

November 19, 2004

Mr. James A. Spina  
Vice President Nine Mile Point  
Nine Mile Point Nuclear Station, LLC  
P.O. Box 63  
Lycoming, NY 13093

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF NINE  
MILE POINT NUCLEAR STATION, UNITS 1 AND 2, LICENSE RENEWAL  
APPLICATION

Dear Mr. Spina:

By letter dated May 26, 2004, Constellation Energy Group Inc. submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54), to renew the operating licenses for the Nine Mile Point Nuclear Station (NMP), Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC). The NRC staff is reviewing the information contained in the license renewal application (LRA) and has identified, in the enclosure, areas where additional information is needed to complete the review.

Based on discussions with Mr. Peter Mazzaferro of your staff, a mutually agreeable date for your response is within 30 days from the date of this letter. If you have any questions regarding this letter or if circumstances result in your need to revise the response date, please contact me at 301-415-1458 or by e-mail at [nbl@nrc.gov](mailto:nbl@nrc.gov).

Sincerely,  
**/RA/**

N. B. (Tommy) Le, Project Manager  
License Renewal Section A  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-220 and 50-410

Enclosure: As stated

cc w/encl: See next page

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RLEP RF  
N. Le (PM)

**E-MAIL:**

RidsNrrDrip  
RidsNrrDe  
G. Bagchi  
K. Manoly  
W. Bateman  
J. Calvo  
R. Jenkins  
P. Shemanski  
A. Stubbs  
RidsNrrDssa  
RidsNrrDipm  
D. Thatcher  
R. Pettis  
G. Galletti  
C. Li  
M. Itzkowitz (RidsOgcMailCenter)  
T. Smith  
M. Lemoncelli  
M. Mayfield  
A. Murphy  
S. Smith (srs3)  
S. Duraiswamy  
Y. L. (Renee) Li  
RLEP Staff

-----  
C. Holden  
R. Laufer  
P. Tam  
B. Fuller, RI  
E. Knutson, RI  
J. Trapp, RI  
T. Mensah  
Receptionist  
OPA  
PMNS

**NINE MILE POINT NUCLEAR STATION UNITS 1 AND 2 (NMP1 AND NMP2)  
LICENSE RENEWAL APPLICATION (LRA)  
REQUESTS FOR ADDITIONAL INFORMATION (RAI)**

**RELATED TO:**

**Section 2.2 Plant Level Scoping Results  
Section 2.3 Scoping and Screening Results: Mechanical Systems  
Section 2.3.4.A.1 NMP1 Condensate and Condensate Transfer System  
Section 2.3.4.B.2 NMP2 Condensate System  
Section 2.3.4.B.4 NMP2 Main Steam System  
Section 2.3.4.B.3 NMP2 Feedwater System  
Section 2.3.4.B.4 NMP2 Main Steam System**

**(1) Section 2.2 Plant Level Scoping Results**

RAI 2.2-1

During the LRA review the staff identified license renewal drawings in multiple LRA sections, that all or in part, appeared to conflict with the LRA. The staff discussed the apparent discrepancies with the applicant to determine whether they were intentional or editorial in nature. A large number of the discrepancies the applicant identified as editorial in nature and agreed that corrections to the LRA or LRA drawings would be required to correct the discrepancies.

In order to complete its review, the staff requires the license renewal drawings in which the apparent discrepancies were identified be corrected. LRA sections found to contain apparent discrepancies are as follows:

LRA Sections

2.3.3.A.4	2.3.3.A.8	2.3.3.A.16	2.3.3.A.17	2.3.3.A.20	2.3.3.A.21
2.3.3.A.23	2.3.3.B.1	2.3.3.B.13	2.3.3.B.14	2.3.3.B.15	2.3.3.B.21
2.3.3.B.25	2.3.3.B.27	2.3.3.B.29	2.3.3.B.30	2.3.3.B.31	2.3.4.A.5
2.3.4.B.2					

In response to this RAI, identify those license renewal drawings that have been corrected and the corrections made to the drawings.

RAI 2.2-2

During the LRA review the staff identified in multiple LRA sections, apparent omissions of component types that were described in the LRA, from the LRA component type tables. The staff discussed the apparent omissions of component types from the LRA component type tables with the applicant to determine whether they were intentional or editorial in nature. The applicant agreed to describe where the following component types were represented in the component type tables if they were intentionally omitted, and to include those component types in component type tables that had components unintentionally omitted.

In order for the staff to complete its review, the staff requires explanation of how the following component types were represented in the LRA sections previously discussed with the applicant: flanges, bolting, orifices, tubing, vacuum breakers, elbows, unions, tees, couplings, thermo

wells, compressors, reducers, caps, floor drains, flexible hoses, expansion joints, vents, diffusers, manholes, and piping.

## **(2) Section 2.3 Scoping and Screening Results: Mechanical Systems**

### **2.3.3.A.2 - NMP1 Circulating Water System**

#### RAI 2.3.3.A.2-1

The circulating water system is shown on drawings LR-18022-C, sheet 1 and LR-26941-C. Because of the unique interface between the circulating water system, the emergency service water pumps, and the intake structure, the staff needs more information to complete its review to understand the configuration of the components requiring AMR. This information is not clearly depicted in the LR drawings. Supply the following figures from the NMP1 UFSAR: XI-4, Circulating Water System; III-19, Circulating Water Channels under the Screen and Pump House - Normal Operation; III-20, Circulating Water Channels under the Screen and Pump House - Special Operations; and III-21, Intake and Discharge Tunnels Plan and Profile.

#### RAI 2.3.3.A.2-2

10CFR54, section 54.4(b) states that “the intended functions that these systems, structures and components [SSCs] must be shown to fulfill in section 54.21 are those functions that are the bases for including them within the scope of license renewal as specified in paragraphs (a)(1) through (a)(3) of this section.”

LRA Table 2.3.3.A.2-1 includes the component type “circulating water gates” and assigns the intended function “NSR Functional Support.” In order to complete its review, the staff needs more information about this intended function for components in circulating water system. The staff requests that the applicant provide further explanation of the intended function NFS in order to verify that the SSC’s with this intended function meet the requirements of paragraphs (a)(1), (a)(2) or (a)(3) of section 54.4 of 10CFR54.

### **2.3.3.A.3 NMP1 City Water System**

#### RAI 2.3.3.A.3-1

LRA Section 2.1.4.1 states that the intended functions relative to the criteria of 10CFR54.4(a)(1) were identified and documented.

LRA Section 2.3.3.A.3 states that the City Water System performs a safety-related function per 10CFR54.4(a)(1). However, Section 2.3.3.A.3 does not specify the intended function, nor does it identify the system evaluation boundary of the City Water System that meets 10CFR54.4(a)(1).

Furthermore, the applicant did not provide an LR drawing for the city water system, which would provide information identifying the portions of the **City Water System** containing components potentially subject to AMR.

In order for the staff to complete its review, identify the intended function of the City Water System that satisfies 10CFR54.4(a)(1) and provide an LR drawing for the system.

#### **2.3.3.A.4 NMP1 Compressed Air System**

##### D-RAI 2.3.3.A.4-1 (was draft 2.3.3.A.4-2)

LRA Section 2.3.3.A.4 states that the compressed air system provides air to inflate the reactor building track bay door seal. The component type “inflatable seals” is not listed in the LRA tables as requiring AMR. The LRA tables only list the fire protection barrier penetration seals as requiring AMR. Provide the basis for excluding inflatable seals from AMR.

##### RAI 2.3.3.A.4-2 (was draft 2.3.3.A.4-3)

The LR drawings do not show air cylinders that are the actuators for valves as being subject for AMR. This is based on the assumption that the valves will go to their fail safe position on loss of air pressure. This would be true for single acting air cylinders with springs. But for double acting cylinders, one of the cylinders requires air pressure to effect valve repositioning to its fail safe position. Therefore the double acting cylinders have a pressure boundary function. Provide the basis for excluding the double acting cylinders from AMR.

##### RAI 2.3.3.A.4-3

There is an inconsistency between LR drawings LR-22108-0 sheet 34 and LR-18017-C sheet 1. LR drawing LR-22108-0 sheet 34 shows that the air supply tubing and solenoid valves associated with valve BV60-13 as not being subject to AMR. However, LR drawing LR-18017-C sheet 1(E-2), shows that the air supply piping and solenoid valves associated with valve BV60-13 as being subject to AMR. Resolve this inconsistency and provide the basis for the resolution.

##### RAI 2.3.3.A.4-4

On several LR drawings (eg., LR-22111-0 sheet 5) the air supply and solenoid valves associated with the safety-related valves (BV54-40, 54-39 etc) are excluded from AMR. Provide the criteria used to exclude some of the compressed air system auxiliaries to safety-related valves from AMR.

#### **2.3.3.A.8 NMP1 Emergency Diesel Generator System**

##### RAI 2.3.3.A.8-1

LR drawing LR-18026-C Sheet-1 (B-1) for diesel #102, shows that the line leading to the fuel injectors is not subject to AMR. LR-18026-C sheet-2 ©-1) for diesel #103 shows that the line leading to the injectors was highlighted as being subject to AMR. Provide the basis for not including the injector line on sheet-1 in the license renewal scope or correct the drawing.

