

January 13, 2005

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 (TAC NOS. MC3272 AND MC3273)

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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RLEP RF

N. Le (PM)

E-MAIL:

RidsNrrDrip

RidsNrrDe

G. Bagchi

K. Manoly

W. Bateman

J. Calvo

R. Jenkins

P. Shemanski

PY Chen

RidsNrrDssa

RidsNrrDipm

D. Thatcher

R. Pettis

C. Li

M. Khanna

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

OPA

PMNS

**NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2 (NMP1 and NMP2)
LICENSE RENEWAL APPLICATION (LRA)
REQUEST FOR ADDITIONAL INFORMATION (RAI)
RELATED TO:
AGING MANAGEMENT REVIEWS AND AGING MANAGEMENT PROGRAMS FOR
REACTOR VESSEL AND REACTOR VESSEL INTERNAL COMPONENTS**

Aging Management Review in Tables 3.1.2-A and B

RAI 3.1.2-1

LRA Table 3.1.2.A-1 indicated that the Reactor Vessel (RV) penetrations are made of carbon or low alloy steel, nickel based alloys, and wrought austenitic stainless steel. The applicant stated that for the vessel drains, made of carbon or low alloy steel, that loss of material is an applicable aging effect and that this aging effect will be managed through the implementation of the ASME Section XI Inservice Inspection (ISI) Program and the water chemistry program. Please explain how the ISI Program can adequately manages loss of material; i.e., provide details of what part of Section XI of the Code addresses loss of material of the vessel drains.

The staff has determined from the BWRVIP Report, BWRVIP-17, that the CRD stub tubes are fabricated from stainless steel, and that some portions of the stainless steel might have been procured in a sensitized condition. The BWRVIP-17 report also indicated that these components have experienced cracking and that through-wall leakage of reactor coolant had occurred. In 1987, the staff issued to NMP1 a temporary relief to perform a roll expansion repair of CRD housings to stop or limit RCS leakage. The staff is aware that the applicant has used this relief request (which allows the use of roll/expansion) as the basis for repairing/correcting through-wall leakage for these components at NMP. Based on the above staff review, please provide the following information:

- (1) Identify the potential aging effects for these stainless steel/sensitized stainless steel CRD stub tubes. Identify the applicable aging management review (AMR) entry for these CRD stub tubes and provide information to explain how the new proposed AMR(s) will manage all potential aging effects (including cracking by both thermal fatigue and stress corrosion cracking [SCC]) that are applicable to these components during the extended period of operation.
- (2) With respect to implementing roll/expansion techniques as alternative repair methods, the staff is concerned that NMP will consider these techniques as permanent repair methods for through-wall flaws for the two 10-year ISI intervals in the period of extended operation for NMP1. The staff emphasizes that any relief requests submitted under current 10-year inservice inspection intervals are not applicable to the two 10-year ISI periods in the extended periods of operation unless a new relief request for the new intervals for these ISI intervals is approved through applicable provisions in 10 CFR 50.55a. At present the ASME Code is evaluating the acceptability of this type of repair as a permanent repair method.

The staff also needs to emphasize that the industry's most current basis for implementing roll/expansion repairs is given in the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Report, "Roll/Expansion Repair of Control Rod Drive and In-Core Instrument Penetrations in BWR Vessels (BWRVIP-17)," with some

modifications. In the staff's letter and safety evaluation on BWRVIP-17, dated March 13, 1998, the NRC staff articulated its position that the corrective action required by the ASME Code, upon discovery of an unacceptable flaw in a Class 1 pressure retaining boundary component, is to either repair the flaw or replace the flawed component in order to return it to a condition of ASME Code compliance. Thus, in the aforementioned SE, the staff took a position that repair of a crack in a CRD stub tube or in-core penetration would require an ASME Code-acceptable weld repair. In taking this position, the staff articulated, that although the BWRVIP roll/expansion method may, for some time period, control the symptom of the flaw (leakage), it would not remove the flaw either in its entirety or conforming to an ASME Section XI acceptable criterion; and therefore, the BWRVIP roll/expansion method would not meet the criteria or the intent of a permanent repair method.

Additionally, in issuing its SE on BWRVIP-17, the NRC staff established its position that the alternative roll/expansion method in the BWRVIP-17 report does not provide a sufficient basis for authorizing a permanent alternative pursuant to 10 CFR 50.55a(a)(3), and therefore had denied the BWRVIP-17 generic roll/expansion application as an alternative permanent repair for CRD stub tubes. Based on its position for denying the alternative roll/expansion methodology in the BWRVIP-17 report, the staff will not entertain submittal of a corresponding relief request for the two 10-year ISI intervals in the period of extended operation. Therefore, NMP will need to provide a commitment to perform the following actions no later than the first available opportunity in the extended period of operation for NMP-1:

- (A) Should the ASME Code determine that a roll expansion repair is an acceptable permanent repair and the NRC staff endorses the Code Case for this repair method, then NMP1 should comply with the requirements of the new Code Case.
- (B) Should the ASME Code determine that a roll expansion repair is not an acceptable permanent repair method, then NMP1 should effect a permanent Code repair using a NRC-approved Code Case or other repair option acceptable to the NRC.

This commitment should also be stated in the updated final safety analysis report (UFSAR) supplement summarizing the applicable aging management program accordingly.

RAI 3.1.2-2 (Not used)

RAI 3.1.2-3

LRA Tables 3.1.1.A and 3.1.1.B identified crack initiation and growth due to SCC and/or IGSCC for the reactor vessel closure studs and stud assembly for NMP1 and NMP2. Please identify whether the reactor closure studs and stud assembly have experienced aging effects such as distortion/plastic deformation due to stress relaxation, and loss of material due to mechanical wear. If so, please provide information to explain how does the reactor head closure stud program manage these aging effects, or identify other program(s) that will manage these aging effects.

