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NINE MILE POINT
NUCLEAR STATION

January 27, 2011

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

License Amendment Request Pursuant to 10 CFR 50.90: Revisions to Average Power Range Monitor Instrumentation System Operability Requirements – Response to NRC Acceptance Review Comments (TAC No. ME5010)

REFERENCES:

(a) Letter from S. Belcher (NMPNS) to Document Control Desk (NRC), dated November 2, 2010, License Amendment Request Pursuant to 10 CFR 50.90: Revisions to Average Power Range Monitor Instrumentation System Operability Requirements – Technical Specification 3.6.2, Protective Instrumentation

(b) Letter from R. V. Guzman (NRC) to S. L. Belcher (NMPNS), dated January 5, 2011, Nine Mile Point Nuclear Station, Unit No. 1 – Acceptance Review of Requested Licensing Action Re: Revisions to Average Power Range Monitor Instrumentation System Operability Requirements – Technical Specification 3.6.2, Protective Instrumentation (TAC No. ME5010)

Nine Mile Point Nuclear Station, LLC (NMPNS) hereby transmits supplemental information in support of a previously submitted request for amendment to Nine Mile Point Unit 1 (NMP1) Renewed Facility Operating License DPR-63. The request, dated November 2, 2010 (Reference a), proposed to revise Technical Specification Section 3.6.2, "Protective Instrumentation," by modifying the operability requirements for the average power range monitor (APRM) instrumentation system. By letter dated January 5, 2011 (Reference b), the NRC forwarded comments required to be addressed prior to the staff's completion of the acceptance review for the amendment request. The supplemental information, provided in Attachments 1 and 2 to this letter, responds to the acceptance review comments documented in Reference (b).

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NRR

The supplemental information contained in this submittal has resulted in changes to the Significant Hazards Consideration analysis provided by NMPNS in Reference (a). The revised analysis, provided in Attachment 2, continues to conclude that the activities associated with the proposed amendment represent no significant hazards consideration under the standards set forth in 10 CFR 50.92. Pursuant to 10 CFR 50.91(b)(1), NMPNS has provided a copy of this supplemental information to the appropriate state representative. This letter contains no new regulatory commitments.

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

Very truly yours,

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

I, Thomas A. Lynch, being duly sworn, state that I am the Nine Mile Point Plant General Manager, and that I am duly authorized to execute and file this response 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 27th day of January, 2011.

WITNESS my Hand and Notarial Seal:

Notary Public

My Commission Expires:

11/12/2014
Date

TONYA L. JONES
Notary Public in the State of New York
Oswego County Reg. No. 01JO6083354
My Commission Expires 11/12/2014

TAL/DEV

Attachments:

1. Response to NRC Acceptance Review Comments Regarding the Proposed Changes to the Operability Requirements for the Average Power Range Monitor Instrumentation System

2. Revised License Amendment Request Sections 3.0, "Technical Evaluation," and 4.0, "Regulatory Evaluation"

cc: Regional Administrator, Region I, NRC
Project Manager, NRC
Resident Inspector, NRC
A. L. Peterson, NYSERDA

ATTACHMENT 1

RESPONSE TO NRC ACCEPTANCE REVIEW COMMENTS REGARDING THE PROPOSED CHANGES TO THE OPERABILITY REQUIREMENTS FOR THE AVERAGE POWER RANGE MONITOR INSTRUMENTATION SYSTEM

Nine Mile Point Nuclear Station, LLC
January 27, 2011

ATTACHMENT 1

RESPONSE TO NRC ACCEPTANCE REVIEW COMMENTS REGARDING THE PROPOSED CHANGES TO THE OPERABILITY REQUIREMENTS FOR THE AVERAGE POWER RANGE MONITOR INSTRUMENTATION SYSTEM

By letter dated November 2, 2010, Nine Mile Point Nuclear Station, LLC (NMPNS) requested an amendment to Nine Mile Point Unit 1 (NMP1) Renewed Facility Operating License DPR-63. The proposed amendment would revise Technical Specification (TS) Section 3.6.2, "Protective Instrumentation," by modifying the operability requirements for the average power range monitor (APRM) instrumentation system. This attachment provides supplemental information in response to the acceptance review comments documented in the NRC's letter dated January 5, 2011. The NRC comments are repeated (in italics), followed by the NMPNS response.

