Constellation Energy
Nine Mile Point Nuclear Station

P.O. Box 63
Lycoming, New York 13093

October 29, 2004
NMP1L 1880

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

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 – Submittal of Supplemental Information Resulting from the NRC Audits of Aging Management Programs (TAC Nos. MC0691 and MC0692)

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.

As a result of NRC audits of the aging management program reviews, supplemental information in support of the License Renewal Application is being submitted as Attachment 1. Attachment 2 provides a list of the regulatory commitments associated with this submittal.

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 29th day of October, 2004.

WITNESS my Hand and Notarial Seal:

Lisa M. Clark
Notary Public

My Commission Expires:

October 29, 2004
Date

LISA M. CLARK
Notary Public in the State of New York
Oswego County Reg. No. 01CL6029220
My Commission Expires 8/9/2005

Attachments:
1. Supplemental Information in Support of the License Renewal Application Resulting from NRC Audits of Aging Management Programs
2. List of Regulatory Commitments

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

Supplemental Information in Support of the License Renewal Application

Resulting from NRC Audits of Aging Management Programs

Supplemental Information in Support of the License Renewal Application Resulting from NRC Audits of Aging Management Programs

This supplemental information is formatted as follows. For each identified License Renewal Application (LRA) section, the audit item description is provided, followed by the Nine Mile Point Nuclear Station, LLC, response for Nine Mile Point Unit 1 (NMP1) and/or Nine Mile Point Unit 2 (NMP2), as applicable. Revisions to the LRA are described where appropriate.

LRA Section 3.6.2, Aging Management of Electrical and Instrumentation and Controls Systems – Results

Audit Item 32

Referring to GALL AMP XI.E1, the scope of the cables and connections program includes cables, connectors, terminal blocks, fuse holders and splices in adverse localized environments. However, in LRA Table 3.6.2.C-1, NMP identifies cables in an adverse localized environment but does not identify connectors, terminal blocks, fuse holders or splices in an adverse localized environment. Confirm whether there are connections in an adverse localized environment at NMP.

Response

LRA Table 3.6.2.C-1 is modified to reflect consistency with the GALL Volume 2, Chapter VI (A) table, as follows:

Page 3.6-9

- In the first table row, the Component Type is changed from "Cables" to "Conductor insulation for electrical cables and connections," "Copper, Brass, Steel, or Alloy (Fuse Holders)" is added to the Material column, the "Fuse Holder Inspection Program" is added as an Aging Management Program, and "H, 4" are added as Notes now applicable, due to adding the Fuse Holder Inspection Program. The "Non-EQ Electrical Cables Used in Instrumentation Circuits Program" and associated column entries are deleted for this table row.

- A new table row is added for the component type "Conductor insulation for electrical cables used in instrumentation circuits that are sensitive to reduction in conductor insulation resistance (IR)." The material is "Various Organic Polymers," the Environment includes "Adverse localized environment caused by heat" and "Adverse localized environment caused by radiation," and the Aging Management Program is "Non-EQ Electrical Cables Used in Instrumentation Circuits Program."

Page 3.6-10

- The Component Type of "Inaccessible Medium-voltage Cables" is changed to "Conductor insulation for inaccessible medium-voltage (2kV to 15kV) cables (e.g., installed in conduit or direct buried)."

- The "Air" environment is deleted for both the "Conductor insulation for electrical cables and connections" and "Conductor insulation for electrical cables used in instrumentation circuits that are sensitive to reduction in conductor insulation resistance (IR)" Component Types.

- The separate Component Types for "Connectors," "Splices," "Fuse Blocks," and "Terminal Blocks" are eliminated since they are included in the above Component Types. The AMP inspections will include an evaluation of connections that are in scope for license renewal and require an aging management review.

LRA Table 3.6.2.C-1 has been revised to incorporate the above changes, as shown on the following page. This revised table replaces in its entirety the existing LRA Table 3.6.2.C-1.

Table 3.6.2.C-1 Electrical and I&C Systems
Cables and Connectors – 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
Conductor insulation for electrical cables and connectors	EC	Various Organic Polymers Copper, Brass, Steel, or Alloy (Fuse Holders)	Adverse localized environment caused by heat	Loss of Electrical Continuity and Loss of Insulation Resistance	Non-EQ Electrical Cables and Connections Program Fuse Holder Inspection Program	VI.A.1-a	3.6.1-02	A, 1, 2, 6 H, 4
			Adverse localized environment caused by radiation	Loss of Electrical Continuity and Loss of Insulation Resistance	Non-EQ Electrical Cables and Connections Program Fuse Holder Inspection Program	VI.A.1-a	3.6.1-02	A, 1, 3, 6 H, 4
Conductor insulation for electrical cables used in circuits that are sensitive to reduction in conductor insulation resistance (IR)	EC	Various Organic Polymers	Adverse localized environment caused by heat	Loss of Electrical Continuity and Loss of Insulation Resistance	Non-EQ Electrical Cables Used in Instrumentation Circuits Program	VI.A.1-b	3.6.1-03	A, 1, 2, 6
			Adverse localized environment caused by radiation	Loss of Electrical Continuity and Loss of Insulation Resistance	Non-EQ Electrical Cables Used in Instrumentation Circuits Program	VI.A.1-b	3.6.1-03	A, 1, 3, 6
Conductor insulation for inaccessible medium-voltage (2kV to 15kV) cables (e.g., installed in conduit or direct buried)	EC	Various Organic Polymers	Adverse localized environment caused by moisture and voltage	Loss of Electrical Continuity and Loss of Insulation Resistance	Non-EQ Inaccessible Medium Voltage Cables Program	VI.A.1-c	3.6.1-04	A, 1, 6

See Table 2.0-1 for definitions of Intended Functions, Table 3.0-1 for descriptions of Environments, and Table 3.0-2 for descriptions of Aging Effects.

