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Constellation Energy
Nine Mile Point Nuclear Station

July 23, 2007

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

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

License Amendment Request Pursuant to 10 CFR 50.90: Revision of Rod Worth Minimizer Limiting Condition for Operation During Startup – Technical Specification Section 3.1.1.b

Pursuant to 10 CFR 50.90, Nine Mile Point Nuclear Station, LLC, (NMPNS) hereby requests an amendment to Nine Mile Point Unit 1 (NMP1) Renewed Operating License DPR-63. The proposed changes to the Technical Specifications (TSs) contained herein would revise TS Section 3.1.1, "Control Rod System," to incorporate a provision that should the Rod Worth Minimizer (RWM) become inoperable before a reactor startup is commenced or before the first 12 control rods have been withdrawn, startup would be allowed to continue. This provision would rely on the RWM function being performed manually and would require a double check of compliance with the control rod program by a second licensed operator or other qualified member of the technical staff. The use of this allowance would be limited to one startup in the last calendar year. The proposed changes are similar in concept to the RWM operability requirements contained in NUREG-1433, Standard Technical Specifications, General Electric Plants, BWR/4, Revision 3.1.

Attachment (1) provides a description and technical basis for the proposed change. Attachment (2) provides the existing TS page marked up to show the proposed change. Attachment (3) provides the existing TS Bases page marked up to show the proposed change. The TS Bases changes are provided for information only and will be processed in accordance with the NMP1 TS Bases Control Program (TS Section 6.5.6).

NMPNS requests approval of this license amendment request by July 31, 2008, with implementation within 60 days of receipt of the approved amendment.

Pursuant to 10 CFR 50.91(b)(1), NMPNS has provided a copy of this license amendment request, with attachments, to the appropriate state representative.

A001
NRR

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, Keith J. Polson, being duly sworn, state that I am Vice President-Nine Mile Point, 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.

Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Oswego, this 23rd day of July, 2007.

WITNESS my Hand and Notarial Seal:

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

KJP/GB

Attachments: (1) Technical Basis and No Significant Hazards Determination
(2) Proposed Technical Specification (TS) Changes (Marked Up Page)
(3) Proposed Technical Specification (TS) Bases Changes (Marked Up Page)

cc: S. J. Collins, NRC Regional Administrator, Region I
M. J. David, NRC Project Manager
Resident Inspector, NRC
J. P. Spath, NYSERDA

ATTACHMENT (1)

TECHNICAL BASIS AND

NO SIGNIFICANT HAZARDS DETERMINATION

TABLE OF CONTENTS

1. DESCRIPTION

This letter is a request to amend Renewed Operating License DPR-63 for Nine Mile Point Unit 1 (NMP1). The proposed change would amend the Renewed Operating License by revising Technical Specification (TS) Section 3.1.1, "Control Rod System," to incorporate a provision that should the Rod Worth Minimizer (RWM) become inoperable before a reactor startup is commenced or before the first 12 control rods have been withdrawn, startup would be allowed to continue. This provision would rely on the RWM function being performed manually and would require a double check of compliance with the control rod program by a second licensed operator or other qualified member of the technical staff. The use of this allowance would be limited to one startup in the last calendar year.

Presently, TS Section 3.1.1.b(3)(b) requires the RWM to be operable whenever the reactor is in the startup or run mode below 10% rated thermal power. If the RWM fails after 12 or more control rods have been withdrawn, TS Section 3.1.1.b(3)(b) allows startup to continue using a second independent operator or engineer to verify that the operator at the reactor console is following the control rod program. However, if the RWM fails prior to complete withdrawal of the first 12 control rods, the control rods must be re-inserted in order to achieve the hot shutdown condition as required by TS Section 3.1.1.f. The proposed change would increase flexibility in the RWM limiting conditions for operation by allowing reactor startup to proceed with the RWM inoperable and less than 12 control rods withdrawn, subject to a limitation on the frequency that this allowance can be used.

2. PROPOSED CHANGE

The proposed change would revise TS Section 3.1.1.b(3)(b) to incorporate a provision that should the RWM become inoperable before a reactor startup is commenced or before the first 12 control rods have been withdrawn, startup would be allowed to continue provided a second licensed operator or other qualified member of the technical staff verifies that the operator at the reactor console is following the control rod program, and provided that startup with the RWM inoperable has not previously been performed in the last calendar year. Associated formatting and editorial changes are also made to accommodate incorporation of this new provision.

The proposed TS changes are indicated on the marked up page provided in Attachment (2). Associated TS Bases changes are shown in Attachment (3). The TS Bases changes are provided for information only and will be processed in accordance with the NMP1 TS Bases Control Program (TS Section 6.5.6).

