Constellation Energy
Nine Mile Point Nuclear Station

P.O. Box 63
Lycoming, NY 13093

December 5, 2005
NMP1L 2007

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 (LRA) – Responses to NRC Requests for Additional Information Regarding LRA Parts 1, 2, 3 and 4 (TAC Nos. MC3272 and MC3273)

Gentlemen:

By letter dated July 14, 2005, Nine Mile Point Nuclear Station, LLC (NMPNS) submitted an Amended License Renewal Application (ALRA) for the operating licenses of Nine Mile Point Units 1 and 2.

In a letter dated November 22, 2005, the NRC requested additional information regarding the ALRA Part 1 – Engineered Safety Features and Steam and Power Conversion Systems (Unit 2), Part 2 – Core Plate Hold-Down Bolts (Unit 2), Part 3 – Confirmation Regarding AMR Tables on Reactor Vessel and Part 4 – Section 4.0, Time-Limited Aging Analysis. Subsequently, in a letter dated November 29, 2005, the NRC requested additional information regarding Aging Management Tables in ALRA Section 3.6.2 for Electrical and I&C switchyard components.

The NMPNS responses to these requests for additional information are provided in Attachment 1. Attachment 2 provides the resultant revised regulatory commitments.

If you have any questions about this submittal, please contact David Dellario, NMPNS License Renewal Project Manager, at (315) 349-7141.

Very truly yours,

James A. Spina
Vice President Nine Mile Point

JAS/MSL/sac

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 these responses 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.

James A. Spina
Vice President Nine Mile Point

Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Oswego, this 5th day of December, 2005.

WITNESS my Hand and Notarial Seal:

TONYA L. JONES
Notary Public in the State of New York
Oswego County Reg. No. 01JO6083354
My Commission Expires 11/12/06

Notary Public

My Commission Expires: 11/12/2006
Date

Attachments:

1. Responses to NRC Requests for Additional Information for ALRA Parts 1, 2, 3 and 4 and ALRA Section 3.6.2 for Electrical and I&C switchyard components
2. Revised regulatory commitments

cc: Mr. S. J. Collins, NRC Regional Administrator, Region I
Mr. L. M. Cline, NRC Senior Resident Inspector
Mr. T. G. Colburn, Senior Project Manager, NRR
Mr. N. B. Le, License Renewal Project Manager, NRR
Mr. J. P. Spath, NYSERDA

ATTACHMENT 1

Responses to NRC Requests for Additional Information (RAI) Regarding Amended License Renewal (ALRA) Parts 1,2,3 and 4 and ALRA Section 3.6.2 for Electrical and I&C switchyard components

This attachment provides the Nine Mile Point Nuclear Station, LLC (NMPNS) responses to the requests for additional information contained in the NRC letters dated November 22 and 29, 2005. 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.

PART 1 -ENGINEERED SAFETY FEATURES AND STEAM AND POWER CONVERSION SYSTEMS (UNIT 2)

a-RAI 3.4.2.B-1.

In ALRA Table 3.4.2.B-2, the applicant states that the aging effects, cracking and loss of materials in the fiberglass tanks exposed to a treated water, temperature <140 degrees F and low flow environment, would be managed with a one time inspection program. Please provide justification to assure that a one time inspection alone is adequate to manage the aging effects identified. It also is the staffs understanding that the tank nozzles are connected to rubber expansion joints or flanges. Please discuss how the aging effects of these joints or flanges would be managed. In addition, please provide the NMP operational experience with these tanks and the bases for identifying the aging effects for the specific fiberglass (Altac 382 resin) in this environment.

NMP Response

The tanks included in ALRA Table 3.4.2.B-2 are the NMP2 Condensate Storage Tanks 2CNS-TK1A and 2CNS-TK-1B.