LRA Appendix B, Section B2.1.2, Water Chemistry Control Program

Audit Items 18, 23, 24, 25, 54, 60, 62, 63, and 66

NMP has indicated that Revisions 1 and 2 of EPRI TR-103515 are used for the Water Chemistry Control Program vs. Revision 0 as referenced in GALL. Provide the exceptions to the GALL and justify them.

Response

Revisions 1 and 2 of the BWR Water Chemistry Guidelines, EPRI TR-103515, represent the most current industry practices with respect to the control of water chemistry parameters for reactor coolant and related systems. The majority of the parameter action levels and frequency of sampling implemented by NMP (per Revisions 1 and 2 of the EPRI report) are equal to or more conservative than the Revision 0 guidance. As such, these will not be specifically addressed. For those items that are different, and that therefore represent an exception to the GALL program, the following information is provided for each Unit.

NMP1

Under the Parameters Monitored/Inspected program attribute, NMP1 takes exception to establishing an action level for electrochemical potential (ECP) under normal water chemistry (NWC) operation. The GALL program (i.e., EPRI TR-103515 R0) requires ECP to be monitored during power operation and does not distinguish between NWC and hydrogen water chemistry (HWC) operation. NMP1 monitors ECP only when operating under HWC, which is the majority of the time. The justification for this exception is that EPRI TR-103515 R2 requires ECP monitoring only if plants are implementing HWC or HWC with noble metal chemical addition (NMCA). Therefore, NMP1 is consistent with the latest industry practices and this exception has no impact on the effectiveness of the Water Chemistry Control Program.

Also under the Parameters Monitored/Inspected attribute, NMP1 takes exception to monitoring for hydrogen peroxide. This is justified because an accurate measurement of hydrogen peroxide is extremely difficult due to its rapid decomposition to water and oxygen in sample lines. Recombination with hydrogen in sample lines at NMCA plants can also occur. NMP1 determines the hydrogen/oxidant molar ratio using the radiolysis/ECP model described in BWRVIP-62, "Technical Basis for Inspection Relief for BWR Internals Components with Hydrogen Injection." Revision 2 of the EPRI report indicates that an ECP of <-0.23 (V, SHE) can be achieved when the hydrogen/oxidant molar ratio is > 2. NMP1 measures ECP directly, which ensures that excessive hydrogen peroxide is not present. The molar ratio calculated by the model described above is used as a secondary parameter to assess the effectiveness of HWC, while ECP is used as the primary parameter.

Under the Monitoring and Trending attribute, NMP1 takes exception to commencing the sampling of feedwater iron and copper at >10% reactor power. NMP1 commences the sampling at >25% power since filter samples below 25% power are considered non-representative. Since

the actual operating time between 10% and 25% power is minimal, this exception has no impact on the effectiveness of the Water Chemistry Control program.

Under the Acceptance Criteria attribute, NMP1 takes exception to establishing an action level for ECP HWC operations. NMP1 does set a goal that is equal to the action level. The actions required by the NMP1 administrative procedure for exceeding the goal include entry of the event into the corrective action program and, as a minimum, correction of the condition. As such, this exception has no impact on the effectiveness of the Water Chemistry Control program.

NMP2

Under the Parameters Monitored/Inspected program attribute, NMP2 takes exception to monitoring ECP directly during power operation while using HWC. The justification for this exception is that ECP is a measure of hydrogen availability. At NMP2, hydrogen to oxygen molar ratio is used as the primary measure of hydrogen availability. BWRVIP-62 indicates that a hydrogen-to-oxygen molar ratio of >2 corresponds to an ECP of <-0.23 (V, SHE) and that this approach is valid for plants using NMCA (which NMP2 does). Revision 2 of EPRI TR-103515 also endorses this approach. The NMP2 administrative procedure requires a hydrogen-to-oxygen molar ratio of >4, providing additional margin that ECP will be maintained <-0.23.

Also under the Parameters Monitored/Inspected, NMP2 takes exception to the monitoring of hydrogen peroxide. The justification for this exception is that an accurate measurement of hydrogen peroxide is extremely difficult due to its rapid decomposition to water and oxygen in sample lines. Recombination with hydrogen in sample lines at NMCA plants can also occur. NMP2 indirectly monitors for hydrogen peroxide by monitoring the hydrogen-to-oxygen molar ratio.

Under the Monitoring and Trending attribute, NMP2 takes exception to the daily sampling frequency for reactor water chlorides and sulfates. NMP2 samples the reactor water 3 times a week since conductivity is continuously monitored. If the Action Level 1 value for conductivity is exceeded, daily sampling is performed for chlorides and sulfates. This approach is consistent with Revisions 0 and 2 of the EPRI report.