3. BACKGROUND

Control rods provide the primary means for control of reactivity changes. Control rod block instrumentation includes channel sensors, logic circuitry, switches, relays, and computer equipment that are designed to ensure that specified fuel design limits are not exceeded for postulated transients and accidents.

The RWM is a computer controlled system designed to monitor and block, when necessary, operator control rod selection, withdrawal and insertion actions, and thus assist in preventing significant control rod pattern errors which could lead to a control rod with a high reactivity worth. A significant pattern error is one of several abnormal events, all of which must occur to have a control rod drop accident (CRDA) which might exceed fuel energy density limit criteria for the event. The RWM is used only during low power operation when a CRDA might be of significance. During low power operation, the

RWM provides rod blocks upon detection of a significant pattern error. It does not prevent a CRDA. Because a significant CRDA can only occur at low power, the RWM constraints are automatically removed above 10% rated thermal power (RTP). A keylock switch in the control room permits the RWM to be bypassed in the event of equipment failure.

Operability of the RWM is required whenever the reactor is in the startup or run modes below 10% RTP. When thermal power is greater than 10% RTP, there is no possible control rod configuration that results in a control rod worth that could lead to the 280 cal/gm fuel damage limit being exceeded should a postulated CRDA occur.

With the RWM inoperable during a reactor startup, the operator is still capable of enforcing the prescribed control rod sequence. Therefore, if the RWM fails after 12 or more control rods have been withdrawn, TS Section 3.1.1.b(3)(b) allows for the RWM function to be performed manually and requires a double check of compliance with the control rod program by a second independent operator or engineer. The RWM may be bypassed under these conditions to allow continued operations. However, TS Section 3.1.1.b(3)(b) does not contain a similar allowance for the failure of the RWM prior to commencing rod withdrawal or prior to completion of withdrawal of the first 12 control rods.

4. TECHNICAL ANALYSIS

As noted above, the RWM is designed to aid the operator by not allowing control rod patterns that are not part of the control rod program. This function can also be performed using a second qualified individual (i.e., licensed operator or qualified member of the technical staff) to verify movement of the control rods in the correct sequence. However, TS Section 3.1.1.b(3)(b) presently allows the use of a second qualified individual only in those cases when the RWM becomes inoperable after at least 12 control rods have been withdrawn.

The RWM enforces the control rod program to ensure that the initial conditions of the CRDA analysis are not violated. The CRDA involves multiple failures to initiate the event, including: (1) control rod becomes decoupled from the control rod drive; (2) the decoupled control rod becomes stuck in the fully inserted position after its drive mechanism has been withdrawn; and (3) the control rod becomes un-stuck and drops out of the core. The accident is terminated by a reactor scram on high neutron flux. The radiological consequences of the CRDA, presented in NMP1 Updated Final Safety Analysis Report (UFSAR) Section XV-C.4.0, are a small fraction of the guideline values of 10 CFR 100.

The proposed change revises TS Section 3.1.1.b(3)(b) to incorporate a provision that should the RWM become inoperable before a reactor startup is commenced or before the first 12 control rods have been withdrawn, startup would be allowed to continue provided a second licensed operator or other qualified member of the technical staff verifies that the operator at the reactor console is following the control rod program, and provided that startup with the RWM inoperable has not been performed in the last calendar year (i.e., the last 12-months). This provision is similar in concept to the RWM operability requirements contained in NUREG-1433, Standard Technical Specifications, General Electric Plants, BWR/4, Revision 3.1 (STS 3.3.2.1, Condition C). Limiting the use of this allowance to once in the last calendar year minimizes the number of reactor startups initiated with the RWM out of service. It was developed as a result of the NRC review and acceptance of NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," Revision 8, Amendment 17.

The verification process performed by the second qualified individual is controlled procedurally to ensure a high-quality, independent review of control rod movement. This process performs the same function as

the RWM performs; i.e., to provide protection against an operator error resulting in violation of the control rod program. The same verification process would be employed whether the number of control rods withdrawn is more or less than 12 when the RWM becomes inoperable. Since the control rod program will continue to be enforced by either the RWM or verification by a second qualified individual, the initial conditions of the CRDA radiological consequence analysis presented in the UFSAR are not altered. In addition, the proposed change does not have any impact on either (1) the probability of occurrence of any of the failures that are necessary for a CRDA to occur, or (2) systems and components assumed to operate to mitigate the accident (e.g., reactor protection system instrumentation).