The external surfaces of these tanks are inspected periodically under the Systems Walkdown Program and NMPNS has not observed any age-related degradation. The operational experience relative to these tanks relative to aging is that no issues have been raised. The Atlac 382 resin is a propoxylated bisphenol A fumarate unsaturated polyester resin which has been used for many years in industrial applications. In particular, the cured resin has excellent high-temperature properties with outstanding resistance against a broad range of aqueous acids, salts, and alkaline solutions. Its resistance to strong inorganic acids and oxidizing media is superior. Manufacturer chemical resistance data for Atlac 382 indicates the resin resists degradation by de-ionized water, distilled water, and sea water at service temperatures up to 210°F. A specific example for a severe industrial application in which a fiberglass tank constructed with Atlac 382 resin has been used is a chlorine chill and filtration tower that has been in service for at least 25 years. Therefore, low-temperature treated water is a very benign environment for these tanks. Based on this information, the One-Time Inspection Program alone has been determined to be adequate to manage aging of the internal surfaces of these tanks. Since the GALL Report and the EPRI Tools documents do not address fiberglass material, the aging effects of cracking and loss of

strength were obtained from industry information sources on the internet that are dedicated to fiberglass material.

Rubber expansion joints and flanges are included under the ALRA line item for piping and fittings with the Material of Elastomer and the Environment of Treated Water, Temperature <140°F. Cracking and loss of strength of these components is managed by the Preventive Maintenance Program. External surfaces of these components are included under the ALRA line item of External Surfaces, with the Material of Elastomer and the Environment of Air. Cracking and loss of strength of the elastomer external surfaces are also managed by the Preventive Maintenance Program. Visual inspection is performed for cracking and other evidence of degradation, and Durometer Hardness Testing is performed that will detect any hardening or loss of strength.

a-RAI 3.4.2.B-2.

In ALRA table 3.4.2.B-4, the applicant states that loss of material in wrought austenitic stainless steel "T" quenchers, piping and fittings, exposed to demineralized untreated water, and low flow environment would be managed with a one-time inspection program. Please provide justification to assure that a one time inspection alone is adequate to manage the aging effect. Also discuss the specifics of the tests and inspections for these components.

NMP Response

The aging management of the T-quenchers is addressed in the response to RAI 2.3.4.A.5 in NMP Supplemental Letter NMP1L 1958, dated 7/14/05. This RAI also addressed the aging management of the electromatic relief valve (ERV) Y-quenchers from the NMP1 Main Steam System such that both of these components were addressed for aging management in the same manner based on GALL Item V.D2.1-e. This GALL Item is utilized since these components, although included with the Main Steam System in the plants' Mechanical Equipment Lists, are part of engineered safety features for each unit.

In NMP Supplemental Letter NMP1L 2005, dated 12/1/05, the aging management of the NMP1 Y-quenchers was revised to change their environment from Demineralized Untreated Water, Low Flow to Treated Water, temperature ≤140°F. To be consistent with this change, the same change is made for the NMP2 T-quenchers. The environment is changed from Demineralized Untreated Water, Low Flow to Treated Water, temperature ≤140°F. With this change, in addition to the One-Time Inspection Program, the Water Chemistry Control Program is added. This program controls the chemistry of the suppression pool water to maintain low concentrations of halides such that LOM of stainless steel (SS) would not be likely to occur. For this reason, the One-Time Inspection Program is credited for aging management in addition to the Water Chemistry Control Program. The One-Time Inspection Program activities will utilize visual, volumetric, and other inspection techniques consistent with industry practices to provide a means of verifying that aging management is not occurring or is progressing at such a slow rate that the intended function of the components would not be adversely affected.

On ALRA p. 3.4-17, under the Environments heading of Section 3.4.2.B.4, the environment of "Demineralized Untreated Water, Low Flow" is replaced with "Treated Water, temperature ≤140°F".

The aging management line item for the T-quenchers on 3.4-70, therefore, has the Environment column entry of "Treated Water, temperature ≤140°F", the AMP column entry of "One-Time Inspection Program" and "Water Chemistry Control Program", the GALL Item column entry of "V.D2-1-e", the Table 1 Item column entry of "3.2.1.B-05", and the Notes column entry of "A". The remainder of the column entries for this line item remain unchanged.

The aging management line item for the Y-quenchers on ALRA p. 3.4-49 is revised to include the Water Chemistry Control Program in the AMP column. The remainder of the line item entries remain unchanged.

a-RAI 3.2.2.B-1.