RAI 2.3.3.A.8-2

LR drawing LR-18026-C sheet-1 (E-3), and Sheet-2 (F-3) show the pipes and expansion joints leading to air start motors as not being subject to AMR. It is noted that the pipes and the expansion joints are not shown on sheet-2. Unit 2 LRA Table 2.3.3.B.1-1 lists air start motors as being subject to an AMR. Please provide the basis for not requiring AMR for these Unit 1 components.

RAI 2.3.3.A.8-3

LR drawing LR-18026-C sheets 1 and 2 (G-1 through H-1) shows that the tubing to pressure gauges, PI 96-21, -22, -23, -24, -25 (for diesel #102), and -53, -54, -55, -56, and -57 (for diesel #103) on the air receiver tanks was not highlighted as being subject to an AMR. This tubing has a passive pressure boundary function and meets the criteria of 10CFR54.4 (a)(1). Additionally, Note 5 on the LR drawings indicate that there are root valves for these pressure indicators. Provide the basis for not requiring AMR for this tubing and associated root valves.

RAI 2.3.3.A.8-4

LR drawing LR-18026-C sheets 1 and 2 do not clearly indicate whether immersion heaters 79-49 and 79-50, shown at location G-6, are being subject to an AMR. Depending on the heater design, these heaters can have a pressure boundary function. Please clarify whether these heaters should be subject to an AMR and whether the component type heat exchangers in Table 2.3.3.A.8-1 represents these heaters.

**2.3.3.A.10 NMP1 Hydrogen Water Chemistry System**

(This LRA Section had no RAIs identified)

**2.3.3.A.12 NMP1 Miscellaneous Non-Contaminated Vents and Drains System**

(This LRA Section had no RAIs identified)

**2.3.3.A.14 NMP1 Process Radiation Monitoring System**

(This LRA Section had no RAIs identified)

**2.3.3.A.16 NMP1 Radioactive Waste System**

RAI 2.3.3.A.16-1

LRA Section 2.3.3.A.16 states that the radioactive waste system components subject to an AMR are the drywell equipment drain tanks, the reactor building equipment drain tank, the drywell equipment drain pumps, the reactor building equipment drain pump, and the piping and associated isolation valves upstream of the tanks for the drains leading to the tanks that are within the scope of license renewal. Also, drywell equipment drain tanks 11 and 12 are shown on LR drawing LR-18045-C, Sheet 7, at locations B1 and B2 as subject to an AMR. However, these tanks are shown on the LR drawing LR-18045-C, Sheet 7A, at locations C2 and C3, as excluded from being subject to an AMR. Please clarify this inconsistency. Also, identify the piping and associated isolation valves of the drywell equipment drain tanks and the reactor building equipment tank that are within the scope of license renewal and are subject to an AMR.

Please justify the exclusion of others from the scope of license renewal and being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1).

RAI 2.3.3.A.16-2

LR drawing LR-18045-C, Sheet 7 at location B-2 and sheet 7A at location B-3, shows equalizing line 105-4-C (the same pipeline on both sheets), as excluded from being subject to an AMR. It appears this line supports the intended function of the drywell equipment drain tanks and serves an NSR functional support intended function. Please justify the exclusion of this equalizing line from the scope of license renewal and being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1).

RAI 2.3.3.A.16-3

LRA Section 2.3.3.A.16 states that the radioactive waste components subject to an AMR are the drywell equipment drain tanks, the reactor building equipment tank, the drywell equipment tank pumps, the reactor building equipment drain pump, and the piping and associated isolation valves upstream of the tanks for the in-scope drains going to the tanks. LRA Table 2.3.3.1A.16-1 lists “pumps” with intended function of “None Safety Related Functional Support” as a component type subject to an AMR. However, drywell equipment tank drain pumps 11 and 12 and the reactor building equipment drain pump are shown on LR drawings LR-18006-C and LR-18045-C, Sheets 7 and 7A as excluded from the scope of license renewal and from being subject to an AMR. In addition, an AMR boundary flag on drawing LR-18045C at location G-6 indicates that the reactor building equipment drain tank pump is not subject to an AMR. Please clarify this inconsistency between the LRA Section 2.3.3.A.16 and LR drawings. Explain how failure of these non-safety-related pumps provide functional support to satisfy license renewal criteria. Also, explain whether the components associated with these pumps discharge pipelines to the waste collector tank are considered as within the scope of license renewal and subject to an AMR. If not, please justify the exclusion of these components from the scope of license renewal and from being subject to an AMR in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1).

RAI 2.3.3.A.16-4

LR drawing LR-18006-C, Sheet 3 shows piping sleeves for pipelines 83.1-4-LT and 83.1-3-LT at locations G-3 and G-4, respectively, as within the scope of license renewal and subject to an AMR. The piping sleeves are passive and long-lived components. Clarify if these components are included with a component type which is listed in LRA Table 2.3.3.A.16-1. If not, please justify the exclusion of these components from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

Further, LR drawing LR-18006-C, Sheet 3 shows pipelines 201.2-673 and 201.2-674 at locations H-3 and H-4, respectively, from the N<sub>2</sub> leak test on drawing LR-10014-C to the above mentioned sleeve pipes as being subject to AMR. The AMR boundary flag for pipeline 201.2-674 indicates that this pipeline is included in the containment system. No boundary flag is shown for the pipeline 201.2-673. Please clarify whether these pipelines are included in the NMP1 radioactive waste system. If not, show the location of the radioactive waste AMR boundary interface with other LR systems.



RAI 2.3.3.A.16-5

LR drawing LR-18018-C, Sheet 1 shows the pipeline 89-1-C from the shutdown cooling heat exchangers #11 and #12 to RBEDT at locations D-3 and D-5, respectively, as being subject to an AMR. However, the pipeline 89-1-C from the shutdown cooling heat exchanger #11 to RBEDT at location D-2 is shown as excluded from being subject to an AMR (although, an AMR boundary indicates that this line should be within the scope of the radioactive waste system). Please clarify whether this is an inadvertent error in highlighting the LR drawing. Otherwise, explain how the latter pipeline differs from the former pipelines.

In addition, LR drawing LR-18045-C, Sheet 7 shows the shutdown cooling system drains line, at location C-3, to RBEDT which appears to be the continuation of the above mentioned pipelines to RBEDT. However, an AMR boundary flag indicates that the portion of this line that is shown on this drawing is within the scope of the compressed air system (CAS). Please explain why this line is included in the compressed air system.

RAI 2.3.3.A.16-6

LR drawings LR-69014C, LR-69015C, LR-69017C, LR-69014C, and LR-69020C show the pressure and level instruments' drain lines and their associated components (fittings and valves) tie in to the pipeline 89-2-C which runs to RBEDT. Pipeline 89-2-C is shown on these drawings as within the scope of license renewal and being subject to an AMR. Also, LR drawing LR-18045-C Sheet 7A shows pipeline 89-2-C at location G-5, which connects fuel pool cooling system drains to the reactor building drain tanks, as being subject to an AMR. However, LR drawing LR-18008-C, Sheet 1 shows pipeline 89-2-C, at location C-3, as excluded from being subject to an AMR. Also, this pipeline is not highlighted in red on LR drawing LR-18045-C, Sheet 7, at location B-3, although an AMR boundary flag shows it as being within the scope of RWS. Further, this AMR boundary flag indicates that a portion of the pipeline 89-2-C from the fuel pool cooling drains on LR-18008-C is within the scope of the compressed air system (CAS).

To resolve the above discrepancies, please:

- a. Provide drawings or descriptive information that shows how the instrumentation drains header 89-2-C connects to the fuel pool cooling system drains pipeline 89-2-C.
- b. Provide drawings or descriptive information that clearly identify portions of the radioactive waste system to RBEDT which are within the scope of license renewal and subject to an AMR, and eliminate inconsistencies between the above mentioned drawings.

**2.3.3.A.17 NMP1 Reactor Building Closed Loop Cooling Water System**

RAI 2.3.3.A.17-1

On LR drawing LR-18022-C sheet 2, the license renewal boundary stops at open valves (70-47 and 70-48) at location A-4, and that the interconnecting drawing is not included in the application. Similarly, on LR drawing LR-18041-C sheet 7, the license renewal boundary stops at a open valve (78-67) at location F-6. Since the boundary is not isolated, any leakage in the down stream piping could potentially impact the safety function of the reactor building closed

loop cooling system. Piping down steam of the open valves has a pressure boundary function. Please provide the basis for stopping the license renewal boundary at the open manual valves.

RAI 2.3.3.A.17-2

On LR drawing LR-18022-C sheet 3, the makeup tank for the reactor building closed loop cooling system is not included in the license renewal boundary. This tank has a pressure boundary function to supply makeup water to the system. Please provide the basis for excluding the makeup tank and its auxiliaries from AMR.

**2.3.3.A.19 NMP1 Reactor Water Cleanup System**

RAI 2.3.3.A.19-1

LR drawing LR-18009-C, sheet 1 (location H-2) shows oil coolers for the clean-up pumps to be within the CU system boundary and requiring an AMR. LRA Table 2.3.3.A-19 lists heat exchangers as a component type; however, LRA Table 3.3.2.A-17 does not include heat exchangers with a lubricating oil environment and Section 3.3.2.A.17 does not list lubricating oil as an environment that the reactor water cleanup system is exposed to. Please confirm that the clean-up pump oil coolers have been properly evaluated within the LRA or justify their exclusion from requiring an AMR.

