November 17, 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.

Sincerely,
/RA/
N. B. (Tommy) Le, Senior 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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NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION (LRA)
REQUEST FOR ADDITIONAL INFORMATION (RAI)
RELATED TO:
LRA SECTION 2.3.2 - ENGINEERING SAFETY FEATURES SYSTEMS
LRA SECTION 2.3.4 - STEAM AND POWER CONVERSION SYSTEMS
LRA SECTION AMP B2.1.32: PREVENTATIVE MAINTENANCE PROGRAM

(1) LRA SECTION 2.3.2 - ENGINEERING SAFETY FEATURES SYSTEMS

RAI-3.2-1

In Table 3.2.2.A-1 of the License Renewal Application (LRA) the applicant has identified no aging effects for wrought stainless steel bolting in an air environment. The applicant is requested to discuss how cracking and loss of pre-load resulting in loss of mechanical closure integrity is managed for these bolts. In addition the applicant is requested to address how the aging effects are managed for inaccessible bolts.

RAI-3.2-2

In Table 3.2.2.A-1 of the LRA, the applicant has identified loss of material as an aging effect for carbon and low alloy steel (yield strength <100 ksi) and ductile/malleable cast iron filters/strainers in a treated water (<140°F), low flow environment. The applicant has also identified ASME Section XI ISI, one-time inspection and the water chemistry control programs for managing this aging effect. The applicant is requested to discuss (a) the periodic visual, surface, and/or volumetric examination and pressure tests for this component within the ASME Section XI ISI program (b) monitoring and controlling concentrations of known detrimental chemical species below levels known to cause degradation as they relate to carbon or low alloy steel and ductile/malleable cast iron filters in the environment identified above (c) the basis for selecting a representative sample for the one-time inspection.

RAI-3.2-3

In Table 3.2.2.A-1 of the LRA the applicant has identified no aging effects for wrought stainless steel filters and strainers in a treated water (<140°F), low flow environment. The applicant is requested to discuss the tests and inspections to assure that the treated water remains free of contaminants.

RAI-3.2-4

In Table 3.2.2.A-1 of the LRA, the applicant has identified cracking as an aging effects for wrought austenitic stainless steel flow elements and valves in a raw water environment. The applicant has proposed to manage this aging effect by the open-cycle cooling water system program. The applicant is requested to discuss the visual, VT or other inspection methods for these components. In addition the applicant is requested to discuss the frequency of these inspections, acceptance criteria and the bases thereof.

RAI-3.2.5

In Table 3.2.2.A-1 of the LRA, the applicant has identified loss of material as an aging effect for gray cast iron pumps in a raw water environment. This aging effect is proposed to be managed by the open-cycle cooling water system program and the selective leaching of materials program. The applicant is requested to discuss (a) the visual, VT or other inspection methods for this component as well as the frequency of inspections acceptance criteria and the bases thereof (b) bases for sampling of components and the inspection method to detect selective leaching. Also indicate whether or not hardness tests would be performed.

RAI-3.2-6

In Table 3.2.2.A-1 of the LRA, the applicant has identified loss of material as an aging effect for cooper alloys (zinc <15%) valves in a wetted air (<140°F) environment. This aging effect will be managed by the open-cycle cooling water system program. The applicant is requested to discuss the visual VT or other inspection methods for this component as well as the frequency of inspections, acceptance criteria and the bases thereof. In addition the applicant is requested to provide its operating experience with these copper alloy valves in this environment.

RAI-3.2-7

In Table 3.2.2.A-2 of the LRA, the applicant has identified cracking as an aging mechanism for wrought austenitic stainless steel filters and strainers in a treated water (temperature ≥140EF but <212EF), low flow environment. This aging effect would be managed by the one-time inspection and the water chemistry control programs. The applicant is requested to discuss the specific tests and inspections, frequency of inspections and acceptance criteria to assure that the strainers and filters perform their intended function in the environment identified above.

RAI-3.2-8

In Table 3.2.2.A-2 of the LRA, the applicant has identified no aging effects for copper alloys (zinc > 15%) and aluminum bronze heat exchangers components in a lubricating oil environment. The applicant is requested to discuss its inspection and test activities to ensure that the lubricating oil remains free of contaminants and water content.

RAI-3.2-9

In Table 3.2.2.A-2 of the LRA, the applicant has indicated loss of material as an aging effect for gray cast iron piping and fittings as an aging effect in an air environment. It is proposed to manage this aging effect by the system walkdown program. Since this aging management program is applicable to accessible exterior surfaces only, the applicant is requested to discuss how degradation on inaccessible internal surfaces of piping and fittings will be managed.

RAI-3.2-10

In Table 3.2.2.A-2 of the LRA, the applicant has identified loss of material as an aging effect for gray cast iron pump components in a treated water environment (temperature ≥140EF but ≤212EF), low flow environment. The applicant is requested to provide (a) the basis for selecting

a representative sample for the one-time inspection (b) inspection methods to detect selective leaching. Also indicate whether or not hardness tests would be performed.