Also under the Monitoring and Trending attribute, NMP2 takes exception to commencing the sampling of feedwater iron and copper at >10% reactor power. NMP1 commences the sampling at >25% power since filter samples below 25% power are considered non-representative. Since the actual operating time between 10% and 25% power is minimal, this exception has no impact on the effectiveness of the Water Chemistry Control program.

Under the Acceptance Criteria attribute, NMP2 takes exception to establishing an action level for ECP since ECP is not monitored, as described above.

Also under the Acceptance Criteria attribute, NMP2 takes exception to the Action Level 2 and 3 values for reactor water chlorides and sulfates under HWC/NMCA during power operations. The NMP2 values are >50 ppb and >200 ppb, respectively, versus the GALL/EPRI R0 values of >20 ppb and >100 ppb. The justification for the higher values is that they are consistent with

Revision 2 of the EPRI report. This report indicates that chloride levels corresponding to a conductivity of 1 μS/cm have little effect on crack growth rates and, in plants using HWC, sulfate levels up to 100 ppb have little effect on crack growth rates at low corrosion potentials resulting from HWC. Therefore, these higher values for Action Levels 2 and 3 have minimal impact on the effectiveness of the Water Chemistry Control program.

LRA Revisions

In LRA Section B2.1.2 (page B-14), under the "Program Description" heading, the second paragraph is revised as follows (revisions highlighted in *italics*):

> "The Water Chemistry Control Program credits the activities performed under the direction of the *ASME Section XI Inservice Inspection (IWB, IWC, IWD) Program (Section B2.1.1) and* the One-Time Inspection Program (Section B2.1.20) to verify program effectiveness in areas of low flow or stagnant water."

In LRA Section B2.1.2 (page B-14), under the "Exceptions to NUREG-1801" heading, the existing text is replaced, in its entirety, with the following:

> "The program described in NUREG-1801, Section XI.M2, identifies the EPRI TR-103515-R0 report as the basis for BWR water chemistry programs. EPRI periodically updates the water chemistry guidelines as new industry experience becomes available. Revisions 1 and 2 of the EPRI report incorporate the industry experience and are the basis for the NMP1 and NMP2 Water Chemistry Control Programs.
>
> Program Elements Affected
>
> - **Scope**
>
> NUREG-1801 identifies the EPRI TR-103515-R0 report as the basis for water chemistry control at BWRs. The Water Chemistry Control Programs at NMP1 and NMP2 are based upon Revisions 1 and 2 of the EPRI report. The specific exceptions are identified under the applicable program elements below.
>
> - **Parameters Monitored/Inspected**
>
> EPRI TR-103515-R0 recommends electrochemical potential (ECP) to be monitored during power operations and does not distinguish between normal water chemistry (NWC) and hydrogen water chemistry (HWC). NMP1 takes an exception to this in that ECP is only monitored under HWC operation. This is justified since this is consistent with the latest industry experience, as Revision 2 of the EPRI report only requires ECP monitoring under HWC and HWC/noble metals chemical addition (NMCA) operation. NMP2 also takes an exception to monitoring ECP in accordance with Revision 0 of the EPRI report. NMP2 does not monitor ECP directly but monitors the molar ratio of hydrogen-to-oxygen as an acceptable alternative. This is

also consistent with the latest industry experience as described in Revision 2 of the EPRI report.

The GALL text recommends that hydrogen peroxide be monitored to manage stress corrosion cracking and corrosion in BWR plants. Both NMP1 and NMP2 take exception to this since the accurate measurement of hydrogen peroxide is extremely difficult due to the rapid decomposition of this chemical in the sample lines. As an alternative, in conjunction with Revision 2 of the EPRI document, NMP1 measures ECP and NMP2 measures the molar ratio of hydrogen to oxygen.

• **Monitoring and Trending**

EPRI TR-103515-R0 recommends that chlorides and sulfates in reactor water be sampled daily. NMP2 takes exception to this in that sampling for these chemical species occurs only 3 times per week. The justification for this exception is that these species are part of the conductivity measurement and, since conductivity is monitored continuously, any increase in conductivity above Action Level 1 requires daily sampling to determine the offending species. This sampling plan is consistent with the guidance provided in Revisions 0 and 2 of the EPRI report.

EPRI TR-103515-R0 recommends that ECP be monitored continuously for reactor water. NMP2 takes exception to this in that ECP is not monitored and the molar ratio of hydrogen-to-oxygen is used as an acceptable alternative. BWRVIP-62 provides the technical correlation between these two parameters and establishes an operating goal for the value of hydrogen-to-oxygen molar ratio.

EPRI TR-103515-R0 recommends that the sampling frequencies and action levels for feedwater iron and copper commence at >10% power. Both NMP1 and NMP2 take exception to this guideline as these sampling activities do not commence until 25% power. The justification for this exception is that the filter samples collected below 25% power are not representative and the operating time between 10% and 25% power is short enough to be considered insignificant.

• **Acceptance Criteria**

EPRI TR-103515-R0 recommends that an action level be established for ECP during power operations. NMP1 takes exception to the establishment of an action level but does establish an administrative goal that is the same value as the action level. The actions required by the NMP administrative procedure are consistent with the EPRI recommended actions for exceeding the value and, therefore, there is no impact on effectiveness of the program.