RAI 2.3.3.A.19-2

LR drawing LR-18005-C, sheet 2 (locations A-1, A-2, A-3, B-1, B-2, and B-3) shows 18" feed water piping as part of the "CU system AMR boundary. This drawing is not listed in LRA Section 2.3.3.A.19 as a license renewal drawing. Please explain the basis for not listing LR drawing LR-18005-C in LRA Section 2.3.3.A.19 and confirm that this piping received an AMR as part of the reactor water cleanup system.

RAI 2.3.3.A.19-3

LR drawing LR-18009-C, sheet 1 (location G-1) shows piping and penetration (XS-365) downstream of check valve CU-37 in black and therefore not subject to an AMR, however LR drawing LR-18006, sheet 2 (location E4, and F4) shows this piping in red and requiring an AMR. Please explain the apparent discrepancy between these drawings and confirm that the piping downstream of check valve CU-37 and penetration XS-365 are subjected to an AMR.

D-RAI 2.3.3.A.19-4

LR drawing LR-18009-C, sheet 1 (location C-1) shows piping upstream of valve 33-03 as black and therefore not subject to an AMR, however, LR drawing LR-18006-C, sheet 1 (location F-1) shows this piping in red and therefore subject to an AMR. Explain the apparent discrepancy between these drawings and confirm that the piping upstream of valve 33-03 does not require an AMR as indicated on LR drawing LR-18009-C, sheet 1.

### **2.3.3.A.20 NMP1 Sampling System**

#### RAI 2.3.3.A.20-1

LR drawing LR-18041-C sheet 1 (locations D-6 and E-6) shows condensate and feedwater heater sample points passing through eight heat exchangers (110-444 through 110-451). These heat exchangers are highlighted red and within the sampling system AMR boundary flags. The closed loop cooling system that is providing cooling water to these heat exchangers is referenced from LR drawing LR-18022-C, Sheet 3 (location H-4), however, this drawing does not identify any of these associated heat exchangers that are subject to an AMR. Please explain the apparent discrepancy between LR drawings LR-18041-C sheet 1 and LR-18022-C sheet 3 and identify where these sample coolers are shown in the closed loop cooling system.

#### RAI 2.3.3.A.20-2

LR drawing LR-18041-C sheet 1 (location B-3), shows condensate sampling points at BV 110-72 and BV 110-73 as not being subject to an AMR. LR-18003-C (location D-5) indicates that the condensate line leading to CS 50-233 is within the condensate system AMR boundary flags and subject to an AMR. Please identify where the AMR boundary exists between the condensate system and the sampling points at BV 110-72 and BV 110-73 and explain the basis for excluding these blocking valves from being subject to an AMR.

#### RAI 2.3.3.A.20-3

LR drawing LR-18041-C sheet 1 (location A-1 through C-2) indicates that sampling system points off main steam system piping (4 locations) are not subject to an AMR while the associated main steam piping is subject to an AMR. Please explain the basis for excluding blocking valves 110-12, 110-13, 110-25 and 110-26 and associated piping from the scope of license renewal and being subject to an AMR.

#### RAI 2.3.3.A.20-4

10 CFR 54.4(a)(2) states that all non-safety-related SSC's whose failure could prevent the satisfactory accomplishment of any of the functions described in 10 CFR 54.4(a)(1) is within scope of license renewal.

LR drawing LR-18041-C sheet 2 (location B-1 through B-3) indicates that sampling system points off the reactor shutdown cooling system at valves 110-504, 110-508 and 110-512 are not subject to an AMR and shows the associated piping leading to the RBEDT as outside the AMR boundary. LR drawing LR-180018 sheet 1 (locations B-1, B-3, and B-5) shows the piping leading to the RBEDT within the AMR boundary up to reactor shutdown cooling valves 38-118, 38-121 and 38-124. Failure of the sampling piping up to and including sampling valves 110-503, 110-507 and 110-511 could affect reactor shutdown cooling integrity. Please explain the basis for excluding sampling piping up to and including sampling valves 110-503, 110-507 and 110-511 from being subject to an AMR.

RAI 2.3.3.A.20-5

10 CFR 54.4(a)(2) states that all non-safety-related SSC's whose failure could prevent the satisfactory accomplishment of any of the functions described in 10 CFR 54.4(a)(1) is within scope of license renewal.

LR drawing LR-18041-C sheet 2 (location B-5 through D-5) shows the shell side of the sample coolers (seven heat exchangers) within the AMR boundary flags of the RBCLC system. However, the tubes of these heat exchangers (on sampling system side) are not subject to an AMR. Failure of the sampling system tubes within these heat exchangers could affect the integrity of the reactor building closed loop cooling system. Please explain the basis for excluding the tubes of these heat exchangers from being subject to an AMR.

RAI 2.3.3.A.20-6

10 CFR 54.4(a)(2) states that all non-safety- related SSC's whose failure could prevent the satisfactory accomplishment of any of the functions described in 10 CFR 54.4(a)(1) is within scope of license renewal.

LR drawing LR-18041-C sheet 7 (location F-5 through G-5) shows heat exchangers 122-44 and 122-45 outside the AMR boundary flags of the reactor building closed loop cooling system and the sampling system. However, these heat exchangers are shown within the reactor building closed loop cooling system and sampling system AMR boundary on LR drawing LR-18022-C sheet 2 (location E-4). Failure of either the tube side or shell side of these heat exchangers could affect the integrity of the reactor building closed loop cooling system. Please explain the basis for excluding these heat exchangers from being subject to an AMR as indicated on LR drawing LR-18041-C sheet 7.

D-RAI 2.3.3.A.20-7

LR drawing LR-18041-C sheet 2 (location C-5) shows the air supply to AOV 110-83A as being subject to AMR for the NMP1 sampling system. The staff believes that this valve should be evaluated as part of the instrument air system. Please confirm that this valve and its environment is within the sampling system or explain this apparent discrepancy.

**2.3.3.A.21 NMP1 Service Water System**

RAI 2.3.3.A.21-1

LR drawing LR-18022-C sheet 1 (location C-2) shows the AMR boundary flag for the service water system ending downstream of valve 72-889. This portion of the service water system appears to provide a flow path for emergency service water returning from the reactor building cooling water heat exchangers. Failure of the piping downstream of valve 72-889 could have an adverse effect on the emergency service water system or possibly the reactor building closed loop cooling system. Similarly, LR drawing LR-18022-C sheet 1 (location G-3) shows return lines from the containment spray raw water loops discharging into a common service water header leading to the discharge tunnel. This common discharge header is not within the

AMR boundary flags for the service water system. Failure of this common discharge header or the discharge tunnel could have an adverse effect on the containment spray raw water system.

Failure of these portions of the service water system or the discharge tunnel could adversely affect the intended functions of any safety-related systems. Please confirm that they are within the scope of license renewal as required 10 CFR 54.4(a)(2) and are subject to an AMR, or explain the basis for excluding these portions of the service water system and/or the discharge tunnel from being subject to an AMR.

#### RAI 2.3.3.A.21-2

LR drawing LR-18022-C sheet 1 (location A-1) shows a service water line (72-3-C) leaving this drawing and continuing on drawing LR-18027-C sheet 2. This service water line is shown to be within the AMR boundary flags of the service water system. In addition, LR drawing LR-18022-C sheet 1 (location B-2) shows a service water AMR boundary flag downstream of valve 72-70 (SW-130), however this boundary flag appears to conflict with the red highlighted lines leading to drawing LR-18027-C sheet 2. Drawing LR-18027-C sheet 2 could not be located within the LRA. Please provide a copy of LR drawing LR-18027-C sheet 2 to facilitate further review of the service water system and LRA section 2.3.3.A.21.

### **2.3.3.A.22 NMP1 Shutdown Cooling System**

#### RAI 2.3.3.A.22-1

LR drawing LR-18018-C sheet 1 (locations A-1 and A-2) shows shutdown cooling pump casing vents and drains outside the AMR boundary flags for the shutdown cooling system. It appears that if any of these pump casing vents and drains up to and including the first isolation valve failed, it would have an adverse effect on the integrity of the shutdown cooling system to perform its intended function. It also appears that these pump casing vents and drains are part of the shutdown cooling system pressure boundary. Please explain the basis for excluding the shutdown cooling pump casing vent and drain piping and valves from requiring an AMR.

#### RAI 2.3.3.A.22-2

LRA Table 2.3.3.A.22-1 does not list temperature elements or thermowells as component types within the shutdown cooling system. LR drawing LR-18018-C sheet 1 (location B-3) shows temperature element 38-115 within the AMR boundary of the shutdown cooling system. General note number 6 on LR drawing LR-18018-C sheet 1 states that all temperature devices including temperature elements have thermowells. Please explain the basis for excluding temperature elements and/or thermowells (pressure boundary function) as component types in Table 2.3.3.A.22-1 from requiring an AMR.

In addition, LRA Table 2.3.3.A.22-1 does not list bolting as a component type within the shutdown cooling system. Bolted connections appear to be used on a number of flow elements within the shutdown cooling system. Please explain the basis for excluding bolting as a component type in LRA Table 2.3.3.A.22-1 from requiring an AMR.

