Constellation Energy
Nine Mile Point Nuclear Station

P.O. Box 63
Lycoming, NY 13093

June 4, 2007

U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Nine Mile Point Nuclear Station
Unit No. 1; Docket No. 50-220

Request for Authorization Under the Provision of 10 CFR 50.55a(a)(3)(i) for Modification of the Core Shroud Stabilizer Assemblies (Tie Rods) – Additional Supplemental Information Regarding Deviations Identified During Post-Modification Inspections

REFERENCE: (a) Letter from G. J. Laughlin (NMPNS) to Document Control Desk (NRC), dated May 3, 2007, Request for Authorization Under the Provision of 10 CFR 50.55a(a)(3)(i) for Modification of the Core Shroud Stabilizer Assemblies (Tie Rods) – Supplemental Information to Address Deviations Identified During Post-Modification Inspections

By letter dated May 3, 2007 (Reference a), Nine Mile Point Nuclear Station, LLC (NMPNS) submitted supplemental information regarding a modification of the Nine Mile Point Unit 1 (NMP1) core shroud stabilizer assemblies (tie rods) that was installed during the 2007 NMP1 refueling outage. Reference (a) described minor deviations from the requirements of the installation specification that were identified during post-modification inspections of the tie rod assemblies. Reference (a) also summarized the assessments performed by NMPNS to demonstrate that the tie rods are acceptable for operation with the deviations left uncorrected. The additional supplemental information, provided in Attachment (1) to this letter, responds to a request for additional information that was provided in an email from the NRC to NMPNS on May 14, 2007 and was subsequently discussed in a telephone conference call between NRC and NMPNS staff members on May 18, 2007. This letter contains no new regulatory commitments.

Should you have any questions regarding the information in this submittal, please contact T. F. Syrell, Acting Licensing Director, at (315) 349-7198.

Very truly yours,

Gary Jay Laughlin
Manager Engineering Services

A001
NRR

GJL/DEV

Attachment: (1) Nine Mile Point Unit 1 – Additional Supplemental Information Regarding the As-Left Condition of the Core Shroud Stabilizer Assemblies (Tie Rods)

cc: S. J. Collins, NRC
M. J. David, NRC
Resident Inspector, NRC

ATTACHMENT (1)

NINE MILE POINT UNIT 1

ADDITIONAL SUPPLEMENTAL INFORMATION

REGARDING THE AS-LEFT CONDITION OF THE

CORE SHROUD STABILIZER ASSEMBLIES (TIE RODS)

Nine Mile Point Nuclear Station, LLC
June 4, 2007

ATTACHMENT (1)

NINE MILE POINT UNIT 1
ADDITIONAL SUPPLEMENTAL INFORMATION REGARDING THE AS-LEFT CONDITION OF THE CORE SHROUD STABILIZER ASSEMBLIES (TIE RODS)

By letter dated May 3, 2007, Nine Mile Point Nuclear Station, LLC (NMPNS) described minor deviations from the requirements of the installation specification that were identified during post-modification inspections of the Nine Mile Point Unit 1 (NMP1) tie rod assemblies, and summarized the assessments performed by NMPNS to demonstrate that the tie rods are acceptable for operation with the deviations left uncorrected. This attachment provides additional supplemental information in response to a request for additional information that was provided in an email from the NRC to NMPNS on May 14, 2007 and was subsequently discussed in a telephone conference call between NRC and NMPNS staff members on May 18, 2007. Each individual NRC request is repeated (in italics), followed by the NMPNS response.

First NRC Request

Provide an explanation why the drop in preload value from 118.7 kips to a value of 49.4 kips is adequate to maintain structural integrity of the cracked core shroud horizontal welds. What is the acceptable limit? Explain how the reduction in the clamping force can effectively restrain the lateral movement of the shroud assembly during the normal and/or upset conditions.