In ALRA table 3.2.2.B-6, the applicant states that loss of material in wrought austenitic stainless steel heaters, valves, piping and fittings and aluminum, aluminum alloyed with manganese, magnesium and magnesium plus silicon valves exposed to air with moisture or wetting temperature <140 degrees F, would be managed with a one-time inspection program. Please provide justification to assure that a one time inspection alone is adequate to manage the aging effect. In addition, please discuss the specifics of the tests and inspections for these component.

NMPResponse

As in the response to RAI 3.4.2.B-2 above, for the identified components fabricated of either SS or alloyed aluminum (high aluminum, low alloy content) in a low temperature, moist air environment, it is considered unlikely that the LOM aging effect will occur. SS in this mild air environment (containment environment) where any moisture would have extremely low concentrations of halides would not exhibit aging effects. Aluminum forms a protective passivating corrosion layer in mild environments that protects the base metal from further corrosion. The One-Time Inspection Program activities will utilize visual, volumetric, and other inspection techniques consistent with industry practices to provide a means of verifying that aging management is not occurring or is progressing at such a slow rate that the intended function of the components would not be adversely affected.

PART 2 - CORE PLATE HOLD-DOWN BOLTS (UNIT 2)

Please provide commitment for the Core Plate Hold-Down Bolts for NMP2. The staff considers that the applicant shall either (1) Install core plate wedges (as part of a proposed core shroud tie-rod repair) to eliminate the need for the enhanced inspections of the core plate hold-down bolts recommended by BWRVIP-25; or (2) Perform an analysis (incorporating detailed flux/fluence analyses and improved stress relaxation correlations) in accordance to BWRVIP-25 to demonstrate that the core plate hold-down bolts and the core plate can withstand all normal, emergency, and faulted loads considering the effects of stress relaxation, until the end of the period of extended operation. The analysis shall be submitted for staff review and approval 2 years prior to entering the license renewal period.

NMP Response

NMP will either (1) Install core plate wedges (as part of a proposed core shroud tie-rod repair) to eliminate the need for the enhanced inspections of the core plate hold-down bolts recommended by BWRVIP-25 or (2) Perform an analysis (incorporating detailed flux/fluence analyses and improved stress relaxation correlations) in accordance to BWRVIP-25 to demonstrate that the core plate hold-down bolts and the core plate can withstand all normal, emergency, and faulted loads considering the effects of stress relaxation, until the end of the period of extended operation and submit for staff review and approval 2 years prior to entering the license renewal period.

With the exception of the definition of a submittal date, this is a current commitment in ALRA Section A2.4; therefore, for Item 12 from the Section A2.4 table (p. A2-34), in the Commitment column, add "and submit it for staff review and approval 2 years prior to entering the license renewal period" after the last word 'operation' and in the Schedule column, the entry is changed to "October 31, 2024".

Section A.2.2.5.3 (p. A2-31) is also changed to add the words "and submit it for staff review and approval 2 years prior to entering the license renewal period" after the word 'operation' in Item 2.

PART 3 - CONFIRMATION REGARDING AMR TABLES ON REACTOR VESSEL

a-RAI 3.1.2.A-1*. For the AMR in Tables 3.1.2.A-1 (ALRA Page 3.1-44) and 3.1.2.B-1 (ALRA Page 3.1-75) on loss of material for penetrations (core differential pressure, CRD stub tube, flux monitor, etc.) crediting the Flow-Accelerated Corrosion Program - Please confirm that the mechanism for loss material is flow-accelerated corrosion only. If other loss of material mechanisms are applicable, please identify them.*

Response

For NMP1, the only CS vessel penetration is the reactor vessel drain penetration. For this penetration, LOM due to general, crevice, and pitting corrosion is also considered to be possible; however, flow-accelerated corrosion is considered to be the predominant mechanism for LOM at this location. However, this location is inaccessible for any type of direct inspection. After the elbow at the bottom of the vessel, the drain line changes to SS. This line goes to the Reactor Water Cleanup System where there are CS lines, which are subject to virtually the same environment as the drain penetration, that are sampled for FAC. These locations are being used as bounding surrogate sample locations for the drain penetration consistent with the provisions of NSAC 202L. The drain penetration is, therefore, being managed by the performance of UT at an alternative bounding location as discussed at a meeting between the CHECWORKS Users Group and the NRC on July 26, 2005.