### **2.3.3.A.23 NMP1 Spent Fuel Pool Cooling and Filtering System**

#### RAI 2.3.3.A.23-1

LR drawing LR-18008-C, sheet 1 (location B-1) identifies that valves 54-144 and 54-145 are not subject to AMR. These valves serve as an interface between spent fuel pool cooling and filtering (SFPC&F) system and the radioactive waste system. It appears that these valves serve a pressure boundary intended function in the SFPC&F system when valves 54-74 and 54-75 are open. Therefore the staff believes that valves 54-144 and 54-145 should be highlighted as requiring AMR in accordance with 10 CFR 54.21. Please justify the exclusion of these valves from being subject to AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

#### RAI 2.3.3.A.23-2

On LR drawing LR-18008-C, sheet 1, there are two lines labeled 54-6-B shown in black that run from the reactor head cavity and the reactor internals storage pit to the fuel pool surge tanks. The staff believes that these lines are part of the SFPC&C system and should be subject to AMR according to 10 CFR 54.21 although they are not identified with AMR boundary flags or other system acronyms. Please justify the exclusion of these lines from being subject to AMR in accordance with the requirements of 10 CFR 54.21.

### **2.3.3.A.25 NMP1 Turbine Building Closed Loop Cooling Water System**

(This LRA Section had no RAIs identified)

### **2.3.3.B.1 NMP2 Air Startup Standby Diesel Generator System**

#### RAI 2.3.3.B.1-1

LR drawing LR-104A-0 shows the license renewal boundary stops at valves AOV323B (location K-5) and AOV323A (location K-6). Downstream piping and equipment has a safety-related pressure boundary function. LRA Table 2.3.3.B-1 shows that starting air lubricators are subject to AMR; however the LRA drawing shows that lubricators LU325A and LU325B are not part of the boundary. Please provide the basis for not including this piping and the equipment LU325A and LU325B in the license renewal boundary.

#### RAI 2.3.3.B.1-2

UFSAR section 9.5.8 states that turbocharger and intercooler heaters are part of the combustion air intake and exhaust system. These components have a pressure boundary function but are not listed in LRA Table 2.3.3.B-1. Please provide the basis for not subjecting these components to an AMR.

#### RAI 2.3.3.B.1-3

LRA Table 2.3.3.B-1 does not list component type moisture separator as being subject to an AMR. LRA drawing LR-104A-0 shows that moisture separators (at locations D-3, D-5, D-8, and



D-10) are within the license renewal boundary. Please provide the basis for not including moisture separators as a component type requiring AMR in LRA Table 2.3.3.B-1.

#### **2.3.3.B.2 NMP2 Alternate Decay Heat Removal System**

(This LRA Section had no RAIs identified)

#### **2.3.3.B.5 NMP2 Compressed Air System**

##### RAI 2.3.3.B.5-1

On LR drawing LR-006 Sheet A, air operated control valves FV2A, 2B, and 2C (locations F-3, F-7 and F-10) are shown as being subject to an AMR. However, the air supply tubing and solenoid valves are not shown as requiring an AMR. Please provide the basis for excluding the compressed air system auxiliaries to these valves from requiring an AMR.

##### RAI 2.3.3.B.5-2

On LR drawing LR-013 sheet E (location D-10), the fail closed valve AOV38B is shown as being subject to an AMR. However, the air supply tubing and solenoid valves are not shown as requiring an AMR. Please provide the basis for excluding the compressed air system auxiliaries to this valve from requiring an AMR.

##### RAI 2.3.3.B.5-3

On LR drawings LR-019 sheets L & M, main steam isolation valves are shown as being subject to an AMR. However, the air supply tubing and solenoid valves are not shown on detail A on drawing LR-019 sheet L as requiring an AMR. Please provide the basis for excluding the compressed air system auxiliaries to these valves from requiring an AMR.

##### RAI 2.3.3.B.5-4

The LR drawings do not show the air cylinders as part of the license renewal boundary. This is based on the assumption that the valves will go to their fail safe position on loss of air pressure. This would be true for single acting air cylinders with springs. But for double acting cylinders, one of the cylinders requires air pressure to effect valve repositioning to its fail safe position. Therefore, the double acting cylinders have a pressure boundary function. Please provide the basis for excluding the double acting cylinders from requiring an AMR.

#### **2.3.3.B.8 NMP2 Control Building Chilled Water System**

(This LRA Section had no RAIs identified)

#### **2.3.3.B.11 NMP2 Domestic Water System**

(This LRA Section had no RAIs identified)

#### **2.3.3.B.14 NMP2 Floor and Equipment Drains System**

##### RAI 2.3.3.B.14-1

LR drawings LR-63C, LR-63D, LR-63E, and LR-66B do not show in scope flagging as depicted in the typical boundary flagging legend on each drawing. Red colored piping and fittings and black colored piping and fittings are both shown beyond the license renewal floor and equipment drain's blue flagging on the drawings. Please explain why the black colored piping and fittings are shown beyond the license renewal blue flagging. Also please discuss if the black colored piping and fittings are within scope of license renewal due to 10CFR54.4(a)(2) and, if not in scope, justify how their failure would not affect the pressure boundary function of the in scope piping that this piping connects with.

##### RAI 2.3.3.B.14-2

LR drawing LR-67A shows the drywell equipment drain tank 1, associated discharge piping and fittings, downstream valves and downstream equipment drain pumps in red and within blue flagging boundaries, indicating that these components are in scope for license renewal per 10 CFR 54.4(a)(3). However, the inlet piping and fittings to the drywell equipment drain tank 1, upstream valves and upstream drywell equipment drain cooler are shown in black, indicating these components are functionally outside the scope of license renewal. In order for the staff to complete its review, identify the intended function of the portion of the system beyond the drywell equipment drain tank 1 that satisfies 10 CFR 54.4(a)(3) and explain how the function is performed without relying on the inlet piping to the tank to be functional and within the scope of license renewal.

#### **2.3.3.B.15 NMP2 Generator Standby Lube Oil System**

##### RAI 2.3.3.B.15-1

LR drawing 104E-0 shows sight glasses SG-1, SG-2, and SG-3 at locations E2 and F1. Sight glasses are passive and long-lived components and are not shown as being subject to an AMR. Please clarify if this is an omission. If not, justify the exclusion of this component from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

##### RAI 2.3.3.B.15-2

LR drawing 104E-0 shows the turbo lube oil pressure trip valves, PEV-18 for the Div. I and II diesels and connecting tubing, at location A7 as not being subject to an AMR. It appears that failure of this component and its connecting tubing could prevent its associated standby diesel generator from performing its intended function. requiring describe the function of this component and its effects on the intended function standby diesel generator. If PEV-18 is found to have an intended function, then it must be treated as a component requiring an AMR.

##### RAI 2.3.3.B.15-3

LR drawing 104E-0 shows restricting orifices 2EG0-00001, 00002, and 00003, for the Div. III diesel as being subject to AMR. Table 2.3.3.15.B-1 includes the component type "Orifices" with



an intended function of "Pressure Boundary." Restricting orifices also have a flow restriction function (as defined in LRA Table 2.0-1) that has not been identified in Table 2.3.3.15.B-1. Please confirm that the loss of flow restriction is not an intended function for restricting orifices in the generator lube oil system that requires an AMR.

RAI 2.3.3.B.15-4

LR drawing 104E-0 shows Y-strainers item 5, 17, and 69 for the Div. III diesel as being subject to AMR. Table 2.3.3.15.B-1 includes the component type "Filters/Strainers" with an intended function of "Pressure Boundary." Y-strainers also have a filtration function (as defined in LRA Table 2.0-1) that has not been identified in Table 2.3.3.15.B-1. Please confirm that the loss of filtration is not an intended function for Y-strainers in the generator lube oil system that requires an AMR.

RAI 2.3.3.B.15-5

NMP U2 FSAR Section 9.5.7 states that each standby diesel generator has an independent lubrication system to lubricate engine bearings and other moving parts. LR drawing 104E-0 shows a line labeled, "To Engine Bearings" at location C8 for the Div. I and II diesels as not requiring AMR. It appears that this line supports the intended function for the generator standby lube oil system. Please explain why this line is not subject to an AMR.

**2.3.3.B.16 NMP2 Glycol Heating System**

RAI 2.3.3.B.16-1

LRA Section 2.1.4.2.4 states that the intended functions relative to the criteria of 10CFR54.4(a)(2) were identified and documented and LRA Section 2.3.3.B.16 states that the only components of the glycol heating system that are subject to an AMR are NSR piping, fittings and equipment containing liquid, which are not shown on any LR drawings. Please identify the portions of the glycol heating system NSR piping, fittings and equipment containing liquid that are subject to an AMR.

RAI 2.3.3.B.16-2

The System Description section of LRA Section 2.3.3.B.16 states that the Glycol Heating system consists of three subsystems with one subsystem in the Turbine Building, one subsystem in the Standby Gas Treatment Building and one subsystem in the Radwaste Building. The System Description section also states that the components subject to an AMR include non safety related piping, fittings and equipment containing liquid in the Screenwell Building, Standby Gas Treatment Building and Turbine Building; however, no LR drawings were provided for this system. Please clarify and justify the absence of components subject to an AMR in the Radwaste Building and the presence of components subject to AMR in the Screenwell Building.

### **2.3.3.B.17 NMP2 Hot Water Heating System**

#### RAI 2.3.3.B.17-1

The System Description section of LRA Section 2.3.3.B.17 states that reactor water may be supplied to the shell side of the building heating auxiliary heat exchangers and the intermediate heat exchangers. No LR drawings were provided for this system and Table 2.3.3.B.17 indicates that non safety related piping, fittings, and equipment with the intended function of preventing failure from affecting safety-related equipment are subject to an AMR. Please provide information that describes the interface between the reactor water and the hot water system that precludes the interface from being a pressure boundary.

