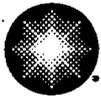


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**Constellation Energy**

Nine Mile Point Nuclear Station

August 11, 2006

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

**ATTENTION:** Document Control Desk

**SUBJECT:** Nine Mile Point Nuclear Station  
Unit No. 2; Docket No. 50-410

License Amendment Request Pursuant to 10 CFR 50.90:  
Revision of Rod Worth Minimizer Required Action During Startup –  
Technical Specification 3.3.2.1

Pursuant to 10 CFR 50.90, Nine Mile Point Nuclear Station, LLC, (NMPNS) hereby requests an amendment to Nine Mile Point Unit 2 (NMP2) Operating License NPF-69. The proposed change to the Technical Specifications (TS) contained herein would revise TS 3.3.2.1, "Control Rod Block Instrumentation," to revise the number of startups allowed with the rod worth minimizer (RWM) inoperable from one per calendar year to two per operating cycle (approximately two years).

The proposed administrative change would not increase the overall frequency of allowed startups without using the RWM, but would increase flexibility in applying the allowance. The description and technical basis for the proposed change are contained in Attachment (1). The proposed TS changes are shown in the markup in Attachment (2).

NMPNS requests approval of this request by August 31, 2007, 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, with attachments, to the appropriate state representative.

Should you have any questions regarding the information in this submittal, please contact M. H. Miller, Licensing Director, at (315) 349-1510.

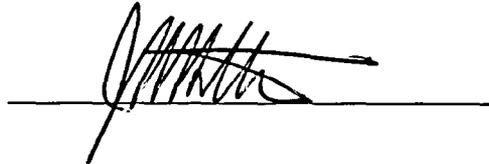
JE26

Very truly yours,



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

I, James A. Hutton, 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.



Subscribed and sworn before me, a Notary Public in and for the State of New York and County of Oswego, this 11<sup>th</sup> day of August, 2006.

WITNESS my Hand and Notarial Seal:

  
Notary Public

My Commission Expires:

11/12/2006  
Date

**TONYA L. JONES**  
Notary Public in the State of New York  
Oswego County Reg. No. 01JO6083354  
My Commission Expires 11-12-2006

JAH/RF/sac

Attachments: (1) Technical Basis and No Significant Hazards Determination  
(2) Proposed Technical Specification Changes (Mark-up)

cc: S. J. Collins, NRC  
T. G. Colburn, NRC  
Resident Inspector, NRC  
J. P. Spath, NYSERDA

**ATTACHMENT (1)**

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**TECHNICAL BASIS AND  
NO SIGNIFICANT HAZARDS DETERMINATION**

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## ATTACHMENT (1)

### TECHNICAL BASIS AND NO SIGNIFICANT HAZARDS DETERMINATION

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#### 1. DESCRIPTION

This letter is a request to amend Operating License NPF-69 for Nine Mile Point Unit 2 (NMP2). The proposed change would amend the Operating License to revise Technical Specification (TS) 3.3.2.1, "Control Rod Block Instrumentation," to revise the number of startups allowed with the rod worth minimizer (RWM) inoperable from one per calendar year to two per operating cycle (approximately two years). The proposed administrative change would not increase the overall frequency of allowed startups without using the RWM, but would increase flexibility in applying the allowance.

#### 2. PROPOSED CHANGE

The proposed change revises TS 3.3.2.1 Required Action C.2.1.2 to revise the number of startups allowed with the RWM inoperable from one in the last (i.e., the current) calendar year to two per operating cycle (approximately two years). The proposed TS change is indicated on the marked-up page provided in Attachment (2). Associated TS Bases changes will be processed in accordance with the NMP2 TS Bases Control Program (TS 5.5.10).

#### 3. BACKGROUND

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

The purpose of the RWM is to assist the operator in controlling rod patterns during startup, such that only specified control rod sequences and relative positions are allowed over the operating range from all control rods inserted to 10% rated thermal power (RTP). The sequences effectively limit the potential amount and rate of reactivity increase during a control rod drop accident (CRDA). A prescribed control rod sequence is stored in the RWM, which will initiate control rod withdrawal and insert blocks when the actual sequence deviates beyond allowances from the stored sequence. The RWM determines the actual sequence based upon position indication for each control rod. The RWM also uses steam flow signals to determine when the reactor power is above the preset power level at which the RWM is automatically bypassed. The RWM is a single channel system that provides input into one reactor manual control system (RMCS) rod block circuit.