Since the reactor vessel drain aging management methodology that is consistent with NSAC 202L has been discussed with the NRC, FAC is the predominant LOM mechanism for this location, the drain is virtually inaccessible, and UT at the surrogate sample locations will identify

LOM regardless of the mechanism, the FAC Program is the only AMP credited for LOM at the NMP1 reactor vessel drain penetration.

The above methodology is also utilized for the NMP2 reactor vessel penetration drain. NMP2 is slightly different, however. The drain line off of the bottom of the reactor vessel traverses to the Reactor Water Cleanup System as a CS line. At its first accessible location adjacent to the reactor pedestal in the drywell, the reactor vessel drain line is a FAC sample location. This location sees the same environment as the reactor vessel penetration and is being used as a bounding surrogate location for the reactor vessel drain penetration consistent with NSAC 202L methodology as described above.

Additionally for NMP2, there are also 3 CS vessel penetrations for water level instrumentation. Since these are instrumentation penetrations with stagnant flow, LOM is due to general, crevice, and pitting corrosion. These penetrations have been included in the BWR Penetrations Program under BWRVIP-49A; therefore, a separate ALRA Table 3.1.2.B line item for these penetrations has been added to the LRA. On P. 3.1-75, at the top of the page under the existing LOM line item that is managed by the FAC Program, another LOM AERM line item is added with the AMP column entry of "BWR Penetrations Program", no entries in the GALL and Table 1 Item columns and the Notes column entry of "H, 5".

Further, on P. 3.1-75, the Notes column entry for the CS Penetrations Cumulative Fatigue Damage line item is changed to "C, 5, 54" and the Notes column entry for the LOM managed by the FAC Program line item is changed to "H, 54".

On p. A2-5, after the 2nd sentence in the 1st paragraph of A2.1.13, the following sentence is added: "This program is also used to manage loss of material for the carbon steel vessel instrumentation penetrations."

On p. B2-16, after the 2nd sentence in the 1st paragraph of B2.1.8, the following sentence is added: "This program is also used to manage loss of material for the carbon steel vessel instrumentation penetrations."

a-RAI 3.1.2.A-2. *For the AMR in Tables 3.1.2.A-1 (ALRA Page 3.1-45) and 3.1.2.B-1 (ALRA Page 3.1-75) on loss of material for support skirt and attachment welds, crediting the ASME Section XI ISI Program - Please confirm that the mechanism for loss material is general, pitting, or crevice corrosion only. If other loss of material mechanisms are applicable, please identify them.*

NMP Response

The NMP support skirts and attachment welds are CS in an air environment. The only mechanism that applies for LOM in the indicated table item is general corrosion. This is consistent with GALL R0 Items VII.I.1-b and VIII.H.1-b as well as GALL R1 Items VIII.H-7, VIII.H-8, and VIII.H-10.

a-RAI 3.1.2.A-3. *For the AMR in Tables 3.1.2.A-1 (ALRA Page 3.1-46) and 3.1.2.B-1 (ALRA Page 3.1-76) on loss of material for top head (closure studs and nuts), crediting the Reactor Head Closure Studs Program - Please confirm that the mechanism for loss material is general, pitting, or crevice corrosion only. If other loss of material mechanisms are applicable, please identify them.*

NMP Response

NMPNS confirms the applicable LOM mechanisms for the Top Head (closure nuts and studs) are general, pitting, and crevice corrosion only.

a-RAI 3.1.2.A-4. *For the AMR in Table 3.1.2.B-2 (ALRA Page 3.1-83) on cracking for the core shroud head bolts, crediting the BWRVIP program and the water chemistry program - Please confirm that the mechanism for cracking is SCC/IGSCC only. If other cracking mechanisms are applicable, please identify them.*

NMP Response

NMPNS confirms the applicable cracking mechanisms for the core shroud head bolts are SCC and IGSCC only. The GALL Item referenced for the core shroud head bolts (IV.B1.1-b) also indicates the mechanism of IASCC; however, the fluence at the location of these bolts is below the accepted threshold of 5×10^{20} n/cm^2 above which IASCC is considered to be plausible. IASCC is not, therefore, considered an applicable aging mechanism for NMP2.