#### RAI 2.3.3.B.17-2

The System Description section of LRA Section 2.3.3.B.17 states that components subject to an AMR include the non safety related piping, fittings, and equipment containing liquid in the Control Room Building, Reactor Building (secondary containment), Radwaste Building, Screenwell Building, Standby Gas Treatment Building, and Turbine Building (emphasis added). No LR drawings were provided for this system. Please provide information that describes the boundaries of this system and confirms that there are no other components subject to an AMR.

### **2.3.3.B.18 NMP2 Makeup Water System**

(This LRA Section had no RAIs identified)

### **2.3.3.B.21 NMP2 Process Sampling System**

#### RAI 2.3.3.B.21-1

While performing a review of the NMP2 process sampling (PS) system the staff noted that for the residual heat removal (RHR) system that interfaces with the PS system, LR drawings LRA-31 sheet D (location G7) and LRA-31 sheet E (location D8) show valves 2-RHS-SOV-35A and 2-RHS-SOV-35B highlighted in red and within the RHR system AMR boundary flags. However, LR drawing LR-17 sheet G (locations I-1, and K-1) does not show these valves within the AMR boundary of the RHR system. Please confirm that valves 2-RHS-SOV-35A and 2-RHS-SOV-35B are within the scope of license renewal and subject to an AMR or explain the discrepancy between the LR drawings.

### **2.3.3.B.22 NMP2 Radiation Monitoring System**

#### RAI 2.3.3.B.22-1

LRA Section 2.3.3.B.22 states that:

“The NMP2 radiation monitoring system is designed to initiate appropriate manual or automatic protective action to limit the potential release of radioactive materials from the reactor vessel, primary and secondary containment, and fuel storage areas if predetermined radiation levels are exceeded in major/process effluent streams, and to provide main control room personnel with radiation level

indication throughout the course of accident. The radiation monitoring system consists of a computer-based digital radiation monitoring system, a computer-based gaseous effluent monitoring system, and a main stem line radiation monitors.”

LRA Section 2.3.3.B.22 regarding the NMP2 radiation monitoring system states that “portions of the system consists of off-line gas and liquid monitors which consist of piping, filters, pumps, sampler/detectors, valves, and instrument.” The applicant did not identify the radiation monitoring system components that are in scope of license renewal due to 10CFR54.4(a)(1) and 10CFR54.4(a)(2) and concluded that the radiation monitoring system components are not subject to an AMR, because they are active components. Furthermore, no LR drawings for the NMP2 radiation monitoring system were provided to identify the portions of this system containing components within the scope of license renewal. Please identify the components of the radiation monitoring system that are in-scope of license renewal in accordance with the requirements of 10CFR54.4(a)(1) and 10CFR54.4(a)(2), and/ or justify the exclusion of these components from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

#### **2.3.3.B.23 NMP2 Reactor Building Closed Loop Cooling Water System**

(This LRA Section had no RAls identified)

#### **2.3.3.B.25 NMP2 Reactor Water Cleanup System**

##### RAI 2.3.3.B.25-1

LR drawing LR-37A-0 shows components downstream of EFV222 and EFV300 (location H-7) and downstream of EFV223 and EFV224 (location H-4) not highlighted in red indicating that they require no AMR. In addition, LR drawing LR-37B-0 (location C-9) shows FE119 and associated tubing and root valves to FT68X and FT68Y are also not highlighted in red. However, as denoted by the asterisks preceding these component numbers (per note 1 of the mentioned drawings), these components are identified as part of the nuclear safety feature systems. The staff believes that these components do meet criterion 10 CFR 54.4(a)(1) and should require AMR according to 10 CFR 54.21(a)(1). Please justify the exclusion of these components from the scope of license renewal and from requiring an AMR.

##### RAI 2.3.3.B.25-2

The introduction to NMP2 UFSAR Table 3.9B-2 states that this table lists the major safety-related components in the plant. Item W and X identify the reactor water cleanup system pumps and the reactor water cleanup heat exchangers respectively, as part of this table, however, these components are not highlighted in red on LR drawing LR-37B-0 as within the scope of license renewal and subject to an AMR. Also, LRA Table 2.3.3.B.25-1 does not include the “component type” pumps or heat exchangers. The staff believes that these components do meet criterion 10 CFR 54.4(a)(1). Please justify the exclusion of these components from the scope of license renewal and from requiring AMR.

### **2.3.3.B.26 NMP2 Seal Water System**

(This LRA Section had no RAls identified)

### **2.3.3.B.27 NMP2 Service Water System**

#### RAI 2.3.3.B.27-1

LR drawing LR-11 sheet A (location C-10) shows component number \*EJ12F within the AMR boundary flags of the service water system. It appears that this component is an expansion joint or bellows. Similarly, LR drawing LR-11 sheet L (location I-5) shows two components that appear to be expansion joints or bellows connecting to the High Pressure Core Spray (CSH) diesel generator cooler. However, LRA Table 2.3.3.B.27-1 does not list expansion joints or bellows as a component subject to an AMR within the NMP2 service water system. In addition, a review of LRA Table 3.3.2.B-26, NMP2 Service Water System – Summary of Aging Management Evaluation, did not identify expansion joints or bellows as a component type. Please confirm that this component is included in the AMR of piping and fittings or explain the basis for excluding these component types from LRA Table 2.3.3.B.27-1 and excluding these component types from requiring an AMR.

#### RAI 2.3.3.B.27-2

LR drawings LR-11 sheet B (location L-3) shows piping and components that are within the service water system AMR boundary flags continuing on to license renewal drawing LR-11 sheet J (location A-11). However, LR drawing LR-11 sheet J (location A-11) shows the continuation of this piping and components in black with no AMR boundary flag. Please identify the AMR boundary for this portion of the service water system that provides cooling water to the turbine building closed loop cooling water heat exchangers and other turbine building heat loads and confirm that this portion of the service water system is not subject to an AMR.

#### RAI 2.3.3.B.27-3

LR drawing LR-43 sheet G (location G-6) shows piping coming from the service water system on license renewal drawing LR-11 sheet L (location G-8) and going to the fire protection water system as being within the AMR boundary flags of the service water system and subject to an AMR. However, LR drawing LR-11 sheet L (location G-8) shows this same service water piping as outside the AMR boundary flags of the service water system. Please explain the basis for excluding this portion of the service water system as shown on license renewal drawing LR-11 sheet L (location G8) from being subject to an AMR and identify the AMR boundary for this portion of the service water system.

#### RAI 2.3.3.B.27-4

LR drawings LR-11 sheet E (location B-3) shows discharge piping from relief valve \*RVY 46A going to the floor and equipment drains system (DER system) on LR drawing LR-63 sheet B. The AMR boundary flag at this location shows this portion of the DER system within the AMR boundary flags and highlighted in red. However, this is not consistent with other relief valve discharge drain lines within the service water system. In addition, LR drawing LR-63 sheet B was not included in the LRA to permit further review of this portion of the floor and equipment

drains system. Please determine if this portion of the DER system is within the scope of license renewal and subject to an AMR and provide a copy of LR drawing LR-63 sheet B to permit further review by the staff.

RAI 2.3.3.B.27-5

LR drawings LR-11 sheet F (location I-5) shows flow element root valves \*V53B and 54B and associated piping outside the scope of license renewal and not subject to an AMR. Failure of these pipes could affect the integrity of the service water system, therefore, explain the basis for excluding these components from being subject to an AMR.

**2.3.3.B.28 NMP2 Spent Fuel Pool Cooling and Cleanup System**

RAI 2.3.3.B.28-1

The spent fuel pool cooling and cleanup system is shown primarily on LR drawing LR-038, sheets A, B, and C. The LR drawings supplied do not contain all the detail for the staff to understand the configuration of the components requiring AMR, because the cooling and cleanup systems operate independently of one another, and the majority of the cleanup system does not contain components subject to AMR. Please provide the following figures from the NMP2 UFSAR 9.1.5 Spent Fuel Pool Cooling and Cleanup System, sheets A through D and LR drawing LR-38D-0.

RAI 2.3.3.B.28-2

There are spargers noted on LR drawings at the bottom of the spent fuel pool (LR-38B-0, location 6-A through 6-D), the reactor refueling cavity (LR-38A-0, location G/H-6/7) and the reactor internals storage pit (LR-38A-0, location 7-J/K) as being subject to an AMR. Please clarify whether these spargers are included in the component type "piping and fittings" in LRA Table 2.3.3.B.28-1, or indicate if they are included on the table under another component type.

RAI 2.3.3.B.28-3

LRA Tables 2.3.3.B.28-1 and 3.3.2.B-27 list the component filter/strainer as being subject to AMR. LRA drawings for the spent fuel pool cooling and cleanup system show no filters or strainers. Please clarify whether there are any filters or strainers in the spent fuel cooling and cleanup system which are subject to AMR. If not, remove the reference from the LRA Tables.

**2.3.3.B.29 NMP2 Standby Diesel Generator Fuel Oil System**

RAI 2.3.3.B.29-1

On LR drawing LR-104F-0 at locations K2 and K3, orifices are shown to be within the scope of license renewal and subject to an AMR. However, orifice is not included as a component type in LRA Table 2.3.3.B.29-1. LRA Table 2.0-1 identifies "Flow Restriction" as a component intended function that is applicable to an orifice. Clarify whether this component is included with another component type that is within the scope of license renewal and subject to an AMR.