Comments

The LAR discusses having the reactor mode switch in the Refuel position as being equivalent to being in the Refueling operating condition. However, per Section 1.1 of the NMP1 Technical Specifications (TSs), the reactor may be in "Shutdown – Cold" or "Shutdown – Hot" with the reactor mode switch in the Refuel position. In addition, a note of the definition of "Shutdown Condition – Hot" specifically states that the reactor mode switch may be in the refuel position to perform reactor coolant system pressure testing, control rod scram time testing, and scram recovery operations. Since the NMP1 TS Tables 3.6.2a and 3.6.2g tie the need for APRM operability to the reactor mode switch position (and not the actual operating condition), the NRC staff needs to understand whether APRM operability is required for the non-refueling operations and testing that the reactor may be performing while the reactor mode switch is in the Refuel position.

The NRC staff requests the licensee to provide the justification or analysis to explain if the APRM can be non-operable (as requested in the LAR) while in these other modes and test conditions. In addition, if there are any precedents that the NRC staff should consider that allow the APRMs to be non-operational while in "Shutdown Condition – Hot" and / or while reactor coolant system pressure testing, control rod scram time testing, and scram recovery operations are being performed, please indicate in your response, as appropriate.

Response

As indicated in TS Definition 1.1, "Reactor Operating Conditions," there are two reactor operating conditions other than Refueling during which the reactor mode switch may be placed in the Refuel position. These are: (1) Shutdown Condition-Cold and (2) Shutdown Condition-Hot.

With the reactor mode switch in the Shutdown position, electrical interlocks prevent control rod withdrawal. The purpose of placing the reactor mode switch in the Refuel position while in the Shutdown-Cold condition is to permit withdrawal of a single control rod for testing (e.g., control rod scram time testing) or maintenance. The purpose of placing the reactor mode switch in the Refuel position while in the Shutdown-Hot condition is to permit withdrawal of a single control rod during reactor coolant system pressure testing, control rod scram time testing, and scram recovery operations with the reactor coolant temperature greater than 212°F. Placing the reactor mode switch in the Refuel position following a scram facilitates scram recovery by permitting individual control rod motion, thereby allowing the operators to fully insert any control rods that have not settled to the full-in position after the scram. The special operating provisions relating to the Shutdown-Hot condition were approved by the NRC by letter dated June 9, 1988, issuing License Amendment No. 99.

Similar to the discussion for the Refueling operating condition in the November 2, 2010 NMPNS submittal, the APRM system does not provide any meaningful core monitoring or protection during these special operating conditions. The source range monitoring (SRM) and intermediate range monitoring (IRM) systems (required to be operable when the reactor mode switch is in the Refuel position) provide adequate neutron flux monitoring and automatically initiate protective actions when required. In accordance with TS Definition 1.1, no core alterations leading to an addition of reactivity can be performed during the Shutdown-Cold and Shutdown-Hot operating conditions (control rod movement with the control rod drive hydraulic system is not considered to be a core alteration at NMP1, per TS Definition 1.13). Adequate shutdown margin is maintained, in accordance with TS Section 3.1.1.a(1), such that the reactor will be subcritical, with margin, with the highest worth control rod fully withdrawn. Since withdrawal of more than one control rod is prevented when the reactor mode switch is in the Refuel position, inadvertent critically is precluded.

The Technical Evaluation for the proposed license amendment, described in Section 3.0 of the Enclosure to the November 2, 2010 NMPNS submittal, has been revised to incorporate the above supplemental information and is provided in Attachment 2. In addition, the supplemental information has resulted in changes to the Significant Hazards Consideration analysis provided by NMPNS in the November 2, 2010 NMPNS submittal. The revised analysis, also provided in Attachment 2, continues to conclude that the activities associated with the proposed amendment represent no significant hazards consideration under the standards set forth in 10 CFR 50.92.

With regard to precedents, the NMP1 TS allowances to be in the Shutdown-Cold and Shutdown-Hot operating conditions, with the reactor mode switch in the Refuel position, are comparable to the provisions of the Boiling Water Reactor (BWR) Standard Technical Specifications, NUREG-1433. Specifically, the NUREG-1433 Special Operations Specifications 3.10.3, "Single Control Rod Withdrawal - Hot Shutdown," and 3.10.4, "Single Control Rod Withdrawal - Cold Shutdown," allow placing the reactor mode switch in the Refuel position while in hot shutdown or cold shutdown to permit single rod withdrawal for maintenance and/or testing, by imposing certain restrictions. Those restrictions do not require operability of any APRM functions. The basis for acceptability of these provisions, stated in the NUREG-1433 TS Bases, is that the interlocks that prevent the withdrawal of more than one control rod, together with adequate shutdown margin, will preclude unacceptable reactivity excursions.