EPRI TR-103515-R0 recommends specific values for Action Levels 2 and 3 for reactor water chlorides and sulfates under HWC/NMCA conditions during power operations. NMP2 takes exception to these values by using the corresponding values recommended in Revision 2 of the EPRI report. The latest industry experience

indicates that these higher values do not reduce the effectiveness of the water chemistry program while operating at power using HWC."

In LRA Section B4.0 (page B-81), Reference 27 (Peach Bottom SER) is deleted as it is no longer used as a reference document in the application.

Audit Item 56

LRA Section B2.1.2 (program description) and Section A1.1.37 state that the aging mechanism/effects of concern include (1) stress corrosion cracking (SCC), (2) loss of material, and (3) fouling. However, neither the LRA nor the Program Attribute Assessment (PAA) explain what is causing the fouling aging effect. What systems, structures, and components (SSC) are identified with this aging effect, and how is fouling controlled or mitigated.

Response

NMP does not have any specific SSCs in which fouling aging effects are controlled by the Water Chemistry Control program. Fouling was included inadvertently.

LRA Revisions

In LRA Sections A1.1.37 (page A1-17), A2.1.36 (page A2-17), and B2.1.2 (page B-14), the second sentence of the program description is revised to remove fouling as an aging mechanism. The sentence in each section is revised as follows:

> "The aging effects of concern are (1) loss of material and (2) crack initiation and growth."

Audit Item 57

UFSAR supplement (LRA Sections A1.1.37 and A2.1.36) should be consistent in referring to EPRI Water Chemistry Guideline revisions.

Response

The NMP1 UFSAR supplement (LRA Section A1.1.37) is consistent in that it refers to EPRI TR-103515, Revision 1 and Revision 2. The NMP2 USAR supplement (Section A2.1.36) is revised to reference TR-103515, Revision 2, only. The fourth sentence of Section A2.1.36 (page A2-17) is revised to state:

> "The Water Chemistry Control Program implements the guidelines for BWR water chemistry presented in EPRI report TR-103515-R2."

In addition, LRA Sections A1.1.37 (page A1-17), A2.1.36 (page A2-17), and B2.1.2 (page B-14) are revised to identify EPRI TR-103515-R0 as the NUREG-1801 basis for BWR water chemistry programs, rather than "the February 1994 version of BWRVIP-29."

LRA Appendix B, Section B2.1.6, BWR Stress Corrosion Cracking Program

Audit Item 148

The BWRSCC Program, as described in the LRA, appears to be implemented in accordance with the ASME Section XI ISI Program versus the NRC documents described in the GALL. Please clarify.

Response

The BWR Stress Corrosion Cracking (SCC) Program for NMP1 and NMP2 is based upon the requirements delineated in NUREG-0313, Revision 2, and GL 88-01 and its supplement, as modified by BWRVIP-75. The portion of the ASME Section XI program that is utilized is the evaluation guidelines for indications that are detected.

LRA Revisions

LRA Sections A1.1.10 (page A1-4) and A2.1.11 (page A2-4) are revised in their entirety to read as follows:

> "The BWR Stress Corrosion Cracking (SCC) Program manages intergranular stress corrosion cracking in reactor coolant pressure boundary piping made of stainless steel as delineated in NUREG-0313, Revision 2, and Generic Letter 88-01 and its Supplement 1, as modified by BWRVIP-75. Augmented inspections are performed in accordance with these documents. An exception to the program described in NUREG-1801 is that the acceptance criteria for the NMP BWR SCC program are based upon the 1989 edition of the ASME Section XI code versus the 1995 edition through the 1996 addenda as described in NUREG-1801. The attributes of the BWR SCC program related to maintaining reactor coolant water chemistry are included in the Water Chemistry Control Program."

In LRA Section B2.1.6 (page B-19), under the "Program Description" heading, the first paragraph is replaced, in its entirety, with the following:

> "The BWR Stress Corrosion Cracking (SCC) Program manages intergranular stress corrosion cracking in reactor coolant pressure boundary piping made of stainless steel as delineated in NUREG-0313, Revision 2, and Generic Letter 88-01 and its Supplement 1, as modified by BWRVIP-75. Augmented inspections are performed in accordance with these documents."

In Section B2.1.6 (page B-19), under the "Exceptions to NUREG-1801" heading, the first and second sentences are revised as follows:

"The program described in NUREG-1801, Section XI.M7, cites ASME Section XI requirements covered in the 1995 edition through the 1996 addenda *for the evaluation of any detected indication.* The *AMSE Section XI* programs for NMP1 and NMP2 are based on the 1989 edition with no addenda."

In Section B2.1.6 (page B-19), under the "Acceptance Criteria" heading, the sentence is revised as follows:

"*Evaluation* activities are implemented *in accordance with the ASME Section XI* program plans submitted to the NRC as identified in the SERs listed in (1), above."

In Section B2.1.6 (page B-20), under the "Conclusion" heading, both paragraphs are revised as follows:

"The *BWR SCC* Program has been effective in managing *intergranular* stress corrosion cracking.

Therefore, there is reasonable assurance that aging effects will be managed by the continued implementation of the *BWR SCC* Program such that SSCs WSLR will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation."

LRA Appendix B, Section B2.1.8, BWR Vessel Internals Program

Audit Item 156

The BWRVIP Program, as described in the LRA, does not address the required license renewal applicant action items. Please provide NMP's commitment to these items.