RAI-3.2-11

In Table 3.2.2.A-3 of the LRA, the applicant has identified cracking and loss of material for the carbon or low allow steel (yield strength >100 ksi) bolting in non-borated water environment (temperature ≥212EF). These aging effects would be managed by the fatigue monitoring program and the ASME Section XI ISI (subsections IWB, IWC and IWD) Programs. The applicant is requested to discuss how loss of pre-load resulting in mechanical closure integrity would be managed for these bolts. In addition the applicant is requested to discuss the aging management of inaccessible bolts.

RAI-3.2-12

In LRA Table 3.2.2.A-3 the applicant has credited the preventive maintenance program for managing the aging effects of cracking and loss of material of wrought austenitic stainless steel heat exchanger components in moist air (temperature > 140EF) environment. The applicant is requested to provide the following information for these heat exchanger components:

(a) parameters monitored or inspected
(b) methods of detection of the aging effects
(c) frequency of inspections including monitoring and trending
(d) acceptance criteria and their bases

RAI-3.2-13

In LRA Table 3.2.2.A-3 the applicant credits the system walkdown program and water chemistry control program for managing the aging effects of cracking and loss of material for non-safety related piping, fittings and equipment in treated water or steam environment (temperatures ranging from <140EF to ≥212EF but <482EF), low flow environments. The applicant is requested to provide the following with respect to the system walkdown program:

(a) parameters monitored or inspected
(b) frequency of inspections and the bases thereof
(c) acceptance criteria

RAI-3.2-14

In LRA Table 3.2.2.A-3 the applicant indicated no aging effects for tanks made of pure aluminum alloys and aluminum alloys with manganese, magnesium and magnesium plus silicon in a treated water (temperature <140EF) environment. The applicant is requested to provide the following information (a) ASTM designation or specific alloy content of the material (b) basis for arriving at the conclusion that no aging effects occur in this environment (for example, provide reference EPRI, or ASTM or similar documents which provide data to support this conclusion).

RAI-3.2-15

In Table 3.2.2.A-3 of the LRA, the applicant credits ASME Section XI ISI program, one-time inspection and water chemistry control program for managing the aging effect cracking of aluminum alloy (containing copper or zinc as the primary alloying elements) valves in a treated water (temperature <140EF) environment. The applicant is requested to provide the following information (a) ASTM designation or specific alloy content of the material (b) basis for concluding that cracking is the only aging effect in this environment. Provide EPRI, ASTM or similar documentary references which support this conclusion.

RAI-3.2-16

In Table 3.2.2.B-3 of the LRA, the applicant credits the system walkdown program for managing the loss of material aging effect of carbon or low allow steel (yield strength ≥100 ksi) and martensitic precipitation hardened and superferritic stainless steel bolting in a moist air (temperature <140EF) environment. The applicant is requested to provide the following information (a) test or analytical data such as EPRI or ASTM documents which support the conclusion that loss of material is the only aging effect which would occur in this environment and SCC, loss of pre-load and cracking will not occur (b) inspection methods, frequency of inspections and acceptance criteria associated with the system walkdown program are equivalent to the bolting integrity program recommended in the GALL report.

(2) LRA SECTION 2.3.4 - STEAM AND POWER CONVERSION SYSTEMS

RAI-3.4-1

In Table 3.4.2.A-1, the applicant has identified cracking and loss of strength as the aging effects for polymer piping and fittings in a treated water (temperature <140EF) environment. These aging effects are proposed to be managed by the preventive maintenance program. The applicant is requested to identify (a) the specific polymeric materials for these components (b) basis for concluding that no other aging effects occur in this environment (c) specific tests and inspection methods for these components including the frequency of inspections (d) acceptance criteria for determining loss of strength of the polymers, and the bases thereof.

RAI-3.4-2

In Table 3.4.2.A-1, the applicant states that loss of material of gray cast iron pumps in a treated water (temperature <140EF) environment will be managed by the one-time inspection, selective leaching of materials and water chemistry control aging management programs. The applicant is requested to discuss:

- visual, VT or other inspection methods, frequency of inspections, acceptance criteria and the bases thereof
- bases for sampling of the pumps to detect selective leaching
- whether or not hardness tests will be performed

RAI-3.4-3

In Table 3.4.2.A-1, the applicant has identified no aging effects for the wrought austenitic stainless steel tanks in a treated water (temperature <140EF, low-flow) environment. The applicant is requested to provide details of how these tanks are supported and the material composition of the piping and fittings connected to the tanks. Also discuss the operating history of these tanks.

RAI-3.4-4

In Table 3.4.2.A-1, the applicant states that cracking in aluminum alloy (with copper or zinc) valves subjected to a treated water (temperature <140EF) environment will be managed by one-time inspection and chemistry control programs. The applicant is requested to discuss the bases for not considering selective leaching as an aging effect. Also discuss the operating history of these valves in this environment.