a-RAI 3.1.2.B-1. *For the AMR in Tables 3.1.2.B-2 (ALRA Page 3.1-84) on cracking for the core shroud support structures (bolts, brackets, cap screws, etc) crediting the BWRVIP program and the water chemistry program -- Please confirm that the mechanism for cracking is SCC/IGSCC only. If other cracking mechanisms are applicable, please identify them.*

NMP Response

NMPNS confirms the applicable Cracking mechanisms for the core shroud support structures (bolts, brackets, cap screws, etc) are SCC and IGSCC only. As with the response to the previous RAI, the GALL Items referenced for these components in the ALRA (IV.B1.1-b, IV.B1.1-f, and IV.B1.3-a) also indicate the mechanism of IASCC; however, as indicated by the environments for these components, the fluence level to which they are subjected is less than the 5×10^{20} n/cm^2 threshold level above which IASCC is considered to be plausible. IASCC is not, therefore, considered an applicable aging mechanism for NMP2.

a-RAI 3.1.1-1

For Tables 3.1.1.A-1 and 3.1.1.B-1, the applicant credits the ASME Section XI Inservice Inspection (Subsections IWB, IWC, and IWD) Program to manage loss of material for the RPV support skirt. The staff believes that the RPV support skirt is an ASME Class MC support and therefore should be managed under the ASME Section XI ISI Subsection IWF Program. Please verify whether the aging effect of loss of material of the RPV support skirt should be managed by the ASME Section XI Inspection (Subsections IWB, IWC, and IWD) Program or by the ASME Section XI ISI (Subsection IWF) Program for NMPNS, Units 1 and 2.

NMP Response

In Table 3.1.2.A-1 (p. 3.1-45 of the ALRA), for the Support Skirt and Attachment Welds, the ASME Section XI Inservice Inspection (Subsections IWB, IWC, and IWC) Program manages the aging of the Attachment Welds only. The ASME Section XI IWF Program manages the aging of the Support Skirt itself. Another line entry is, therefore, added to the LOM AERM to include the "ASME Section XI Inservice Inspection (Subsection IWF) Program" in the AMP column. The new line entry has no entries in the GALL and Table 1 Item columns and has "H, 78" entered in the Notes column. New Plant Specific Notes 77 and 78 are added (new Notes 70 through 76 were added in NMPNS Letter NMP1L 2005, dated 12/1/05, in the responses to Audit Items NMP-AI-001 and NMP-AI-016). Note H in the Notes column for the ASME Section XI (IWB, IWC, IWD) Program line item is changed to "H, 77".

Note 77 reads, "This line item applies to the Vessel Support Skirt Attachment Welds." Note 78 reads, "This line item applies to the Vessel Support Skirt only."

For NMP2, the Support Skirt component type in ALRA Tables 2.3.1.B.1-1 (p. 2.3-15) and 3.1.2.B-1 (p. 3.1-75) is changed to "Support Skirt and Attachment Welds" consistent with the NMP1 Table entries.

In Table 3.1.2.B-1 (p. 3.1-75 of the ALRA), for the Support Skirt and Attachment Welds LOM line Item, the Notes column entry is changed to "H, 77". As for NMP1, another line entry is added to the LOM AERM to include the "ASME Section XI Inservice Inspection (Subsection IWF) Program" in the AMP column. The new line entry has no entries in the GALL and Table 1 Item columns and has "H, 78" entered in the Notes column.

PART 4 – SECTION 4.0, TIME-LIMITED AGING ANALYSIS

a-RAI 4.2.2-1

During its review of ALRA Section 4.0, Time-Limited Aging Analysis (TLAA), the staff finds that the proper disposition of TLAA 4.2.2 should be that of 54.21 (c)(1)(iii) instead of the 54.21(c)(1)(ii) as identified by the applicant in that section. Please clarify.