Response

The discussion of the license renewal action items associated with the BWRVIP program was inadvertently omitted from the LRA. NMPNS intends to complete, as appropriate, the action items described in the applicable NRC safety evaluations, including those associated with the top guide, access hole covers, and steam dryer inspections. The LRA revisions incorporating these action items will be provided in a separate supplemental letter.

LRA Appendix B, Section B2.1.12, Boraflex Monitoring Program

Audit Item 3

NMP has indicated that the existing Boraflex spent fuel racks at Unit 1 are currently being replaced with Boral racks but two Boraflex racks will remain in use. For these two racks, the current Boraflex Monitoring Program will continue to be implemented. However, NMP1 has not performed any boron areal density measurements on the Boraflex racks. To monitor the condition of the remaining racks, what information does NMP have that could justify that the test coupons and the Boraflex racks would have the same data reference (in light of 34 years of operation) to be used for the 20 year license renewal period?

Response

The Boraflex racks which will remain in the spent fuel pool at NMP1 are used only in low flux areas and will not be in the vicinity of freshly discharged fuel. The test coupons, however, will continue to be exposed to the worse case conditions so that their observed degradation will be conservative relative to that of the racks. The historically low silica levels in the spent fuel pool, the test coupon surveillance results, and relatively low flux levels near the remaining racks are the key factors used by NMP to justify the continued use of the Boraflex Monitoring Program to manage aging during the period of extended operation. They confirm that the current and future environment to which the racks will be exposed is, and will be, relatively benign and that any degradation will be detected early, prompting additional testing in the spent fuel pool and appropriate corrective and preventive actions.

LRA Revisions

LRA Sections A1.1.5 and B2.1.12 are revised to provide clarifications regarding the NMP1 Boraflex Monitoring Program. The word "periodic" is added regarding neutron attenuation testing and measurement of boron areal density, and differences between the NMP1 and NMP2 programs are noted. The last sentence of Section A1.1.5 (page A1-3) is revised to state:

> "Specifically, exception is taken to performing *periodic* neutron attenuation testing and measurement of boron areal density of the spent fuel pool storage racks directly."

In LRA Section B2.1.12 (page B-28), the first sentence under the "Exceptions to NUREG-1801" heading is revised to state:

> "NMPNS takes exception *for NMP1* to performing *periodic* neutron attenuation testing and measurement of boron areal density of the spent fuel pool storage racks directly."

In LRA Section B2.1.12 (page B-28), under the "Exceptions to NUREG-1801" heading, second paragraph, the next-to-last sentence is revised to state:

"In addition, short-length test coupons *will continue to be placed near freshly discharged fuel such that their exposure will be higher, to conservatively account for any differences in configuration, geometry, and flow conditions between the test coupons and the remaining two Boraflex racks. These coupons* are periodically inspected and tested to monitor Boraflex panel condition."

In LRA Section B2.1.12 (page B-29), under the "Exceptions to NUREG-1801" heading, the last sentence (at the top of page B-29) is revised to state:

"Based on the above, the current Boraflex Monitoring Program is sufficient to manage the aging of the *NMP1 Boraflex* spent fuel storage racks."

In LRA Section B2.1.12 (page B-29), the sentence under the "Preventive Actions, Parameters Monitored, Detection of Aging Effects" heading is revised to state:

"In lieu of performing *periodic* neutron attenuation testing and measuring of boron areal density of the Boraflex panels, these tests are being performed on the test coupons for the NMP1 *Boraflex* spent fuel storage racks."

Audit Items 4, 5, 6, 7, 8, 9, and 147

NMP has indicated that the results from the Boraflex Monitoring Program for Unit 2 have identified that the racks are degrading but continue to meet the acceptance criteria for use. These results are based upon testing of short and long-length coupons and silica levels in the spent fuel pool. However, no boron area density testing has been performed on the racks to confirm the results. What information does NMP have that justifies the continued use of the existing Boraflex Monitoring Program for the period of extended operation without performing periodic boron areal density testing?

Response

For the current operating license period, NMP2 intends to continue implementation of the Boraflex Monitoring Program in accordance with the response to Generic Letter 96-04. However, NMP acknowledges that definitive action will be required to manage aging of the Boraflex racks prior to the period of extended operation. As such, NMP2 will either:

1. Replace the existing Boraflex racks prior to the period of extended operation and eliminate the need for a Boraflex Monitoring Program; or

2. Institute periodic in-situ testing during the period of extended operation in the spent fuel pool to confirm the correlations between the condition of the test coupons, the silica levels, and the condition of the racks. The first test will be performed prior to the period of extended operation.

LRA Revisions

LRA Sections A2.1.6 and B2.1.12 are revised to reflect the above regarding the NMP2 Boraflex Monitoring Program. The last two sentences of Section A2.1.6 (page A2-3) are deleted and replaced with the following:

> "The Boraflex Monitoring Program for NMP2 will be enhanced to perform periodic neutron attenuation testing and measurement of boron areal density for those boraflex racks that remain in use during the period of extended operation. This enhancement will be implemented prior to the period of extended operation.
>
> If there are no boraflex racks in the NMP2 spent fuel pool at the beginning of the period of extended operation, then a Boraflex Monitoring Program, with the above enhancement, would not be credited for aging management during the period of extended operation."