If not, justify its exclusion from the scope of license renewal and from being subject to an AMR or update the corresponding table to include this component.

RAI 2.3.3.B.29-2

On LR drawing LR-104B-0 at locations L-3, L-4 and L-5, flexible hoses are shown to be within the scope of license renewal and subject to an AMR. However, flexible hose is not included as a component type in LRA Table 2.3.3.B.29-1. Please clarify whether this component is included with another component type that is within the scope of license renewal and subject to an AMR. If not, justify its exclusion from the scope of license renewal and from being subject to an AMR or update the corresponding table to include this component.

RAI 2.3.3.B.29-3

NMP2 UFSAR Section 9.5.4 states that the standby diesel generator fuel oil storage and transfer system consists of six electric motor-driven, vertical, turbine-type fuel oil transfer pumps. The pumps are mounted in duplex sets on top of each fuel oil storage tank and each duplex set is connected in parallel to its respective day tank to permit the transfer of fuel oil by the pumps. LR drawing LR-104C-0 shows two of these pumps, P1C and P1A at locations C-6, and E-6, respectively, and LR drawing LR-104B-0 shows four of these pumps, P1D, P1B, P2B, and P2A at locations C-8, E-8, C-3 and E-3 respectively, to be within the scope of license renewal and subject to an AMR. However, the LR drawings do not show the piping within the standby diesel generator storage tanks connecting to these pumps as being subject to an AMR. The staff believes that this piece of piping should be within the scope of license renewal and subject to an AMR in order for the standby diesel generator fuel oil storage tanks to perform its intended function. Please justify the exclusion of this piece of piping from the scope of license renewal and from requiring an AMR.

RAI 2.3.3.B.29-4

LR drawings LR-104B-0 shows piping within the standby diesel generator fuel oil storage and transfer system connecting to the level switches 103, 106, 108, 109, 12B, 10B, 5B, 7B, and 8B at locations D-3 and H-4, D-8 and H-9 respectively, as not within the scope of license renewal and subject to an AMR. LR drawings LR-104C-0 shows piping within the standby diesel generator fuel oil storage and transfer system connecting to the level switches 12A, 5A, 7A, and 8A, at locations D6 and I6 respectively, as not within the scope of license renewal and subject to an AMR. The staff believes that the level switches are used to monitor the oil level in their associated day tanks and that the piece of piping connecting to these level switches should be within the scope of license renewal and subject to an AMR. Please justify the exclusion of this piece of piping from the scope of license renewal and from requiring an AMR.

RAI 2.3.3.B.29-5

On LR drawing LR-104B-0, LR-104C-0, and LR-104F-0, vents are shown to be within the scope of license renewal and subject to an AMR. However, vents are not included as a component type in LRA Table 2.3.3.B.29-1. Please clarify whether this component is included with another component type that is within the scope of license renewal and subject to an AMR. If not, justify its exclusion from the scope of license renewal and from being subject to an AMR or update the corresponding table to include this component.



### **2.3.3.B.30 NMP2 Standby Generator Protection System**

#### RAI 2.3.3.B.30-1

LR drawing LR-104D-0 (location C-3) shows the turbocharger is not subject to AMR. The turbo charger is required for the proper operation of the diesel and has a passive pressure boundary function. This component meets the 10CFR54.4(a)(1) criteria. Please provide the basis for excluding the turbocharger from the scope of license renewal and from being subject to AMR.

#### RAI 2.3.3.B.30-2

LR drawing LR-104D-0 (locations H-4 and H-5) shows lube oil coolers, fuel oil coolers, and intercoolers were not highlighted as being subject to AMR. These components have a passive pressure boundary function and meets 10CFR54.4(a)(1) criteria. Please provide the basis for excluding these components from the scope of license renewal and from being subject to AMR.

#### RAI 2.3.3.B.30-3

LR drawing LR-104D-0 (locations F-5 and H-10) shows that the jacket water circulation heaters are not subject to AMR. The description provided in the USAR does not clearly indicate how the heater functions. If the immersion heater works by immersing the heating element in the cooling fluid, then the heater that is containing the cooling fluid has a passive pressure boundary function and is required to be subject to AMR per 10CFR54.4 (a)(1). Drawing LR-104E-0 (location E9) shows a similar heater as being subject AMR. Please provide the basis for not including these heaters on drawing LR-104D-0 in the license renewal boundary.

#### RAI 2.3.3.B.30-4

LR drawing LR-104D-0 (location H-8) shows that the water expansion tank and overflow line as being subject to AMR. However, the tubing leading to the level switches and the sight glass on the expansion tank are specifically excluded from AMR. LRA Table 2.3.3.B.30-1 does not identify tanks as a component type requiring an AMR. Provide the basis for not including the sight glass, tubing in the scope of license renewal and not including the component type tank in the referenced table.

#### RAI 2.3.3.B.30-5

On drawing LR-104D-0 at location F-4, the tube side of jacket water coolers are not highlighted as being subject to an AMR. Please provide the basis for not including this portion of the component within the scope of license renewal.

#### RAI 2.3.3.B.30-6

On drawing LR-104E-0 at location D-10, the license renewal boundary stops at a open valve HV31J. The tubing beyond this valve has a pressure boundary function and should be subject to AMR. Same concern exists at location B-7 for piping downstream of valve HV18C. Please provide the basis for not subjecting the piping/tubing down stream of an open valve to AMR.

RAI 2.3.3.B.30-7

There is a discrepancy between drawings LR-104B-0 and LR-104F-0. On drawing LR-104B-0 at location F-8, it is shown that the interconnecting piping on drawing LR-104F-0 at location G-4 as not being subject to AMR. On drawing LR-104F-0, this piping is subject to AMR. Please provide explanation that would resolve this apparent discrepancy.

**2.3.3.B.31 NMP2 Standby Liquid Control System**

RAI 2.3.3.B.31-1

LR drawing LR-36A-0 shows Y-strainers at locations G5 and G9 and a strainer element plate at location B-9 as being subject to AMR and LRA Table 2.3.3.31.B-1 includes the component type "Filters/Strainers" with an intended function of "Pressure Boundary." The strainers also have a filtration function (as defined in LRA Table 2.0-1) but that has not been identified in LRA Table 2.3.3.31.B-1. Please confirm that the loss of filtration is not an intended function for the strainers in the SLC system that requires an AMR.

D-RAI 2.3.3.B.31-2

LR drawing LR-36A-0 shows a manhole at location B-8 as being subject to an AMR. However, manhole is not listed in the LRA Table 2.3.3-B.31-1 as a component type subject to an AMR. Manholes serve as a pressure boundary intended function, and are passive and long-lived components. Please clarify if this component is considered as a sub-component of a component type which is listed in LRA Table 2.3.3.B.31-1. If not, justify the exclusion of manhole component from being subject to an AMR in accordance with the requirements of 10 CFR 54.21(a)(1).

RAI 2.3.3.B.31-3

LR drawing LR-36A-0 shows a valve (V2) at location C-3 as being subject to an AMR. However, the pipe line downstream of this valve to the air sparger in the storage tank (TK1) is shown as excluded from the scope of license renewal and being subject to an AMR. The air sparger is used for mixing the boron solution in the tank. Similarly, the pipe line downstream of another valve (V4) is used for addition of demineralized water to the storage tank which may be use for adjusting of the sodium pentaborate solution concentration. Therefore, these pipe lines support the intended function of the SLC system. Please justify the exclusion of these pipelines from the scope of license renewal and from being subject to an AMR.

RAI 2.3.3.B.31-4

LR drawing LR-36A-0 shows the pneumatic signals from the FIC103, LT-103 and LIX103 to the storage tank TK1 as being subject to an AMR. However, the flow indicator controller FIC103 is shown as being excluded from requiring an AMR. This instrument, as shown as on drawing LR-36A-0, is installed as an in-line instrument for isolation of the air supply to the level instruments and thus serves a pressure boundary intended function. Please explain why FIC103 is excluded from the scope of license renewal and from requiring an AMR.



Furthermore, LR drawing LR-36A-0 does not show how this pneumatic signal (line) extends inside the storage tank. Please clarify if the portions of this pneumatic line inside the storage tank is considered as within the scope of license renewal and being subject to an AMR. If not, justify its exclusion in accordance with the requirements of 10 CFR 54.4(a) and 10 CFR 54.21(a)(1).

RAI 2.3.3.B.31-5

This refers to LR drawing LR-36A-0 shows pipeline 2-MWS-001-68-4, at location B-1, to 2-SLC-001-28-4, at location C-1.

- a. The acronym MWS, which apparently is the makeup water system that provides demineralized water, is not defined in the LR boundary drawing LR-000-2F-0. Please define the MWS acronym.
- b. The function of check valve V3 at location C1 is to isolate the in-scope portion of the pipeline 2-SLC-001-28-4 from the out of scope pipeline 2-MWS-001-68-4 and check valves are passive and long lived components. Please justify the exclusion of V3 from the scope of license renewal and being subject to an AMR.

**(3) Section 2.3.4.A.1 NMP1 Condensate and Condensate Transfer System**

RAI 2.3.4.A.1-1

LR drawing 18003 (location C-5), shows an inter-condenser and after-condenser within the scope of license renewal and subject to AMR. At locations A-5 and B-5, two re-combiner condensers are also shown within scope and subject to AMR. However, LRA Table 2.3.4.A.1-1 does not include these heat exchangers individually among the list of components subject to an AMR, nor is the generic component type "heat exchanger" included in the table. Please justify exclusion of the heat exchangers from LRA Table 2.3.4.A.1-1.

