

Sam L. Belcher  
Plant General Manager

P.O. Box 63  
Lycoming, New York 13093  
315.349.5205  
315.349.1321 Fax



**Constellation Energy**<sup>®</sup>

• Nine Mile Point Nuclear Station

August 18, 2008

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  
Renewed Facility Operating License No. DPR-63

Application for Technical Specification Change Regarding Revision of Control Rod  
Notch Surveillance Test Frequency Using the Consolidated Line Item Improvement  
Process

In accordance with the provisions of 10 CFR 50.90, Nine Mile Point Nuclear Station, LLC (NMPNS) is submitting a request for an amendment to the Technical Specifications (TS) for Nine Mile Point Unit 1 (NMP1).

The proposed amendment would revise the TS surveillance requirement (SR) frequency in TS 3/4.1.1, "Control Rod System."

Attachment 1 provides a description of the proposed change, the requested confirmation of applicability, and plant-specific verifications. Attachment 2 provides the existing TS page marked-up to show the proposed change. Associated TS Bases changes are marked-up in Attachment 3. The TS Bases changes are provided for information only and will be processed in accordance with the NMP1 TS 6.5.6, "Technical Specifications (TS) Bases Control Program." Attachment 4 provides a summary of the regulatory commitments made in this submittal.

NMPNS requests approval of the proposed License Amendment by February 16, 2009, with the amendment being implemented within 60 days of approval of the amendment.

In accordance with 10 CFR 50.91, NMPNS has provided a copy of this license amendment request, with attachments, to the appropriate state representative.

Should you have any questions regarding the information in this submittal, please contact T. F. Syrell, Licensing Director, at (315) 349-5219.

Very truly yours,



**STATE OF NEW YORK** :  
: **TO WIT:**  
**COUNTY OF OSWEGO** :

I, Sam L. Belcher, being duly sworn, state that I am Plant General Manager, and that I am duly authorized to execute and file this request on behalf of Nine Mile Point Nuclear Station, LLC. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other Nine Mile Point employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.



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Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Oswego, this 18<sup>th</sup> day of August, 2008.

WITNESS my Hand and Notarial Seal:



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Notary Public

My Commission Expires:

11/12/2010  
Date

**TONYA L. JONES**  
Notary Public in the State of New York  
Oswego County Reg. No. 01JO6083354  
My Commission Expires 11/12/2010

SLB/GB/

- Attachments:
1. Description and Assessment
  2. Proposed Technical Specifications Changes (Marked-Up Page)
  3. Proposed Technical Specifications Bases Changes (Marked-Up Page)
  4. Summary of Regulatory Commitments Made in this Submittal

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cc: S. J. Collins, NRC Regional Administrator, Region I  
R. V. Guzman, Jr., NRC Project Manager  
E. C. Knutson, Senior NRC Resident Inspector  
J. P. Spath, NYSERDA

# ATTACHMENT 1

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## DESCRIPTION AND ASSESSMENT

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**ATTACHMENT 1**  
**DESCRIPTION AND ASSESSMENT**

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**1.0 DESCRIPTION**

The proposed amendment would revise Nine Mile Point Unit 1 (NMP1) Technical Specifications (TS) Section 3/4.1.1, "Control Rod System" to increase the surveillance requirement (SR) frequency associated with control rod exercising. Currently, SR 4.1.1a.(2) requires each partially or fully withdrawn control rod to be exercised at least once each week (7 days). The proposed change would revise the required SR frequency from once each week to once every 31 days.

This change is consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification (STS) change TSTF-475, Revision 1, and NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4," Revision 3.1. The *Federal Register* Notice published on November 13, 2007 announced the availability of this TS improvement through the consolidated line item improvement process (CLIP).

**2.0 ASSESSMENT**

**2.1 Applicability of Published Safety Evaluation**

Nine Mile Point Nuclear Station, LLC (NMPNS) has reviewed the safety evaluation dated November 13, 2007 as part of the CLIP. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF-475, Revision 1. NMPNS has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to NMP1 and justify this amendment for the incorporation of the changes to the NMP1 TS.

**2.2 Optional Changes and Variations**

The NMP1 is a custom Technical Specifications plant and, therefore, the applicable TS and associated Bases sections are not formatted in accordance with NUREG-1433 for BWR/4 plants. This has resulted in minor variations to the NMP1 adoption of TSTF-475 that are grammatical and administrative in nature and do not alter or change the technical intent of the changes proposed for control rod operability surveillance frequency requirements for SR 4.1.1a.(2).