In LRA Section B2.1.12 (page B-28), under the "Exceptions to NUREG-1801" heading, the third paragraph, beginning "For NMP2, the test coupons..." is deleted in its entirety.

In LRA Section B2.1.12 (page B-29), under the "Enhancements" heading, "None" is replaced with the following:

> "Enhancements to the Boraflex Monitoring Program for NMP2 include performance of periodic neutron attenuation testing and measurement of boron areal density of those Boraflex racks that remain in use during the period of extended operation. The first test will be performed prior to the period of extended operation.
>
> Program Elements Affected
>
> Revise applicable existing procedures to ensure that the procedures address the following elements:
>
> > **Preventive Actions, Parameters Monitored/Inspected, Detection of Aging Effects** - provide direction for periodic performance of neutron attenuation testing and measurement of boron areal density for Boraflex racks that remain in use during the period of extended operation.
>
> Enhancements are scheduled for completion prior to the period of extended operation.
>
> If there are no Boraflex racks in the NMP2 spent fuel pool at the beginning of the period of extended operation, then a Boraflex Monitoring Program, with the above enhancement, would not be credited for aging management for NMP2 during the period of extended operation."

In LRA Section B2.1.12 (page B-30), under the "Conclusion" heading, the following is added after the first sentence:

> "Implementing the enhancements identified above will enhance program effectiveness for NMP2."

LRA Appendix B, Section B2.1.14, Compressed Air Monitoring Program (NMP1 only)

Audit Item 113

The NMP Compressed Air Program is not based on all the references included in GALL (specifically, EPRI-108147 and ASME OM-S/G-1998, Part 17) for ensuring timely detection of degradation of the compressed air system function. Identify which portions of these guidelines were not included in the development of the program and address why, without including them, the program can still be considered consistent with the GALL.

Response

The current Compressed Air Monitoring Program includes good practice elements of the general maintenance and inspection activities for the compressor, receiver, and drier discussed in TR-108147 (revision to EPRI NP-7079) and ASME OM-S/G-1998, Part 17. However, there are currently no plans to explicitly commit to incorporating EPRI TR-108147 or ASME OM-S/G-1998 in their entirety. NMP takes specific exception to any maintenance recommended in EPRI TR-108147 that is also not endorsed by the equipment manufacturers, and to the preservice and inservice testing guidelines of ASME OM-S/G-1998, Part 17. The justification for these exceptions is that there have been no age-related failures of this system under the current program. Therefore, additional enhancements are not warranted.

LRA Revisions

LRA Section B2.1.14 (Page B-32) is revised as follows. Under the heading "Exceptions to NUREG-1801," "None" is replaced with the following:

> "The program described in NUREG-1801, Section XI.M24, cites the guidance contained in EPRI TR-108147 and ASME OM-S/G-1998, Part 17, regarding maintenance and inspection activities for instrument air system equipment. The NMP1 Compressed Air Monitoring Program includes good practice elements of the general maintenance and inspection activities for the compressor, receiver, and air drier discussed in EPRI TR-108147 (revision to EPRI NP-7079) and ASME OM-S/G-1998, Part 17. However, specific exception is taken to any maintenance recommended in EPRI TR-108147 that is not also endorsed by the equipment manufacturers, and to the preservice and inservice testing guidelines of ASME OM-S/G-1998, Part 17. The justification for these exceptions is that there have been no age-related failures in this system under the current program."

LRA Section A1.1.14 (Page A1-6) is revised as follows. At the end of the first paragraph, the following is added:

> "The program also includes good practice elements of the general maintenance and inspection activities for the compressor, receiver, and air drier discussed in EPRI TR-108147 (revision to EPRI NP-7079) and ASME OM-S/G-1998, Part 17. However, specific exception is taken to any maintenance recommended in EPRI TR-108147 that is not also endorsed by the equipment manufacturers, and to the preservice and inservice testing guidelines of ASME OM-S/G-1998, Part 17. This is an exception to the program described in NUREG-1801."

LRA Appendix B, Section B2.1.16, Fire Protection Program

Audit Item 39

Explain the term "not credited with managing the effects of aging for any components" for the Halon and CO2 fire suppression systems.

and

Audit Item 40

The GALL requires that the Halon and CO2 suppression systems be monitored during periodic testing to detect any degradation in the system. The NMP Fire Protection Program is not consistent with GALL. Please explain.

Response

There are component types in the Halon and Carbon Dioxide systems that are susceptible to aging effects and are managed by the Fire Protection Program. LRA Sections A1.1.17, A2.1.17, and B2.1.16 are revised to indicate that aging effects on the Halon and Carbon Dioxide systems are managed consistent with GALL (when program enhancements are complete). The enhancements include specifying periodic visual examinations of the Halon and Carbon Dioxide system components to detect signs of degradation.

LRA Revisions

In LRA Sections A1.1.17 (page A1-7), A2.1.17 (page A2-7), and B2.1.16 (page B-35), the following paragraph is added following the first program description paragraph:

> "The Fire Protection Program will be enhanced to include periodic visual inspections of the Halon and Carbon Dioxide fire suppression systems components to detect signs of degradation. This enhancement will be implemented prior to the period of extended operation."