RAI 2.3.4.A.1-2

LR drawing 18008, Sheet 1 (location D-5) shows that a valve labeled CT-38, on line 57-3/4-B, is outside the scope of license renewal and excluded from requiring AMR. To ensure that the valve has the capability of isolating this line, the staff believes that it should be within scope of license renewal and subject to AMR. Please justify exclusion of valve CT-38 from the scope of license renewal and from being subject to AMR.

RAI 2.3.4.A.1-3

LRA Table 2.3.4.A.1-1 includes the main condenser as a component subject to an AMR. However, LRA boundary drawing 18003 (locations D-2 and E-2) shows that the main condenser is outside the scope of license renewal (i.e. not highlighted). Please clarify that the main condenser is within the scope of license renewal and highlighting was inadvertently omitted.

RAI 2.3.4.A.1-4

LR drawing 18048, at location F-4, shows line 57-4 -B within the scope of license renewal and ending in a continuation flag labeled “relief to condensate surge and storage tank.” This flag shows a continuation to drawing 18003, location G-1. However, at this location on drawing 18003, the continuation of line 57-4-B is shown outside the scope of license renewal. There is no LR boundary flag on either of these drawings marking this change in classification, nor any valve present that could isolate the in-scope portion from the out-of-scope portion of the line. Please explain the absence of a boundary flag and an isolation valve separating the in-scope and out-of-scope portions of the abovementioned line.

#### RAI 2.3.4.A.1-5

The two condensate surge and storage tanks are shown within the scope of license renewal on LRA boundary drawing 18003 at locations G-2 and H-2. LRA Table 2.3.4.A.1-1 lists “tanks” as a component type subject to an AMR. Please confirm that the condensate surge and storage tanks are included in the component type “tanks” and identify other tanks (if any) belonging to the condensate and condensate transfer system that are within the scope of license renewal and included in the component type “tanks.”

#### RAI 2.3.4.A.1-6

LRA Table 2.3.4.A.1-1 includes flow elements, flow gauges, flow indicators, flow orifices, and tanks as component types subject to an AMR. The intended function listed for flow elements is “NSR Functional Support” while the remainder of these component types have the intended function “pressure boundary.” The balance of component types listed in the table have the intended function of either “NSR Functional Support”, or a combination of “NSR Functional Support” and “pressure boundary.” Please clarify why flow gauges, flow indicators, flow orifices, and tanks have the intended function of “pressure boundary” only.

#### RAI 2.3.4.A.1-7

LRA boundary drawing 18009, Sheet 1 (location G-5) shows that the only component located between valve CT-53 and valves BV 57-103/104 is flow indicator FI 57-168. However, LR drawing 18048 shows that flow gauge FG 57-175 is the only component located between these same valves. Please explain this apparent discrepancy.

### **2.3.4.A.2 NMP1 Condenser Air Removal System**

#### RAI 2.3.4.A.2-1

NMP1 FSAR section XI, Steam-to-Power Conversion System, B.3.0 (Condenser Air Removal and Offgas System) describes the operation and components of this system. Major components for the system are listed including many which appear to be passive and long-lived. Those components that are described as performing the process include: preheater, recombiner, condenser, drain tank, vent cooler, and 30-min holdup pipe. LRA Section 2.3.4.A.2 states that the condenser air removal and off-gas system removes and processes non-condensable radioactive gases that accumulate in the main condenser during startup and normal operation. The LRA further states that this system is in scope for performing safety-related functions per 10 CFR 54.4(a)(1) and that because components within this system are

either active or subject to replacement based on qualified life or specified time period no AMR is required. Please confirm that the aforementioned components are not passive or long-lived or otherwise do not perform an intended function identified in LRA Section 2.3.4.A.2. If they are found to require AMR, then identify them on drawing(s) and include them in LRA Table 2.3.4.A.2.

### **2.3.4.A.3 NMP1 Feedwater/HPCI System**

#### RAI 2.3.3.A.3-1

LRA Table 2.3.4.A.3-1 includes “oil coolers” as a component type subject to an AMR. However, the staff has been unable to locate oil coolers on the LR drawings referenced in LRA Section 2.3.4.A.3. Drain coolers, on the other hand, are shown within the scope of LR on these drawings and are subject to an AMR, yet have not been included in the table. Please confirm that “oil coolers” were mistakenly entered in place of “drain coolers” in the table and, if so, make the appropriate corrections. Otherwise, add the component type “drain coolers” to the table and provide drawings showing the subject oil coolers as well as the components they serve.

#### RAI 2.3.4.A.3-2

LRA Table 2.3.4.A.3-1 includes the following component types as being subject to an AMR: filters/strainers, flow elements, flow indicators, and flow orifices. However, the intended function assigned to these components is “NSR Functional Support.” LRA Table 2.0-1 identifies intended functions that are applicable to these components that are not identified in LRA Table 2.3.4.A.3-1. Aging management review to ensure that the component level intended functions can be performed is necessary to ensure that the system level intended functions can be maintained. The intended functions include “filtration” and “flow restriction.” Please describe how the intended functions for these components are assigned and evaluated.

#### RAI 2.3.4.A.3-3

LRA Table 2.3.4.A.3-1 includes the following component types as being subject to an AMR: flow elements, flow indicators, and flow orifices. However, the drawing legend (drawing 18000) does not clearly define or distinguish between these components. For example, under “Flow Devices” in the legend (location G5), one of the symbols shown is denoted “FE” and defined as “flow element orifice” while another is denoted “FI” and defined as “in-line flow device.” The distinction between these three component types and where each appears on the boundary drawings is not clear to the staff. By referring to the boundary drawings, please provide examples that clarify the distinction between the abovementioned three component types.

#### RAI 2.3.4.A.3-4

LR drawing 18003 (locations B1, B3, and B4) shows the symbol “boxed letter B” on the suction side of each of the three feedwater booster pumps. This symbol is not defined in the legend

(drawing 18000) nor is the staff able to determine what it represents. To assist the staff in its review, please define the above described symbol.

#### **2.3.4.A.4 NMP1 Main Generator and Auxiliary System**

(This LRA Section was addressed in LRA Section 2.3.3.A.9 Fire Protection)

#### **2.3.4.A.5 NMP1 Main Steam System**

##### RAI 2.3.4.A.5-1

LR Note # 1 on drawing LR-18000-C, License Renewal Boundary Drawing Symbols, Notes, and Acronyms, states that portions of the system subject to AMR are highlighted in red with boundaries indicated by blue flags. The blue flags are described on drawing LR-18000-C as “AMR Boundary Flags.” Portions of a license renewal system indicated with solid blue flags may perform intended functions (WSLR) but are not subject to AMR. However, when a LR drawing is composed of a P&ID that has a continuation on another P&ID that is not provided by the applicant, the staff is unable to complete its review of whether the license renewal system incorporates all portions necessary to satisfy its plant level system intended functions. For example: Drawing LR-18002-C for the NMP1 main steam system is composed of drawing C-18002 Sheet 1. A portion of the main steam system is depicted on drawing C-18002 Sheet 2 which has not been provided. Please confirm that no portion of the main steam system on C-18002 Sheet 2 has safety-related components or otherwise meets criterion of 10 CFR 54.4 (a)(1), (a)(2), or (a)(3). If such components exist, please identify them and ensure that their component types and intended functions are represented in Table 2.3.4.A.5-1.

##### RAI 2.3.4.A.5-2

LRA Section 2.3.4.A.5 identifies license renewal drawings on which are depicted components requiring AMR for the NMP1 main steam system. During the review of the LRA however, the staff found other license renewal drawings that have main steam components shown to require AMR not identified in LRA Section 2.3.4.A.5. This includes LR-18006-C, Drywell and Torus Isolation Valves. Please identify other drawings where main steam components requiring AMR are depicted.

##### RAI 2.3.4.A.5-3

LRA boundary drawing 18002, Sheet 1 (location D2) shows the branch line connecting the discharge line of safety relief valve MSER V-2 to temperature element 01-17 excluded from requiring AMR. This branch line forms part of the reactor coolant pressure boundary, is passive, and long-lived and thus the staff believes that it should require AMR. (Note that the corresponding branch lines for the remaining five safety relief valves are correctly shown as requiring AMR.) Please justify exclusion of the abovementioned branch line from requiring AMR.

##### RAI 2.3.4.A.5-4

LRA boundary drawing 18002, Sheet 1 (locations A-2, A-3, D-2, and D-3), shows the discharge line from each of the six safety-relief valves (MSER V-1, 2, 3, 4, 5, and 6) ending at a

continuation flag labeled "To Torus", with no continuation drawing specified. At that point, there is also a boundary flag showing an interface between the main steam system and the PCS (primary containment system). In order for the staff to determine if all components in this safety-related system that are within the scope of license renewal and subject to an AMR have been identified, a review must be made of the abovementioned continuation drawing. Please provide a drawing which shows the continuation of the safety-relief valve discharge lines to the torus or, if already provided in the LRA as a boundary drawing, identify the drawing number.

#### RAI 2.3.4.A.5-5

In LRA Table 2.3.4.A.5-1, "NSR piping, fittings, and equipment" is listed as a component type subject to AMR for meeting 10 CFR 54.4(a)(2). Since (a)(2) components are not identified on the LR boundary drawings, and some drawings that contain (a)(2) components are not provided in the LRA, the staff cannot determine which components are included in the category "equipment." As a result, it cannot be determined whether all components subject to AMR have been identified. Please provide a list which identifies the components which comprise "equipment."