ATTACHMENT 2

REVISED LICENSE AMENDMENT REQUEST SECTIONS 3.0, "TECHNICAL EVALUATION," AND 4.0, "REGULATORY EVALUATION"

Nine Mile Point Nuclear Station, LLC
January 27, 2011

The following revised license amendment request Sections 3.0 and 4.0 replace the corresponding sections that were provided in the Enclosure to the NMPNS letter dated November 2, 2010. Revisions are indicated by a vertical bar drawn in the right hand margin of affected pages.

3.0 TECHNICAL EVALUATION

The APRM system monitors the reactor neutron flux level in the power operating range from a few percent to greater than rated thermal power. The system generates a scram signal at or below 122 percent of the rated value during bulk neutron flux level transients. The system also is capable of generating a control rod withdrawal block signal to mitigate postulated single control rod withdrawal error events. Both the scram and rod block setpoints are varied as a function of reactor recirculation flow. These APRM automatic protective functions prevent damage to the fuel for postulated reactivity insertion events occurring during power operating conditions (including both the Startup and Run positions of the reactor mode switch), such as the Control Rod Withdrawal Error event and the Control Rod Drop Accident. The proposed amendment does not have any effect on the UFSAR analyses for these postulated at-power reactivity insertion events since the TS will continue to require that the APRM system "Upscale" and "Inoperative" scram and control rod withdrawal block functions remain operable when the reactor mode switch is in the Startup and Run positions.

In the Refueling operating condition (defined in TS Definition 1.1), the reactor mode switch is in the Refuel position, the reactor coolant system temperature is less than 212°F, and all control rods are inserted in cells containing fuel. Since reactor neutron flux levels during refueling are below the APRM indicating range, the APRM system does not provide any meaningful core monitoring or protection in the Refueling operating condition. The SRM system and the IRM system provide adequate neutron flux monitoring and automatically initiate protective actions (scram or control rod withdrawal block) when required during refueling. Operability of the SRM and IRM systems is required when the reactor mode switch is in the Refuel position, in accordance with the TS and UFSAR requirements identified in Section 2.2 of this license amendment request.

The NMP1 UFSAR does not provide analyses of reactivity insertion events occurring during the refueling operating condition. However, the possibility of inadvertent criticality due to a control rod withdrawal error during refueling is minimized by the following design features and procedural controls:

1. With the reactor mode switch in the Refuel position, control rod withdrawal is restricted to only one control rod at a time. This mode switch interlock is required to be operable as indicated in TS Table 3.6.2g. Adequate shutdown margin is maintained, in accordance with TS Section 3.1.1.a(1), such that the reactor will be subcritical, with margin, with the highest worth control rod fully withdrawn. An evaluation of each in-vessel fuel movement during fuel loading (including shuffling fuel within the core) is performed to ensure adequate shutdown margin is maintained during refueling, in accordance with TS Section 4.1.1.a(1).

2. Procedures prohibit control rod withdrawal during movement of fuel into the reactor core. These procedural requirements are backed up by refueling platform interlocks that: (1) prevent control rod withdrawal when the platform is carrying a fuel assembly over the reactor core; and (2) prevent the refueling platform from carrying a fuel assembly over the core if a control rod is withdrawn from the core. Operability of these interlocks is required by TS Section 3.5.2 and TS Table 3.6.2g.

3. Multiple control rod withdrawals are only allowed for fuel cells that have all fuel assemblies removed. Procedures strictly regulate bypassing of single-rod-out interlocks to allow withdrawal of more than one control rod.

As indicated in TS Definition 1.1, "Reactor Operating Conditions," there are two other reactor operating conditions during which the reactor mode switch may be placed in the Refuel position. These are: (1) Shutdown Condition-Cold and (2) Shutdown Condition-Hot.

With the reactor mode switch in the Shutdown position, electrical interlocks prevent control rod withdrawal. The purpose of placing the reactor mode switch in the Refuel position while in the Shutdown-Cold condition is to permit withdrawal of a single control rod for testing (e.g., control rod scram time testing) or maintenance. The purpose of placing the reactor mode switch in the Refuel position while in the Shutdown-Hot condition is to permit withdrawal of a single control rod during reactor coolant system pressure testing, control rod scram time testing, and scram recovery operations with the reactor coolant temperature greater than 212°F. Placing the reactor mode switch in the Refuel position following a scram facilitates scram recovery by permitting individual control rod motion, thereby allowing the operators to fully insert any control rods that have not settled to the full-in position after the scram.