The second qualified individual is currently described in TS Sections 3.1.1.b(3)(b) and 4.1.1.b(3)(b) as "a second independent operator or engineer." This description is revised to "a second licensed operator or other qualified member of the technical staff," consistent with NUREG-1433. This is an administrative change that does not alter the requirement that the individual must possess appropriate qualifications to perform the independent verification of proper control rod movement.

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the requested license amendment will not be inimical to the common defense and security or to the health and safety of the public.

5. NO SIGNIFICANT HAZARDS DETERMINATION

Nine Mile Point Nuclear Station, LLC (NMPNS) is requesting a revision to Renewed Operating License No. DPR-63 for Nine Mile Point Unit 1 (NMP1). The proposed change would revise Technical Specification (TS) 3.1.1, "Control Rod System," to incorporate a provision that should the rod worth minimizer (RWM) become inoperable before a reactor startup is commenced or before the first 12 control rods have been withdrawn, startup would be allowed to continue provided a second licensed operator or other qualified member of the technical staff verifies that the operator at the reactor console is following the control rod program, and provided that startup with the RWM inoperable has not been performed in the last calendar year.

NMPNS has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed change allows plant startup to proceed if the RWM becomes inoperable prior to withdrawing the first 12 control rods. The relevant design basis accident is the control rod drop accident (CRDA), which involves multiple failures to initiate the event. This change does not increase the probability of occurrence of any of the failures that are necessary for a CRDA to occur. Use of the RWM or the alternate use of a second qualified individual to ensure the correct control rod withdrawal sequence is not in itself an accident initiator, and adding the new startup allowance does not involve any plant hardware changes or new operator actions that could serve to initiate a CRDA. The proposed change will have no adverse effect on plant operation, or the

availability or operation of any accident mitigation equipment. Also, since the control rod program will continue to be enforced by either the RWM or verification by a second qualified individual, the initial conditions of the CRDA radiological consequence analysis presented in the Updated Final Safety Analysis Report are not affected. Therefore, there will be no increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed change does not introduce any new modes of plant operation and will not result in a change to the design function or operation of any structure, system, or component that is used for accident mitigation. The proposed change allows plant startup to proceed if the RWM becomes inoperable prior to withdrawing the first 12 control rods, with verification of control rod movement in the correct sequence performed by a second qualified individual. This change does not result in any credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing basis. This change does not affect the ability of safety-related systems and components to perform their intended safety functions. Therefore, the proposed change will not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No.

   The proposed change allows plant startup to proceed if the RWM becomes inoperable prior to withdrawing the first 12 control rods. The proposed change will have no adverse effect on plant operation or equipment important to safety. The relevant design basis accident is the control rod drop accident (CRDA), which involves multiple failures to initiate the event. The CRDA analysis consequences and related initial conditions remain unchanged when invoking the proposed change. The plant response to the CRDA will not be affected and the accident mitigation equipment will continue to function as assumed in the accident analysis. Therefore, there will be no significant reduction in a margin of safety.

Based on the above, NMPNS concludes that the proposed amendment presents no significant hazards considerations under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

6. ENVIRONMENTAL ASSESSMENT

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7. REGULATORY COMMITMENTS

The following table identifies those actions committed to by NMPNS in this submittal. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

REGULATORY COMMITMENTS	DUE DATE
None	None

ATTACHMENT (2)

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGES (MARKED UP PAGE)

TS Page 32

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENTS
(b) Whenever the reactor is in the startup or run mode below 10% rated thermal power, no control rods shall be moved unless the rod worth minimizer is operable, except as noted in 4.1.1.b (3)(a)(iv), or a second independent operator or engineer verifies that the operator at the reactor console is following the control rod program. The second operator may be used as a substitute for an inoperable rod worth minimizer during a startup only if the rod worth minimizer fails after withdrawal of at least twelve control rods. If the rod worth minimizer fails prior to the complete withdrawal of the first twelve rods, then the withdrawn rods shall be inserted in the reverse order in which they were withdrawn. A second independent operator or engineer shall verify that the operator at the reactor controls is following the control rod program in reverse order.	(b) If the rod worth minimizer is inoperable while the reactor is in the startup or run mode below 10% rated thermal power and a second independent operator or engineer is being used he shall verify that all rod positions are correct prior to commencing withdrawal of each rod group.
(4) Control rods shall not be withdrawn for approach to criticality unless at least three source range channels have an observed count rate equal to or greater than three counts per second.	

follows :

Insert 1

licensed

other qualified member of the technical staff

INSERT 1 (for Technical Specification Section 3.1.1.b(3)(b), TS Page 32)

(i) Surveillance Requirement 4.1.1.b(3)(a)(iv) may be performed to demonstrate operability of the rod worth minimizer.