In LRA Section B2.1.16 (page B-35), under the "Enhancements" heading, "None" is replaced with the following:

> "Enhancements to the Fire Protection Program include revisions to existing activities that are credited for license renewal to ensure the applicable aging effects are discovered and evaluated.
>
> Program Elements Affected
>
> Revise applicable existing procedures to ensure that the procedures address the following elements:
>
> > **Scope, Parameters Monitored/Inspected, Detection of Aging Effects, Acceptance Criteria** - incorporate periodic visual inspections of Halon and Carbon Dioxide fire suppression systems components to detect evidence of corrosion and any system mechanical damage that could affect its intended function.
>
> Enhancements are scheduled for completion prior to the period of extended operation."

LRA Appendix B, Section B2.1.18, Fuel Oil Chemistry Program

Audit Item 107

LRA Section A2.1.20 and Section B2.1.18 need to identify the applicable ASTM standards.

Response

NMP utilizes ASTM standards D975, D1796, D2276, and D4057 in the Fuel Oil Chemistry Program.

LRA Revisions

In LRA Sections A1.1.20 (page A1-9) and A2.1.20 (page A2-9), the last sentence of the first paragraph is revised as follows:

> "*The Fuel Oil Chemistry Program* is based on maintaining fuel oil quality in accordance with the guidelines of *American Society for Testing Materials (ASTM) Standards D975, D1796, D2276, and D4057.*"

In LRA Section B2.1.18 (page B-38), the last sentence of the Program Description paragraph is revised as follows:

> "The Fuel Oil Chemistry Program is based on maintaining fuel oil quality in accordance with the guidelines of *American Society for Testing Materials (ASTM) Standards D975, D1796, D2276, and D4057.*"

LRA Appendix B, Section B2.1.20, One-Time Inspection Program

Audit Item 85

For selective leaching the program attribute assessment states that the "population of potentially affected components will be randomly sampled for inspection to confirm the absence of this aging effect." Please clarify how the samples selected will consider other (non-random) factors.

Response

The population of potentially affected components will be based upon common characteristics of the components and not upon an arbitrary random selection. The process for identifying the population will be consistent with EPRI TR-107514, Age-Related Degradation Inspection Method and Determination.

LRA Revisions

In LRA Section B2.1.20 (Page B-43), the fourth paragraph, third sentence currently states:

> "The population of potentially affected components will be randomly sampled for inspection to confirm the absence of this aging effect."

This sentence in Section B2.1.20 is revised to state:

> "The process for identifying the population of potentially affected components will be based upon common characteristics of the components, such as material of construction, fabrication process, operating environment, and aging effects. From the selected population, a sample size will be determined to provide a 90 percent confidence that 90 percent of the population does not have the degradation mechanism present. This terminology and methodology are consistent with EPRI TR-107514, 'Age-Related Degradation Inspection Method and Determination.'"

Audit Item 86

The program attribute assessment for the one-time inspection program (including selective leaching) states: "The population represented will be based on common characteristics of the affected components such as materials of construction, fabrication process, operating environment, and aging effects. The sample size selected for inspection will focus on the most susceptible components." Please clarify whether the sample "size" is what was intended. Also, determination of the sample size and selection of the sample are not the same. Please clarify how these will be accomplished at NMP.

Response

The "sample size" in the quoted sentence is actually in reference to the determination of the "population size." From the population size, a sample size is determined to provide a 90% confidence that 90% of the population does not have the degradation mechanism present. This terminology and methodology are consistent with EPRI TR-107514, Age-Related Degradation Inspection Method and Determination.

LRA Section B2.1.20 is revised as noted above in the Response to Audit Item 85 to reflect this information.

LRA Appendix B, Section B2.1.23, ASME Section XI Inservice Inspection (Subsection IWE) Program

Audit Item 152

On page B-46 of the NMP LRA, the program description for the ASME Section XI Inservice Inspection (Subsection IWE) Program states that the program is an existing program that manages aging effects due to degradation of NMP1 containment pressure-retaining polymers. This implies that degradation/aging of polymers is only applicable to NMP1. However, on page 3.5-99 of the LRA, Table 3.5.2.B-1 for the NMP2 Primary Containment Structure lists Polymers in Air as a component requiring aging management by the IWE program. Explain why the LRA Appendix B program description only discusses polymers in the NMP1 containment as requiring aging management.

Response

The NMP2 primary containment structure does include polymer components that are managed by the IWE program. This omission from the LRA was an inadvertent error.

LRA Revisions

In LRA Section A2.1.2 (page A2-1), revise the first sentence as follows:

> "The American Society of Mechanical Engineers (ASME) Section XI Inservice Inspection (Subsection IWE) Program (referred to herein as the IWE ISI Program) manages aging effects due to *(1)* corrosion of carbon steel components comprising the containment pressure boundary*; and (2) degradation of containment pressure-retaining polymers.*"

In LRA Section B2.1.23 (page B-46), "NMP2" is added to the first sentence of the Program Description under Item (2) regarding degradation of containment pressure-retaining polymers.

LRA Appendix B, Section B2.1.30, Non-EQ Electrical Cables Used in Instrumentation Circuits Program

Audit Item 16

Referring to GALL AMP XI.E2, provide the justification for why the test frequency of 10 years is acceptable.