NMP Response

NMP concurs that the proper disposition should be §54.21(c)(1)(iii) since the analyses that are performed are part of the Reactor Vessel Surveillance Program. On p. 4.1-3, in Table 4.1-1, for the Pressure-Temperature (P-T) Limits TLAA, change the Disposition Category column entry from "§54.21(c)(1)(ii)" to "§54.21(c)(1)(iii)". On p. 4.2-10 of the ALRA, the Disposition: is changed to "§54.21(c)(1)(iii) – The effects of aging on the intended function(s) will be adequately managed for the period of extended operation." Additionally, the last sentence on p. 4.2-11 is changed to "Therefore, evaluation of the P-T Limits to consider the period of extended operation by using 10CFR50 Appendix G will be performed in accordance with §54.21(c)(1)(iii)."

a-RAI 4.7.4-1

During its review of ALRA Section 4.0, Time-Limited Aging Analysis (TLAA), the staff finds that the commitment as stated by the applicant on page 4.7-7 to be vague. Please provide a commitment to state that the Analysis is to be submitted for the staff review and approval no later than two years prior to entry into the period of extended operation.

NMP Response

The reactor vessel closure head weld flaw evaluation submittal to the NRC has been accepted via SER transmitted to NMPNS via letter dated 12/21/04 (Accession Number ML043430429). NMP commits to submittal of the reactor vessel shell weld analysis for NRC Staff review and approval no later than two years prior to entry into the PEO.

In ALRA Section 4.7.4 on p. 4.7-7, in the last paragraph, the 2nd sentence is replaced with, "No later than two years prior to the period of extended operation, for submittal to the NRC for review and approval, the RPV weld flaw evaluations will be revised to consider additional fatigue crack growth and the effects of additional irradiation embrittlement (for beltline materials) associated with operation for an additional 20 years (i.e., out to at least 46 EFPY)."

In Section A1.2.5.1, on p. A1-34, revise the 1st sentence of the 2nd paragraph to read as follows: "No later that 2 years prior to the period of extended operation, the RPV weld flaw evaluation will be revised to consider additional fatigue crack growth and the effects of additional irradiation embrittlement associated with operation for an additional 20 years and submitted to the NRC for review and approval."

In Section A1.4 of the ALRA for Item 12, the Commitments column entry is revised to add "for NRC review and approval no later than 2 years prior to the period of extended operation" at the end of the 1st sentence. The Schedule column entry is changed to "August 22, 2007".

Relative to the reactor vessel closure head weld flaw evaluation, an ALRA wording clarification is required. On p. 4.7-7, in the next to last paragraph on the page, the next to last sentence currently states, "During this interval, it is unlikely that 240 additional startup/shutdown cycles will occur." This sentence is revised to state, "During this interval, it is unlikely that the number of startup/shutdown cycles that occur will result in exceeding the 240 additional startup/shutdown cycles that were the bases for the evaluation. The actual interval is the period of time from the date of the inspection (March 2003) through the end of the period of extended operation."

In Section A1.2.5.1, in the 1st paragraph on p. A1-34, the next to last sentence currently states, "During this interval, it is unlikely that 240 additional startup/shutdown cycles will occur." This sentence is revised to state, "During this interval, it is unlikely that the number of startup/shutdown cycles that occur will result in exceeding the 240 additional startup/shutdown cycles that were the bases for the evaluation. The actual interval is the period of time from the date of the inspection (March 2003) through the end of the period of extended operation."

REQUESTS FOR ADDITIONAL INFORMATION IN NOVEMBER 29, 2005, LETTER

1. *The LRA states "None" in the Aging Effect Requiring Management column, the Aging Management column and the Notes column in the following Tables:*

   a. *Table 3.6.2.C-2, Electrical and I&C Systems, Non-Segregated/Switchyard Bus - Summary of Aging Management Evaluation, Component: Switchyard Bus Conductors.*

   b. *Table 3.6.2.C-4, Electrical and I&C Systems, Switchyard*

   Components - Summary of Aging Management Evaluation, Components: (a) High Voltage Insulators - Cement, Porcelain, and Metal, and (b) Transmission Conductors.

   Provide justifications why no Aging Effect Requiring Management and Aging Management Program are required for these components, including plant and industry experience where available and if any special treatment or provision is made to prevent oxidation or corrosion.