Additionally, the revised notch testing frequency addressed in TSTF-475, Revision 1 is specific to fully withdrawn control rods, since partially withdrawn control rods already have a 31 day test frequency as contained in Standard Technical Specifications (NUREG-1433, Revision 3.1). Currently, NMP1 TS SR 4.1.1a.(2) requires partially withdrawn control rods to be exercised at least once each week. The proposed NMP1 amendment addresses changes to include "withdrawn control rods" (inclusive of fully and partially withdrawn). The change is based upon STS and TSTF-475, Revision 1.

The purpose of the weekly surveillance for notch testing partially withdrawn control rods is the same as for fully withdrawn control rods, that is, to confirm control rod insertion capability. Based upon industry operating experience, as discussed in the safety evaluation for TSTF-475, Revision 1, a stuck control rod is an extremely rare event. Also, as discussed in the safety evaluation, the proposed change from a weekly to a monthly test frequency has been determined to be acceptable based on demonstrated historical reliability of the Control Rod Drive System and that monthly testing will still provide a large number of tests to provide confidence that any problems with the system would be identified. The industry operating experience is inclusive of notch testing of both partially and fully withdrawn control rods.

**ATTACHMENT 1**  
**DESCRIPTION AND ASSESSMENT**

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In support of this test frequency change, an editorial change was also included in SR 4.1.1a.(2) to detail the conditions required to perform the SR, as provided by the NRC Model Safety Evaluation for TSTF-475, Revision 1. Specifically, the minimum power level conditions (power level greater than the low power set point of the Rod Worth Minimizer) and minimum control rod withdrawal limits (at least one notch) have been included in the SR.

### **3.0 REGULATORY ANALYSIS**

#### **3.1 No Significant Hazards Consideration Determination**

Nine Mile Point Nuclear Station (NMPNS) has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the *Federal Register* as part of the consolidated line item improvement process (CLIP). NMPNS has concluded that the proposed NSHCD presented in the *Federal Register* notice is applicable to Nine Mile Point Unit 1 (NMP1) and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

The proposed change would also revise the surveillance requirement (SR) frequency for exercising partially withdrawn control rods from weekly to monthly. NMPNS has reviewed the NSHCD published in the *Federal Register* as part of the CLIP and concluded it adequately describes changing the notch testing requirement from weekly to monthly for all control rods (partially or fully withdrawn).

#### **3.2 Verification and Commitments**

As discussed in the notice of availability published in the *Federal Register* on November 13, 2007 for this TS improvement, NMPNS has verified the applicability of TSTF-475 to NMP1, and commits to establishing Technical Specification Bases for the TS as proposed in TSTF-475, Revision 1 as described in this license amendment request.

This change is based on TSTF change traveler TSTF-475 (Revision 1) that proposes revisions to the STS by revising the frequency of SR 3/4.1.1, notch testing of a withdrawn control rod, from “7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of RWM” to “31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of RWM.”

### **4.0 ENVIRONMENTAL EVALUATION**

NMPNS has reviewed the environmental evaluation included in the model safety evaluation dated November 13, 2007 as part of the CLIP. NMPNS has concluded that the staff’s findings presented in that evaluation are applicable to NMP1 and the evaluation is hereby incorporated by reference for this application.

**ATTACHMENT 2**

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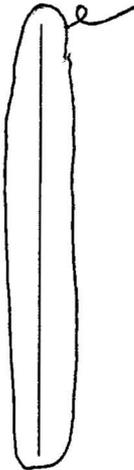
**PROPOSED TECHNICAL SPECIFICATIONS CHANGES  
(MARKED-UP PAGE)**

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TS Page 30

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT



secondary containment penetration flow path not isolated.

(e) If Specification 3.1.1a(1)(a) is not met while in the refueling condition, then:

Immediately suspend core alterations, except for fuel assembly removal, and

Immediately initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.

(2) Reactivity margin - stuck control rods

Control rods which cannot be moved with control rod drive pressure shall be considered inoperable. Inoperable control rods shall be valved out of service, in such positions that Specification 3.1.1a(1)(a) is met. In no case shall the number of non-fully inserted rods valved out of service be greater than six during power operation. If this specification is not met, the reactor shall be placed in the cold shutdown condition. If a partially or fully withdrawn control rod drive cannot be moved with drive or scram pressure the reactor shall be brought to a shutdown condition within 48 hours unless investigation demonstrates that the cause of the failure is not due to a failed control rod drive mechanism collet housing.



INSERT

(2) Reactivity margin - stuck control rods

~~Each partially or fully withdrawn control rod shall be exercised at least once each week.~~

This test shall be performed at least once per 24 hours in the event power operation is continuing with two or more inoperable control rods or in the event power operation is continuing with one fully or partially withdrawn rod which cannot be moved and for which control rod drive mechanism damage has not been ruled out. The surveillance need not be completed within 24 hours if the number of inoperable rods has been reduced to less than two and if it has been demonstrated that control rod drive mechanism collet housing failure is not the cause of an immovable control rod.