Response

The 10-year frequency applies to the specific action for detection of aging effects for instrumentation cables. These cables are also part of the electrical circuits that undergo periodic calibration or surveillance in accordance with each plant's Technical Specifications. A review of the calibration or surveillance results can provide indications of aging effects by monitoring key parameters and providing data based upon acceptance criteria related to instrumentation circuit performance. Reviews of these results occur at the time of the calibration or surveillance and provide reasonable assurance that severe aging degradation will be detected prior to loss of the cables' intended function.

LRA Revisions

LRA Section B2.1.30 (page B-56) is revised to add a sentence at the end of the first bullet item under the "Detection of Aging Effects" heading, as follows:

> "A review of the calibration and surveillance results can provide indications of aging effects by monitoring key parameters and providing data based upon acceptance criteria related to instrumentation circuit performance. Review of the data occurs at the time that the calibrations and surveillances are performed, thereby providing reasonable assurance that severe aging degradation will be detected prior to loss of the cables' intended function."

LRA Sections A1.1.25 (page A1-25), A2.1.25 (page A2-11) and B2.1.30 (page B-56) are revised to change the second bullet item as follows:

> "In cases where a calibration or surveillance program does not include the cabling system in the testing circuit, or as an alternative to the review of the calibration results described above, provide requirements and procedures to perform cable testing to detect deterioration of the insulation system, such as insulation resistance tests or other testing judged to be effective in determining cable insulation condition. The first test will be completed prior to the period of extended operation. *The test frequency of these cables shall be determined based on engineering evaluation not to exceed every 10 years.*"

Audit Item 126

Referring to GALL AMP XI.E2, confirm that the test of the electrical cables also includes the connections (i.e., changes identified in draft Interim Staff Guidance (ISG) 15).

Response

ISG-15 is currently under review between the NRC and NEI. When the NRC and the industry have reached an agreement on ISG-15, and it is issued by the NRC, NMPNS will incorporate it into the Non-EQ Electrical Cables Used in Instrumentation Circuits Program.

LRA Appendix B, Section B2.1.31, Non-EQ Inaccessible Medium Voltage Cables Program

Audit Item 131

The attribute assessment of the GALL Program Description makes the statement that "cable testing if warranted by an engineering evaluation." What is meant by this phrase?

Response

The phrase "if warranted by an engineering evaluation" is intended to mean that the type of test conducted will be determined by an engineering evaluation.

LRA Revisions

LRA Sections A1.1.26 (page A1-12), A2.1.26 (page A2-12) and B2.1.31 (page B-57) are revised to change the second sentence in the first paragraph to state:

> "Program activities include visual inspections of accessible areas of ducts and banks via manholes or inspection covers, and testing *to provide an indication of the condition of the conductor insulation.*"

LRA Appendix B, Section B3.2, Fatigue Monitoring Program

Audit Items 105 and 145

The scope of the program attribute assessment document does not appear to address the preventive and mitigative measures addressed in the GALL (current program or future FatiguePro program).

Response

To not exceed the design limit on fatigue usage, the Fatigue Monitoring Program monitors and tracks the number of critical thermal and pressure transients for the selected reactor coolant system components. When one of the design limits is approached, an engineering evaluation is performed to develop preventive or mitigative measures. These measures could involve re-analysis, procedural revisions, component repair or replacement, or a modification to the plant design.

LRA Revisions

For LRA Sections A1.1.16 (page A1-7), A2.1.16 (page A2-7), and B3.2 (page B-74), in the Program Description, the last sentence of the first paragraph is revised as follows

> "The *FMP* monitors operating transients to date, calculates *cumulative* usage factors to date, and *directs performance of engineering evaluations to develop preventive and mitigative* measures in order not to exceed the design limit on fatigue usage."

ATTACHMENT 2

List of Regulatory Commitments

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

REGULATORY COMMITMENT	DUE DATE
The LRA revisions incorporating the license renewal action items associated with the BWRVIP program will be provided in a separate supplemental letter. NMPNS intends to complete, as appropriate, the action items described in the applicable NRC safety evaluations, including those associated with the top guide, access hole covers, and steam dryer inspections. (Audit Item 156)	December 30, 2004
Implement an enhanced Boraflex Monitoring Program for NMP2 that includes performance of periodic neutron attenuation testing and measurement of boron areal density for those Boraflex racks that remain in use at NMP2 during the period of extended operation. (Audit Items 4, 5, 6, 7, 8, 9, and 147)	October 31, 2026
Implement an enhanced Fire Protection Program that includes periodic visual inspections of the Halon and Carbon Dioxide fire suppression systems components to detect signs of degradation. (Audit Items 39 and 40)	NMP1: August 22, 2009 NMP2: October 31, 2026
Implement an enhanced Non-EQ Electrical Cables Used in Instrumentation Circuits Program that includes a cable test frequency based on engineering evaluation, not to exceed every 10 years (clarification of existing commitment). (Audit Item 16)	NMP1: August 22, 2009 NMP2: October 31, 2026
Implement an enhanced Non-EQ Electrical Cables Used in Instrumentation Circuits Program to incorporate Interim Staff Guidance (ISG) 15 (when the NRC and the industry have reached an agreement on the ISG and it is issued by the NRC). (Audit Item 126)	NMP1: August 22, 2009 NMP2: October 31, 2026