During low power operations, the RWM enforces the banked position withdrawal sequence (BPWS) to ensure that the initial conditions of the CRDA analysis are not violated. The BPWS requires that control rods be moved in groups, with all control rods assigned to a specific group required to be within specified banked positions. Requirements that the control rod sequence is in compliance with the BPWS are specified in TS 3.1.6, "Rod Pattern Control."

Since the RWM is a system designed to act as a backup to operator control of the rod sequences, only one channel of the RWM is available and required to be operable. Special circumstances provided for in the Required Action of TS 3.1.3, "Control Rod Operability," and TS 3.1.6 may necessitate bypassing the RWM to allow continued operation with inoperable control rods, or to allow correction of a control rod pattern not in compliance with the BPWS. The RWM may be bypassed as required by these conditions; however, under these circumstances it must be considered inoperable and the Required Actions of TS 3.3.2.1 followed.

## ATTACHMENT (1)

### TECHNICAL BASIS AND NO SIGNIFICANT HAZARDS DETERMINATION

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Compliance with the BPWS, and therefore operability of the RWM, is required in Modes 1 and 2 when thermal power is  $\leq 10\%$  RTP. When thermal power is  $> 10\%$  RTP, there is no possible control rod configuration that results in a control rod worth that could exceed the 280 cal/gm fuel enthalpy limit during a CRDA.

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. Therefore, control rod movement must be immediately suspended except by scram. Alternatively, startup may continue if at least 12 control rods have already been withdrawn, or a reactor startup with an inoperable RWM during withdrawal of one or more of the first 12 control rods was not performed in the last calendar year (i.e., the current calendar year). These requirements minimize the number of reactor startups initiated with the RWM inoperable. Required Actions C.2.1.1 and C.2.1.2 of TS 3.3.2.1 require verification of these conditions by review of plant logs and control room indications. Once Required Action C.2.1.1 or C.2.1.2 is satisfactorily completed, control rod withdrawal may proceed in accordance with the restrictions imposed by Required Action C.2.2. Required Action C.2.2 allows for the RWM function to be performed manually and requires a double check of compliance with the prescribed rod sequence by a second licensed operator (Reactor Operator or Senior Reactor Operator) or other qualified member of the technical staff (e.g., a qualified shift technical advisor or reactor engineer). The RWM may be bypassed under these conditions to allow continued operations.

The RWM is a nuclear measurement analysis and control (NUMAC) digital chassis that performs a continuous self-test loop to verify operation of its component parts. Critical self test faults are generated when the RWM software responds to a condition indicative of a hardware problem. This type of fault results in a rod block, as a conservative response to the indicated condition. A critical self-test fault is also generated during power-up initialization following a momentary loss of power. This critical fault will remain until completion of the first cycle of RWM instrument self-test is completed with no failures. Such faults may also be generated from intermittent communication errors within the software. Subsequent successful performance of the self test provides evidence that a hardware failure does not exist. Because the RWM will automatically detect any faults that occur and issue a rod block, the design requirements of the equipment remains satisfied.

#### 4. TECHNICAL ANALYSIS

As noted above, the RWM is designed to aid the operator by not allowing control rod patterns that are not considered as part of the BPWS analyses. This function can also be performed using a second qualified individual to verify movement of the control rods in the correct sequence. The current TS limits the use of this allowance to once in the last (i.e., the current) calendar year. This restriction is intended to ensure that the RWM is maintained operable as much as possible, and 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.

NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," Revision 8, Amendment 17, was submitted for NRC review by the BWR Owners Group on August 15, 1986. The purpose of Amendment 17 was to (1) eliminate the requirement for use of the rod sequence control system (RSCS) for those reactors having such a system, and (2) reduce the low power setpoint (LPSP) of the RWM. Amendment 17 provided justification for a reduction in the RWM low power setpoint from 20% RTP to 10% RTP based on improvements in CRDA calculational methodology. Analyses described in the submittal for Amendment 17 show that at 10% RTP and greater, no control rod pattern can generate rod

## ATTACHMENT (1)

### TECHNICAL BASIS AND NO SIGNIFICANT HAZARDS DETERMINATION

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worths such that the fuel enthalpy would exceed the 280 cal/gram fuel enthalpy limit during the worst CRDA. By letter dated December 27, 1987, the NRC issued a safety evaluation accepting Amendment 17 to the topical report for referencing by licensees in individual license amendment applications.