NEW PARA.

**INSERT:**

Each withdrawn control rod shall be exercised at a frequency of 31 days after the control rod has been withdrawn and power level is greater than the low power set point of the RWM. Insert each withdrawn control rod at least one notch.

**ATTACHMENT 3**

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**PROPOSED TECHNICAL SPECIFICATIONS BASES CHANGES**

**(MARKED-UP PAGE)**

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TS Bases Page 38

## BASES FOR 3.1.1 AND 4.1.1 CONTROL ROD SYSTEM

The allowable inoperable rod patterns will be determined using information obtained in the startup test program supplemented by calculations. During initial startup, the reactivity condition of the as-built core will be determined. Also, sub-critical patterns of widely separated withdrawn control rods will be observed in the control rod sequences being used. The observations, together with calculated strengths of the strongest control rods in these patterns will comprise a set of allowable separations of malfunctioning rods. During the fuel cycle, similar observations made during any cold shutdown can be used to update and/or increase the allowable patterns.

The number of rods permitted to be valved out of service could be many more than the six allowed by the specification, particularly late in the operating cycle; however, the occurrence of more than six could be indicative of a generic problem and the reactor will be shut down. Placing the reactor in the shutdown condition inserts the control rods and accomplishes the objective of the specifications on control rod operability. This operation is normally expected to be accomplished within ten hours. The weekly control rod exercise test serves as a periodic check against deterioration of the control rod system. Experience with this control rod drive system has indicated that weekly tests are adequate, and that rods which move by drive pressure will scram when required as the pressure applied is much higher.

*Insert* → Also if damage within, the control rod drive mechanism and in particular, cracks in drive internal housings, cannot be ruled out then a generic problem affecting a number of drives cannot be ruled out. Circumferential cracks resulting from stress assisted intergranular corrosion have occurred in the collet housing of drives at several BWRs. This type of cracking could occur in a number of drives and if the cracks propagated until severance of the collet housing occurred, scram could be prevented in the affected rods. Limiting the period of operation with a potentially severed collet housing and requiring increased surveillance after detecting one stuck rod will assure that the reactor will not be operated with a large number of rods with failed collet housings.

### b. Control Rod Withdrawal

- (1) Control rod dropout accidents as discussed in Appendix E\* can lead to significant core damage. If coupling integrity is maintained, the possibility of a rod dropout accident is eliminated. The overtravel position feature provides a positive check as only uncoupled drives may reach this position. Neutron instrumentation response to rod movement provides an indirect verification that the rod is coupled to its drive. Details of the control rod drive coupling are given in Section IV.B.6.1\*.

\*FSAR

INSERT:

Control rod insertion capability is demonstrated by inserting each partially or fully withdrawn control rod at least one notch and observing that the control rod moves. The control rod may then be returned to its original position. This ensures that the control rod is not stuck and is free to insert on a scram signal. This surveillance is not required when thermal power is less than or equal to the low power set point (LPSP) of the RWM, since notch insertion may not be compatible with the requirements of the RWM. The 31 day surveillance test frequency takes into account operating experience related to changes in CRD performance. This surveillance requirement allows 31 days after withdrawal of the control rod concurrent with thermal power greater than the LPSP of the RWM to perform the surveillance.

The requirement to exercise control rods at least once per 24 hours in the event power operation is continuing with two or more control rods which are valved out of service or one fully or partially withdrawn control rod which can not be moved, provides a reasonable time to test the control rods and provide assurance of the reliability of the remaining control rods.

**ATTACHMENT 4**

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**SUMMARY OF REGULATORY COMMITMENTS MADE IN THIS  
SUBMITTAL**

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**ATTACHMENT 4**  
**SUMMARY OF REGULATORY COMMITMENTS MADE IN THIS SUBMITTAL**

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**LIST OF REGULATORY COMMITMENTS**

The following table identifies those actions committed to by NMPNS in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to T. F. Syrell, Licensing Director, at (315) 349-5219.

| <b>REGULATORY COMMITMENT</b>   | <b>DUE DATE/EVENT</b>   |
|--|---|
| NMPNS will establish the Technical Specifications Bases for TS 3/4.1.1 consistent with those shown in TSTF-475, Revision 1, "Control Rod Notch Testing Frequency and SRM Insert Control Rod Action" as described in the license amendment request. | This commitment will be implemented within 60 days from the date of the approval of the proposed amendment. |