#### RAI 2.3.4.A.5-6

License renewal boundary drawing LR-18002-C indicates that bellows expansion joints 66-01R, -02R, -03R, -04R, -05R, and -06R are subject to AMR in the main steam system. LRA Table 2.3.4.A.5-1 does not include bellows expansion joints as a "component type" with an intended function. Please explain the omission of bellows expansion joints from LRA Table 2.3.4.A.5-1 or revise the Table to include this component type.

### **2.3.4.B.1 NMP2 Main Condenser Air Removal System**

(This LRA Section had no RAIs identified)

### **(4) 2.3.4.B.2 NMP2 Condensate System**

#### RAI 2.3.4.B.2-1

LR drawing LR-004B-0 (location E8) shows that check valve \*V298 is subject to AMR. However, the line in which this valve is located is shown not requiring AMR, on both the upstream (line 2-CNS-006-44-4) and downstream (line 2-CNS-006-298-4) sides of the valve. The staff believes that a failure in these lines could affect structural support of the valve, will cause a discontinuity in pressure boundary across the valve, and possibly prevent the valve from performing its intended function. Please describe the intended function of check valve \*V298 and justify why the abovementioned line does not require AMR.

#### RAI 2.3.4.B.2-2

NMP U2 UFSAR page 9.2-43 states that the "condensate storage facility CNS system", which contains both condensate storage tanks (CSTs), "is not required to effect or support safe

shutdown of the reactor or to support the operation of any nuclear safety system.” However, NMP U2 UFSAR page 8.3-64 states that the CST inventory is monitored daily to assure the “availability, adequacy, and capability to achieve and maintain a safe plant shutdown and to recover from a SBO for the 4-hour coping duration.” Further, LRA Section 2.3.4.B.2 that the CSTs are within the scope of license renewal and subject to an AMR; please explain the apparent discrepancy described above.

RAI 2.3.4.B.2-3

LR drawing LR-004A-0 (locations E5, and E10) shows lines on each of the two CSTs terminating in level transmitters 1A and 8A for CST 1A, and 1B and 8B for CST 1B. On CST 1A, the entire line to the level transmitter (1A and 8A) is shown as requiring AMR. For CST 1B, however, the segment of line to level transmitters (1B and 8B) from valve V154 is shown not requiring AMR. Please explain the difference in screening results for the two apparently identical lines.

RAI 2.3.4.B.2-4

LR drawing LR-003A-0 (locations B2, and F2) shows lines from connections labeled 39 on condenser 1A and 1C to pressure transmitters 46A,B and 46C,D, respectively. These instruments transmit condenser vacuum pressure. Upon loss of condenser vacuum, the signal from these transmitters will effect a reactor scram and main turbine trip. However, the staff found that only a segment of these lines, from valves V2A and V2B to their respective transmitters, are shown within the scope of license renewal and the segment from the condenser connection up to and including these valves is shown outside of scope. Since these transmitters perform a safety function, the staff believes the entire line should be within scope. Further, the drawing does not show corresponding lines and transmitters for condenser 1B. Please justify exclusion of the abovementioned line segments and valves from the scope of license renewal. Also, explain the absence of the corresponding lines and transmitters for condenser 1B.

RAI 2.3.4.B.2-5 (was draft 2.3.4.B.2-6)

LR drawings LR-004A-0, LR-033B-0, and LR-035D-0 show that the vent on each condensate tank does not require AMR while the tank itself is within scope and subject to an AMR. The staff believes that failure of this vent could prevent the tank from performing its intended function, via debris falling into the tank and causing blockage of the supply lines to the RCIC and HPCS systems or tank collapse due to inadequate venting. Please justify exclusion of the condensate tank vents from requiring AMR.

RAI 2.3.4.B.2-6

On LR drawing LR-033B-0, the acronyms “F1” and “GEX1” are shown encircled at various locations. However, they are not defined in the LRA, the USAR, the drawing legend, or on the drawing itself. Please identify the acronyms F1 and GEX1.



#### **(5) 2.3.4.B.3 NMP2 Feedwater System**

##### RAI 2.3.4.B.3-1

LR drawing LR-037B (locations F-9, and F-10) shows that the segments of piping labeled 2-WCS-008-89-1 and 2-WCS-008-250-1 are within the scope of license renewal and subject to AMR, while the branch lines that connect these segments to temperature elements TE79A and TE79B are not subject to AMR. In the drawing, it appears that these branch lines are exposed to the same fluid and are not isolated from the lines they connect to. Therefore, the staff believes they should be subject to AMR. Please justify exclusion of the abovementioned branch lines from requiring AMR.

##### RAI 2.3.4.B.3-2

On LR drawing LR-006A, the only components shown within the scope of license renewal are eight valves located on the discharge side of the three reactor feed pumps (LV10A,B,C; FV2A,B,C and LV55A,B). However, the piping on both the upstream and downstream sides of these valves is shown outside of scope and not subject to AMR. Further, on LRA page 2.3-203, the paragraph which describes the portions of the system containing components subject to an AMR does not reference these valves. Please describe the intended function of the abovementioned valves as related to 10 CFR 50.54(a)(1) or (a)(3). In addition, discuss the effect of a pressure boundary breach in the lines housing these valves on the ability of the valves to perform their intended function.

#### **(6) 2.3.4.B.4 NMP2 Main Steam System**

##### RAI 2.3.4.B.4-1

LRA Section 2.3.4.B.4 states that, for license renewal purposes, the main steam system includes the auxiliary steam system. However, this system is not shown on the LR drawings referenced in Section 2.3.4.B.4. Further, it specifies those portions of the main steam system which are subject to an AMR; the auxiliary steam system is not specifically mentioned. Please provide a drawing depicting the auxiliary steam system, specify if this system is within the scope of license renewal and, if so, state the basis for being within scope. Also, identify the components of the auxiliary steam system that are subject to an AMR.

##### RAI 2.3.4.B.4-2

LR drawings LR-1E-0 and LR-1F-0 show the inboard and outboard MSIVs, respectively, for each of the four main steam lines. These valves perform a safety-related function (system isolation) and are shown as requiring AMR on the drawings. However, the pneumatic actuators for these valves are not shown to require AMR. Since the actuators are required to effect

operation of the MSIVs, the staff believes they should likewise be subject to AMR. Please justify exclusion of the MSIV actuators from requiring AMR.

**2.3.4.B.5 NMP2 Moisture Separator and Reheater System**

(This LRA Section had no RAIs identified)

**End of RAIs**



Nine Mile Point Nuclear Station, Unit Nos. 1 and 2

cc:

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Resident Inspector  
U.S. Nuclear Regulatory Commission  
P.O. Box 126  
Lycoming, NY 13093

Supervisor  
Town of Scriba  
Route 8, Box 382  
Oswego, NY 13126

Mr. James R. Evans  
LIPA  
P.O. Box 129  
Lycoming, NY 10393

Charles Donaldson, Esquire  
Assistant Attorney General  
New York Department of Law  
120 Broadway  
New York, NY 10271

Mr. Paul D. Eddy  
Electric Division  
NYS Department of Public Service  
Agency Building 3  
Empire State Plaza  
Albany, NY 12223

C. Adrienne Rhodes  
Chairman and Executive Director  
State Consumer Protection Board  
5 Empire State Plaza, Suite 2101  
Albany, NY 12223-1556

Kathryn M. Sutton, Esquire  
Winston & Strawn  
1400 L Street, NW  
Washington, DC 20005-3502

Mark J. Wetterhahn, Esquire  
Winston & Strawn  
1400 L Street, NW  
Washington, DC 20005-3502

Mr. Michael J. Wallace  
President  
Nine Mile Point Nuclear Station, LLC  
c/o Constellation Energy Group, Inc.  
750 East Pratt Street  
Baltimore, MD 21202

Mr. James M. Petro, Jr., Esquire  
Counsel  
Constellation Energy Group  
750 East Pratt Street, 5<sup>th</sup> Floor  
Baltimore, MD 21202

Mr. Peter R. Smith, President  
New York State Energy, Research, and  
Development Authority  
17 Columbia Circle  
Albany, NY 12203-6399

Mr. Fred Emerson  
Nuclear Energy Institute  
1776 I St., NW, Suite 400  
Washington, DC 20006-3708

Mr. Mark Flaherty  
Manager - Fleet Licensing  
R.E. Ginna Nuclear Power Plant  
1503 Lake Rd.  
Ontario, NY 14519

Mr. M. Steven Leonard  
General Supervisor - Nuclear Regulatory  
Matters  
Nine Mile Point Nuclear Station, LLC  
P.O. Box 63  
Lycoming, NY 13093

Nine Mile Point Nuclear Station, Unit Nos. 1 and 2 - 2 -

cc:

Mr. Peter Mazzaferro  
Site Project Manager - License Renewal  
Nine Mile Point Nuclear Station, LLC  
P.O. Box 63  
Lycoming, NY 13093

Mr. Mike Heffley  
Senior Vice President and Chief  
Nuclear Officer  
Constellation Generation Group  
1997 Annapolis Exchange Parkway  
Suite 500  
Annapolis, MD 21401

Mr. James A. Spina  
Vice President Nine Mile Point  
Nine Mile Point Nuclear Station, LLC  
P.O. Box 63  
Lycoming, NY 13093