RAI-3.4-5

In Table 3.4.2.A-2, the applicant states that cracking and loss of material in carbon steel (yield strength <100 ksi) and ductile malleable cast iron bolting subjected to non-borated water (temperature ≥212EF) environment will be managed by the fatigue monitoring and ASME Section XI ISI programs. The applicant is requested to discuss how the fatigue monitoring program would be applicable to the non-safety related bolting outside the pressure boundary to manage cracking in bolting. The fatigue monitoring program may not be adequate by itself. It is the staff's position that a bolting and torquing program is needed in addition to the fatigue monitoring program in order to identify cracking before there is loss of mechanical closure integrity and/or leakage.

RAI-3.4-6

In Table 3.4.2.A-2, the applicant states that there are no aging effects associated with carbon steel and ductile and malleable cast iron flow elements, piping, fittings, pumps, and valves in a lubricating oil environment. The applicant is requested to address how it is ensured that there are no contaminants in the lubricating oil. A one-time inspection of these components may be necessary to ensure that no degradation has occurred.

RAI-3.4-7

In Table 3.4.2.A-2, the applicant states that cracking and loss of material in non-safety related piping, fittings and equipment in treated water or steam (temperature ≥212EF but <482EF), low flow environment will be managed by the system walkdown and water chemistry control program. The applicant is requested to address how it would be ensured that no loss of material and cracking are occurring in the interior and inaccessible surfaces since the system walkdown program only manages the degradation on accessible exterior surfaces. It is the staff's position that a one-time inspection of these components is needed for this purpose.

RAI-3.4-8

In Table 3.4.2.A-3, the applicant has identified no aging effects requiring management for carbon steel, low alloy steel (yield strength <100 ksi) and ductile/malleable cast iron piping, tanks and valves in a dried air or gas environment. The applicant is requested to address the tests and inspections which ensure that there are no contaminants and moisture in the dry air and gas.

RAI-3.4-9

In Table 3.4.2.B-2, the applicant states that cracking and loss of strength of polymeric piping and fittings in a treated water (temperature <140EF), low flow environment will be managed by preventive maintenance program. The applicant is requested to provide the following:

- composition and/or mechanical and chemical properties of the polymer
- methods of inspection
- frequency of inspections and acceptance criteria and bases thereof
- operating history of these components

RAI-3.4-10

In Table 3.4.2.B-1, the applicant has identified no aging effects for nickel based alloy piping and fittings in an air environment. The applicant is requested to address how it would be ensured that there are no contaminants in the air which may cause degradation of nickel alloy piping and fitting.

RAI-3.4-11

In Table 3.4.2.B-2, the applicant states that cracking, hardening, shrinkage, and loss of strength of polymeric tanks in an air environment will be managed by the systems walkdown program. The applicant is requested to address the following:

- composition and/or chemical and mechanical properties of the polymer
- methods of inspections and/or examination of inaccessible, interior surfaces to detect degradation since the system walkdown program manages aging effects on exterior, accessible surfaces only
- description of the tank support including the attachments.
- material of the piping and fitting connected to the tanks

(3) LRA Section AMP B2.1.32: PREVENTIVE MAINTENANCE PROGRAM

RAI B2.1.32-1

(A) The descriptions of several elements in AMP B2.1.32, "Preventive Maintenance Program (PMP)," are too brief and general for the staff to review the effectiveness and adequacy of the PMP. The applicant is requested to provide more specific detailed information for the following four elements of the AMP in accordance with the guidelines delineated in Appendix A of NUREG-1800.

(1) Parameters Monitored/Inspected
(2) Detection of Aging Effects
(3) Monitoring and Trending (specified schedule)
(4) Acceptance Criteria

(B) The applicant stated in the LRA that the aging effects of (1) piping and fittings in the NMP2 Control Building HVAC System (Table 3.3.2.B-9, Page 209), and (2) valves in the NMP1 Radioactive Waste System (Table 3.3.2.A-14, Page 149) are to be managed by this PMP. As an example, the applicant is requested to provide specific information related to the four elements of the PMP listed in (A) above for the management of aging effects of (1) piping and fittings, and (2) valves indicated above, to demonstrate the effectiveness and adequacy of this PMP.

RAI B2.1.32-2

The applicant states that enhancements to the PMP will be made which would revise existing procedures. These enhancements would provide the level of detail and specificity needed for staff review of the PMP. They would affect the main elements of the program including the scope, preventive actions, parameters monitored, detection of aging effects, monitoring and trending and acceptance criteria. These enhancements are scheduled to be completed prior to the period of extended operation. The staff views these as major enhancements which would require review and approval prior to implementation of the PMP. The staff therefore requests the applicant to provide a commitment that these enhancements would be completed on a schedule which would allow sufficient time for staff review and approval prior to the period of extended operation.

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

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