(ii) Should the rod worth minimizer become inoperable after the first 12 control rods have been withdrawn, the startup may continue provided that a second licensed operator or other qualified member of the technical staff verifies that the licensed operator at the reactor console is following the control rod program.

(iii) Should the rod worth minimizer become inoperable before a startup is commenced or before the first 12 control rods have been withdrawn, the startup may continue provided that a startup with the rod worth minimizer inoperable has not been performed in the last calendar year, and provided that a second licensed operator or other qualified member of the technical staff verifies that the licensed operator at the reactor console is following the control rod program.

ATTACHMENT (3)

PROPOSED TECHNICAL SPECIFICATION (TS) BASES CHANGES (MARKED UP PAGE)

The current version of the following Technical Specification Bases page has been marked-up by hand to reflect the proposed changes. This Bases page is provided for information only and does not require NRC approval.

TS Bases Page 41

Insert A

The RWM provides automatic supervision to assure that out-of-sequence control rods will not be withdrawn or inserted; i.e., it limits operator deviations from planned withdrawal sequences. It serves as an independent backup of the normal withdrawal procedure followed by the operator. In the event that the RWM is out of service when required, a second independent operator or engineer can manually fulfill the operator-follower control rod pattern conformance function of the RWM. In this case, procedural control is exercised by verifying all control rod positions after the withdrawal of each group, prior to proceeding to the next group. Allowing substitution of a second independent operator or engineer in case of RWM inoperability recognizes the capability to adequately monitor proper rod sequencing in an alternate manner without unduly restricting plant operations. Above 10% power, there is no requirement that the RWM be operable since the control rod drop accident with out-of-sequence rods will result in a peak fuel energy content of less than 280 cal/gm. To assure high RWM availability, the RWM is required to be operating during a startup for the withdrawal of a significant number of control rods for any startup.

(4) The source range monitor (SRM) system performs no automatic safety function. It does provide the operator with a visual indication of neutron level which is needed for knowledgeable and efficient reactor startup at low neutron levels. The results of reactivity accidents are functions of the initial neutron flux. The requirement of at least 3 cps assures that any transient begins at or above the initial value of 10^{-8} of rated power used in the analyses of transients from cold conditions. One operable SRM channel would be adequate to monitor the approach to critical using homogeneous patterns of scattered control rods. A minimum of three operable SRMs is required as an added conservation.

c. Scram Insertion Times

The revised scram insertion times have been established as the limiting condition for operation since the postulated rod drop analysis and associated maximum in-sequence control rod worth are based on the revised scram insertion times. The specified times are based on design requirements for control rod scram at reactor pressures above 950 psig. For reactor pressures above 800 psig and below 950 psig the measured scram times may be longer. The analysis discussed in the next paragraph is still valid since the use of the revised scram insertion times would result in greater margins to safety valves lifting.

INSERT A (For Bases for Sections 3.1.1 and 4.1.1, TS Page 41)

The RWM provides automatic supervision to assure that out-of-sequence control rods will not be withdrawn or inserted during startup or shutdown, such that only specified control rod sequences and relative positions are allowed over the operating range from all rods inserted to 10% RTP. It serves as an independent backup of the normal withdrawal procedure followed by the operator. With the RWM inoperable during a reactor startup, the operator is still capable of enforcing the prescribed control rod sequence; however, the overall reliability is reduced because a single operator error can result in violating the control rod sequence.

If the RWM becomes inoperable after at least 12 control rods have been withdrawn, startup may continue if the RWM function is performed manually and a required check of compliance with the prescribed rod sequence by a second licensed operator or other qualified member of the technical staff is performed. Also, if the RWM is inoperable prior to commencement of startup, or becomes inoperable during a startup, prior to complete withdrawal of the first 12 control rods, startup may continue if the RWM function is performed manually and a required check of compliance with the prescribed rod sequence by a second licensed operator or other qualified member of the technical staff is performed, and provided that a startup with the RWM inoperable was not performed in the last calendar year (i.e., the last 12 months). In both cases, procedural control is exercised by verifying all control rod positions after the withdrawal of each group, prior to proceeding to the next group. Allowing substitution of a second licensed operator or other qualified member of the technical staff in case of RWM inoperability recognizes the capability to adequately monitor proper rod sequencing in an alternate manner without unduly restricting plant operations. Above 10% power, there is no requirement that the RWM be operable since the control rod drop accident with out-of-sequence rods will result in a peak fuel energy content of less than 280 cal/gm. The allowed frequency requirements of performing a reactor startup with the RWM inoperable (i.e., if not performed in the last 12 months) minimizes the number of reactor startups performed with the RWM inoperable