NMPNS has previously confirmed that NEDE-24011-P-A, Revision 8, Amendment 17, and the Staff's associated safety evaluation, are applicable to NMP2. As part of the conversion to improved standard technical specifications (NMP2 License Amendment No. 91), the changes permitted by NEDE-24011-P-A, Revision 8, Amendment 17, were incorporated (deletion of the RSCS and reduction of the LPSP to 10% RTP). In accordance with the Staff's safety evaluation, Amendment 91 also added requirements for use of the RWM to an extent that would minimize substitution of a second operator or qualified individual to verify correct rod positions.

The proposed change revises TS 3.3.2.1 Required Action C.2.1.2 to change the number of startups allowed with the RWM inoperable from one in the last (i.e., the current) calendar year to two per operating cycle. An operating cycle is approximately two years long; thus, the proposed change would allow two startups with an inoperable RWM over a two-year period, or approximately one per year on average. The overall frequency of the allowance is not changed and is consistent with the philosophy of maintaining the RWM operable as much as possible, while improving operational flexibility and reducing undue restrictions on startup activities.

The RWM enforces the banked position withdrawal sequence (BPWS) to ensure that the initial conditions of the CRDA analysis are not violated. The CRDA requires multiple failures to initiate the event, including: (1) a control rod becomes decoupled from the control rod drive; (2) a decoupled control rod becomes stuck in the fully inserted position after its drive mechanism has been withdrawn; and (3) a 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 NMP2 Updated Safety Analysis Report (USAR) Section 15.4.9, have been calculated in accordance with Standard Review Plan 15.4.9 and are a small fraction of the guideline values of 10 CFR 100.

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). In addition, since the BPWS 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 USAR are not altered.

#### Conclusions

The proposed change to allow two reactor startups per operating cycle with the RWM inoperable is an administrative change that is consistent with the philosophy of maintaining the RWM operable as much as possible while improving operational flexibility and reducing undue restrictions on startup activities. The probability and consequences of a CRDA are not increased by the proposed change. Thus, there is no undue risk to the health and safety of the public as a result of the proposed change.

#### **5. NO SIGNIFICANT HAZARDS DETERMINATION**

Nine Mile Point Nuclear Station, LLC (NMPNS) is requesting a revision to Facility Operating License No. NPF-69 for Nine Mile Point Unit 2 (NMP2). The proposed change would revise Technical Specification (TS) 3.3.2.1, "Control Rod Block Instrumentation," to allow startup with an inoperable rod worth minimizer (RWM) twice per operating cycle (approximately two years) instead of the current

## ATTACHMENT (1)

### TECHNICAL BASIS AND NO SIGNIFICANT HAZARDS DETERMINATION

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allowance of one in the last calendar year. This is an administrative change that does not affect the overall frequency of the allowance.

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 redefines the frequency at which plant startup is permitted without using the RWM. The relevant design basis accident is the control rod drop accident (CRDA), which involves multiple failures to initiate the event. This administrative 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 qualified human checker to ensure the correct control rod withdrawal sequence is not in itself an accident initiator, and redefining the startup allowance frequency 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 banked position withdrawal sequence (BPWS) 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 USAR 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 redefinition of the frequency at which plant startup is permitted without using the RWM does not result in any credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing basis. This administrative 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 redefines the frequency at which plant startup is permitted without using the RWM. This administrative change does not affect the overall frequency of use of the allowance. 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

**ATTACHMENT (1)**

**TECHNICAL BASIS AND NO SIGNIFICANT HAZARDS DETERMINATION**

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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)**

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**PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)**

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3.3.2.1-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	<p>C.2.1.1 Verify <math>\geq 12</math> rods withdrawn.</p> <p><u>OR</u></p> <p>C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last <span style="border: 1px solid black; padding: 2px;">calendar year</span>.</p> <p><u>AND</u></p> <p>C.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.</p>	<p>Immediately</p> <p>Immediately</p> <p><i>more than once in the current operating cycle.</i></p> <p>During control rod movement</p>
D. RWM inoperable during reactor shutdown.	D.1 Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement

(continued)