse localized environments caused by the ingress of moisture, contaminants (dust and debris), insulation degradation caused by heat or radiation in the presence of oxygen, and bolt relaxation caused by thermal cycling will be maintained consistent with the current licensing basis through the period of extended operation. This program considers the technical information provided in Information Notice No. 89-64.

Aging Management Program Elements

Acceptance Criteria

Bolted connections **[**~~must meet the manufacturer's minimum torque specifications ,or the resistance of bolted joints must meet required specifications~~ **need to be below the maximum allowed temperature for the application when thermography is used or a low resistance value appropriate for the application when resistance measurement is used. MEBs** ~~Bus ducts~~**]** are to be free from **[unacceptable visual indications of** ~~any~~**]** surface anomalies, **[which** ~~that~~**]** suggest that conductor insulation degradation exists. **[In** ~~An~~ additional ~~acceptance criterion includes~~**]** no **[**~~indication of~~**]** unacceptable **[indication of]** corrosion, cracking, foreign debris, **[excessive]** dust buildup, or **[evidence of]** moisture intrusion **[is to exist.** ~~Any condition or situation that, if not corrected,~~ **An *unacceptable indication is defined as a noted condition or situation that, if* left unmanaged,]** could lead to a loss of intended function**[.** ~~is considered unacceptable~~**.]**

[When the visual inspection alternative for bolted connections is used, the absence of discoloration, cracking, chipping or surface contamination will provide positive indication that the bolted connections are not loose.]