RAI 3.1.2-4

The requirements of BWRVIP-48 apply to jet pump raiser brace attachment, core spray piping bracket attachment, steam dryer support and hold down brackets, feedwater spargers, guide rod and surveillance sample holder. Section 2.2.3 of BWRVIP-48 indicated that furnace-sensitized stainless steel vessel ID attachment welds are highly susceptible to IGSCC. Please provide information to identify whether there are any furnace-sensitized stainless steel attachment welds at both NMP1 and NMP2 units, and identify aging management program(s) for managing potential aging effects for any existing furnace-sensitized stainless steel attachment welds. Please also provide details on any additional augmented inspection program that is implemented for any existing furnace-sensitized stainless steel attachment welds at both NMP1 and NMP2 units.

RAI 3.1.2-5 (Not used)

RAI 3.1.2-6 (Not used)

RAI 3.1.2-7 (Not used)

RAI 3.1.2-8

In LRA Table 3.1.2.B-2, the applicant did not identify cracking due to stress corrosion cracking (SCC, including irradiated assisted stress corrosion cracking or IASCC) or loss of fracture toughness due to thermal aging as applicable aging effects for the jet pump assemblies or the orificed fuel supports. Jet pump assemblies and orificed fuel supports are both fabricated from cast austenitic steel (CASS) and are exposed to treated water or a steam high temperature environment. Please provide NMP2 basis of why cracking due to SCC (including IASCC) or loss of fracture toughness due to thermal aging is not considered to be applicable aging effect for the jet pump assemblies or the orificed fuel supports that are fabricated from CASS. If cracking due to SCC (including IASCC) or loss of fracture toughness due to thermal aging is considered to be applicable aging effect for these components, please identify an acceptable inspection-based aging management program or combination of programs to manage these aging effects.

In addition, the LRA did not appear to have addressed all components that are fabricated of cast austenitic stainless steel and exposed to treated water or steam, and high temperatures. Please provide information to indicate that other cast austenitic stainless steel components at NMP1 and NMP2 meet the material specification requirements as stated in the aging management programs, GALL XM12 or GALL XM13. If not, please commit to the GALL XM12 or GALL XM13 aging management programs for these components as required by 10 CFR 54.21(a)(1) and (a)(2).

RAIs on Aging Management Programs

RAI-B.2.1.19 -1: Reactor Vessel Surveillance Program

The applicant stated in the LRA that NMP2 will implement the BWRVIP integrated surveillance program (ISP) BWRVIP-116, "BWR Vessel Internals Project Integrated Surveillance Program Implementation for License Renewal," which is currently being reviewed by the staff. If the BWRVIP-116 report is not approved by the staff, then the applicant must submit a plant specific

surveillance program for each NMP unit, two years prior to the commencement of the extended period of operation. Please provide NMP's commitment to indicate that it will implement either BWRVIP-116, as approved by the staff, or if the ISP is not approved two years prior to the commencement of the license renewal period, a plant specific surveillance program for each NMP unit will be submitted. This commitment should also be stated in the updated final safety analysis report (UFSAR) Section A.1.25 "Reactor Vessel Surveillance Program" of the LRA.

RAIs on BWRVIP Documents

RAI BWRVIP-1

The NRC staff has approved the applicable BWRVIP reports and has approved other applicable reports as required license renewal applicant action items, in accordance with 10 CFR Part 54.

Each license renewal applicant is to verify that its plant is bounded by the applicable reports. Further, the renewal applicant is to commit to programs described as necessary in the BWRVIP reports to manage the effects of aging during the period of extended operation. Applicants for license renewal will be responsible for describing any such commitments and identifying how such commitments will be controlled. Any deviations from the aging management programs within these BWRVIP reports described as necessary to manage the effects of aging during the period of extended operation and to maintain the functionality of the components or other information presented in the report, such as materials of construction, will have to be identified by the renewal applicant and evaluated on a plant-specific basis in accordance with 10 CFR 54.21(a)(3) and ©(1).

10 CFR 54.21(d) requires that an FSAR supplement for the facility contain a summary description of the programs and activities for managing the effects of aging and the evaluation of TLAAs for the period of extended operation. Those applicants for license renewal referencing the applicable BWRVIP report shall ensure that the programs and activities specified as necessary in the applicable BWRVIP reports are summarily described in the FSAR supplement.

10 CFR 54.22 requires that each application for license renewal include any technical specification changes (and the justification for the changes) or additions necessary to manage the effects of aging during the period of extended operation as part of the renewal application. The applicable BWRVIP reports may state that there are no generic changes or additions to technical specifications associated with the report as a result of its aging management review and that the applicant will provide the justification for plant-specific changes or additions. Those applicants for license renewal referencing the applicable BWRVIP reports shall ensure that the inspection strategy described in the reports does not conflict with or result in any changes to their technical specifications. If technical specifications' changes do result, then the applicant must ensure that those changes are included in its application for license renewal.

If required by the applicable BWRVIP report, the applicant referencing a particular report for license renewal should identify and evaluate any potential TLAAs issues and/or commitments to perform future inspections when inspection tooling is made available.

Based on the above stated requirements, please provide the necessary commitments, information and changes as described above for each of the following applicable BWRVIP reports, if applicable:

- BWRVIP-75
- BWRVIP-78
- BWRVIP-86
- BWRVIP-42
- Other reports applicable to license renewal for NMP1 and NMP2.

RAI-Steam Dryer (Not used)

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, 5th 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