NMP Response

a. Switchyard Bus Conductors at NMP are made of aluminum. In a non-aggressive environment, aluminum forms a passivating oxide layer which arrests further oxidation/corrosion such that a LOM does not occur. Nine Mile Point is located in an area that does not have heavy industry, significant air pollution, or a saltwater marine environment. As such, the local environment is non-aggressive in nature when compared to the locations of many power plants; therefore, for the NMP Switchyard Bus Conductors, oxidation/corrosion would not occur to the extent necessary to adversely affect their intended function.

   The operating experience at NMP relative to wind induced abrasion and fatigue of these conductors is that none has been observed. Because of the design of the tubular conductors, significantly higher wind conditions than those that typically occur at NMP would be needed to result in wind-related degradation. For these reasons, it is NMP's conclusion that LOM is not an AERM that needs to be included for aging management because it is not significant enough to adversely affect the ability of these conductors to perform their intended function.

b. High Voltage Insulators - Cement, Porcelain, and Metal

   Information Notice (IN) 93-95 which documents the degradation of insulator performance and ultimately loss of power due to salt build-up on the insulators for plants located in a saltwater marine environment. NMP is not in a saltwater marine environment; however it is located on a lake. To be conservative and since NMP does inspect its High Voltage Insulators for degradation, this line item in ALRA Table 3.6.2.C-4 will be revised to be consistent with Revision 1 of the GALL Report.

   For LOM/Mechanical wear due to wind blowing on transmission conductors, the operating experience for NMP relative to movement of these lines in the wind is

such that it is not occurring. Periodic inspections performed as part of the Preventive Maintenance Program confirm this operating experience. However, even though the AERM has not been observed, because these conductors are lines as opposed to the tubular design of the Switchyard Bus Conductors, NMP will revise the ALRA to include the Revision 1 GALL Report AERM and identify that the Preventive Maintenance Program provides for the aging management of these insulators. This program performs visual inspections, thermography, and corona measurement.

The 3 line items for High Voltage Insulators at the top of Table 3.6.2.C-4 will, therefore, be revised to include 2 AERM line items, one with the AERM column entry of "Loss of Insulation Resistance" and one with the AERM column entry of "Loss of Material". Each will have the "Preventive Maintenance Program" in the AMP column, and "J" in the Notes column. The GALL Item and Table 1 Item columns are left blank.

Transmission Conductors

Based on plant operating experience and the design of these conductors, NMP concluded that the Loss of Conductor Strength due to corrosion AERM does not occur to the extent necessary to adversely affect the ability of the conductors to perform their intended function. They are fabricated of strand aluminum conductors wound around a steel strand core with no organic insulating material around their outside. For aluminum conductor, steel reinforced (ACSR) cables, any degradation that may occur would begin as a loss of zinc from the galvanized steel core wire strands. Corrosion rates are dependent on suspended particle chemistry, sulfur dioxide (SO_2) concentration in air, precipitation, fog chemistry, and meteorological conditions. This is a very slow process that is even slower in rural areas where there is not the concentration of suspended particles and SO_2 in the atmosphere that there is in more urban areas. NMP is in a rural area.

The National Electric Safety Code (NESC) requires that tension on installed conductors be a maximum of 60% of the ultimate conductor strength. The NESC also sets the maximum tension to which a conductor can be subjected under heavy load requirements including factors such as wind, ice, and temperature. Ontario Hydroelectric performed tests of 80 year-old transmission conductors that showed a 30% loss of conductor strength. These conductors were typical transmission conductors that can reach 1000 feet in length. At the 30% loss of conductor strength, there is still significant margin between the cited NESC requirement and the actual tested conductor strength. The Transmission Conductor runs at NMP are shorter conductor runs than the long runs included in the Ontario Hydroelectric test. The longest Transmission Conductor run at NMP is approximately 515 feet. Since NMP is located in a rural area, since the tension of these shorter runs would be less than is typical in transmission conductor runs, and since the Ontario Hydroelectric tests for 80 year-old conductors demonstrated significant margins between NESC requirements and test results, NMP concluded that for the period of extended operation, the AERM of Loss of Conductor Strength would not be significant enough to affect the intended function of these conductors.

2. *Table 3.6.2. C-4, Electrical and I&C systems, switchyard components - Transmission conductor connections states in Aging Management Program column that Preventative Maintenance Program is used. Describe how loosening of bolted corrections will be prevented by this program.*

NMP Response

Under the Preventive Maintenance Program, the Transmission Conductor Connections undergo visual inspections, thermography testing, and corona measurement. These methods are used for the detection of loosened connections so that they can be re-tightened or otherwise corrected as necessary.