Response

The total thermal preload is reduced by approximately 20 percent because of the as-left configuration. This results in a reduction in the net clamping force available in the normal condition at the H6B weld location from 118.7 to 49.4 kips. This is the net clamping force after considering the differential pressure loads (lift load), deadweight, shroud and tie rod stiffness, and the reduced tie rod thermal preload.

As long as positive net compression is maintained there will be lateral shear resistance at the shroud weld crack plane and the BWRVIP-02-A requirement of "no separation of 360° through-wall cracking of the shroud welds during normal operation" is satisfied. BWRVIP-02-A does not define a minimum clamping load required to justify the assumption of a hinged condition to evaluate the maximum lateral movement. The 49.4 kip load is judged to provide significant clamping load such that the BWRVIP-02-A hinged condition is justified.

For the Normal Operation load case (when the compressive force is 49.4 kips), there are no assumed seismic lateral loads, and hence no significant forces exist to create lateral movement. In the normal load case the loads that could create lateral movement are the normal recirculation flow imbalance loads which are very small compared to the seismic loads. For the Upset #1 load case (upset-thermal), the compressive force at the H6B weld is much higher than that for the Normal Operation load case and there is no lateral load, and thus no lateral movement, for this condition. For the Upset #2 (upset-seismic) load case, separation is predicted to occur due to the reduction in tie rod preload, and hence sliding can potentially occur. The lateral displacement is restrained by the upper and lower springs.

Second NRC Request

Provide an explanation of how the reduction in preload affects the following:

a. *Stresses on shroud support, shroud head and shroud shell*
b. *Uneven load distribution at tie rod locations other than the ones at 166 degrees and 270 degrees*
c. *Future inspection frequency of tie rods*

Response

Part a

Shroud Support

The Normal Operation tie rod thermal preload is reduced and thus is bounded by the design basis value. Therefore, the sustained stresses in the shroud support will be bounded by the corresponding original design basis values. For the bounding emergency/faulted conditions, weld separation was always predicted to occur in the original design analyses because the normal thermal preload was exceeded. The original analysis conservatively neglected thermal preload and assumed the entire emergency/faulted pressure load plus seismic load was carried by the tie rods. Therefore, the reduced tie rod thermal preload does not increase calculated stress in either the tie rod or its attachment to the shroud support for the bounding emergency/faulted cases using the original calculation methodology, since thermal preload was not credited in the original analysis.

Shroud Head

The tie rod upper supports fit into cutouts in the shroud head flange; therefore, the shroud head is not loaded or affected.

Shroud Shell

The reduced preload results in a lower net clamping force on the shroud and lower shroud shell stresses relative to the design basis stresses. As noted above, even with the reduced preload, there is adequate compression maintained to prevent weld separation during normal operation.

Part b

There is a slight varying degree of preload reduction in each tie rod. However, the shroud repair system, as a whole, maintains adequate compression in the Normal condition. Although small gaps in the cold condition are recognized, the tie rods will "tighten up" during normal operation. The pressure and seismic load distribution will be consistent with the original design basis, since the load distribution is independent of the preload. Likewise, for the Upset #2 load case, since the pressure load exceeds the clamping force and weld separation is postulated to occur, the entire vertical load will be resisted by the tie rods in direct tension. Thus, uneven tie rod preload does not impair the function of the tie rod system.

Part c

The tie rod as-left condition following the 2007 refueling outage included minor gaps in the tie rod clevis pin to lower support hook interface for the tie rods at the 166 degree and 270 degree locations. The evaluation of this condition, summarized in the NMPNS letter dated May 3, 2007, determined that the tie rods are capable of performing their design function with the gaps left uncorrected and are acceptable for long term service. The BWRVIP-76 inspections to be performed after one cycle of operation will verify that the 2007 refueling outage as-left configuration remains bounded by the analysis assumptions for acceptable gaps at the clevis pin to lower support hook interface. As such, the BWRVIP-76 inspection requirements will verify all the critical contact areas and overall component configuration and will specifically verify that the clevis pin to lower support hook interface is consistent with the 2007 refueling outage as-left configuration with the design tolerances specified in the analysis.