FOLLOW UP ITEM FROM BATCH 3 RESPONSES

a-RAI 3.3.2-1

Clarification was requested relative to the validity of the application of the One-Time Inspection Program for carbon steel components in the NMP1 City Water System.

NMP Response

Currently, the carbon steel (CS) flow orifices, level gauges, piping and fittings, pumps, and tanks in a demineralized untreated water environment that are subject to the AERM of loss of material (LOM) credit the One-Time Inspection Program for aging management of this AERM. NMPNS agrees that a program that provides periodic inspections is better suited to components with this material/environment combination. Table 3.3.2.A-2 of the ALRA is, therefore, revised on pp. 3.3-111 and -112 to replace all occurrences of the One-Time Inspection Program with the Preventive Maintenance Program. Additionally, on ALRA p. 3.3-14, under the Aging Management Programs heading of ALRA Section 3.3.2.A.2, the One-Time Inspection Program is replaced with the Preventive Maintenance Program.

ATTACHMENT 2 to NMP1L 2007

The following table identifies those actions committed to by Nine Mile Point Nuclear Station, LLC in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

Revisions to existing Amended License Renewal Application (ALRA) commitments are shown with *italics* for additions and ~~strikethroughs~~ for deletions

ALRA Section	ALRA Commitment #	Commitment Text	New or Revised	Due Date
A1.4	12	The RPV weld flaw evaluations will be revised to consider additional fatigue crack growth and the effects of additional irradiation embrittlement (for beltline materials) associated with operation for an additional 20 years (i.e., out to at least 46 EFPY) *and submitted for NRC review and approval no later than 2 years prior to the period of extended operation.* If the revised calculation shows the identified flaws cannot meet the applicable acceptance criteria, the indications will be reexamined in accordance with ASME Section XI requirements.	Revised	~~Prior to Nine Mile Point Unit 1 (NMP1) Period of Extended Operation (PEO)~~ *August 22, 2007*
A1.4	31	Enhance the Non-Segregated Bus Inspection Program to *(1)* expand visual inspections of the bus ducts, their supports and insulation systems~~. Also,~~*; (2) Create* new provisions ~~will be made~~ to perform *as an alternative to* either *thermography or* periodic low range resistance checks ~~of the bus ducts or torque checks~~ of a statistical sample of *the bus ducts* accessible bolted connections*, a visual inspection for the connections that are covered with heat shrink tape, sleeving, insulating boots, etc.; and (3) Define acceptance criteria for inspection of the bus ducts, their support and insulation systems, and the low range ohmic checks of connections.*	Revised	Prior to NMP1 PEO

ALRA Section	ALRA Commitment #	Commitment Text	New or Revised	Due Date
A2.4	12	NMPNS will either:(1) Install core plate wedges (as part of a proposed core shroud tie-rod repair) to eliminate the need for the enhanced inspections of the core plate hold-down bolts recommended by BWRVIP-25; or (2) Perform an analysis (incorporating detailed flux/fluence analyses and improved stress relaxation correlations) to demonstrate that the core plate hold-down bolts can withstand all normal, emergency, and faulted loads considering the effects of stress relaxation, until the end of the period of extended operation *and submit it for staff review and approval 2 years prior to entering the period of extended operation.*	Revised	October 31, *2024* ~~Prior to NMP2 PEO~~
A2.4	29	Enhance the Non-Segregated Bus Inspection Program to *(1)* expand visual inspections of the bus ducts, their supports and insulation systems~~. Also,~~*; (2) Create* new provisions ~~will be made~~ to perform *as an alternative to* either *thermography or* periodic low range resistance checks ~~of the bus ducts or torque checks~~ of a statistical sample of *the bus ducts* accessible bolted connections, *a visual inspection for the connections that are covered with heat shrink tape, sleeving, insulating boots, etc.; and (3) Define acceptance criteria for inspection of the bus ducts, their support and insulation systems, and the low range ohmic checks of connections.*	Revised	Prior to NMP2 PEO