Similar to the Refueling operating condition described above, the APRM system does not provide any meaningful core monitoring or protection during these special operating conditions. The SRM and IRM systems (required to be operable when the reactor mode switch is in the Refuel position) provide adequate neutron flux monitoring and automatically initiate protective actions when required. In accordance with TS Definition 1.1, no core alterations leading to an addition of reactivity can be performed during the Shutdown-Cold and Shutdown-Hot operating conditions (control rod movement with the control rod drive hydraulic system is not considered to be a core alteration at NMP1, per TS Definition 1.13). Adequate shutdown margin is maintained, in accordance with TS Section 3.1.1.a(1), such that the reactor will be subcritical, with margin, with the highest worth control rod fully withdrawn. Since withdrawal of more than one control rod is prevented when the reactor mode switch is in the Refuel position, inadvertent critically is precluded.

Based on the above, it is concluded that the APRM "Upscale" and "Inoperative" reactor scram and control rod withdrawal block functions need not be operable when the reactor mode switch is in the Refuel position. Existing design features and procedural controls minimize the possibility of inadvertent criticality due to a control rod withdrawal error during refueling, and the SRM and IRM systems provide adequate monitoring and core protection if such an event were to occur.

TS Table 3.6.2g currently refers to Note (d) regarding operability of the APRM "Downscale" control rod withdrawal block function with the reactor mode switch in the Startup and Refuel positions. Note (d) states that this function may be bypassed in the startup and refuel positions of the reactor mode switch when the IRMs are onscale. This statement does not accurately reflect the actual plant design, as it incorrectly implies an optional or selective bypass feature. As described in UFSAR Section VIII-C.1.1.4, the actual design is such that this bypass occurs automatically; thus, by design, the APRM "Downscale" control rod withdrawal block function is not required to be operable with the reactor mode switch in the Startup and Refuel positions. To more simply and clearly present these requirements, Note (d) and the references to this Note are deleted from TS Table 3.6.2g. This change is considered administrative in nature since the actual operability requirements have not changed. The APRM "Downscale" control rod withdrawal block function is not credited in the plant safety analyses.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

In 10 CFR 50.36, requirements related to the content of TSs are established. Pursuant to 10 CFR 50.36, TSs are required to include items in the following five specific categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements; (4) design features; and (5) administrative controls. Criterion 3 of 10 CFR 50.36(c)(2)(ii) requires an LCO to be established for a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The proposed changes to the APRM system operability requirements are consistent with 10 CFR 50.36 since the APRM system "Upscale" and "Inoperative" scram and control rod withdrawal block functions are not part of the primary success path to mitigate a design basis accident or transient during the plant operating conditions allowed by the TS with the reactor mode switch in the Refuel position, and the APRM "Downscale" control rod withdrawal block function is not part of the primary success path to mitigate a design basis accident or transient when the reactor mode switch is in the Startup and Refuel positions.

4.2 Significant Hazards Consideration

Nine Mile Point Nuclear Station, LLC (NMPNS) is requesting an amendment to Renewed Facility Operating License DPR-63 for Nine Mile Point Unit 1 (NMP1). The proposed amendment would revise Technical Specification (TS) Section 3.6.2, "Protective Instrumentation," by modifying the operability requirements for the Average Power Range Monitoring (APRM) instrumentation system. The proposed amendment would eliminate the requirements that the APRM "Upscale" and "Inoperative" scram and control rod withdrawal block functions be operable when the reactor mode switch is in the Refuel position, and would clarify the operability requirements for the APRM "Downscale" control rod withdrawal block function when the reactor mode switch is in the Startup and Refuel positions.

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 amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The APRM system is not an initiator of or a precursor to any accident or transient. The APRM system monitors the neutron flux level in the power operating range from a few percent to greater than rated thermal power and provides automatic protective signals for postulated at-power reactivity insertion events. Thus, the proposed changes to the TS operability requirements for the APRM system will not significantly impact the probability of any previously evaluated accident.

   The design of plant equipment is not being modified by the proposed amendment. The TSs will continue to require operability of the APRM system "Upscale" and "Inoperative" scram and

control rod withdrawal block functions when the reactor mode switch is in the Startup and Run positions to provide core protection for postulated reactivity insertion events occurring during power operating conditions. Thus, the consequences of previously evaluated at-power reactivity insertion events are not affected by the proposed amendment.

The proposed elimination of the TS requirements that the APRM system "Upscale" and "Inoperative" scram and control rod withdrawal block functions be operable when the reactor mode switch is in the Refuel position does not increase the consequences of an accident previously evaluated. The NMP1 Updated Final Safety Analysis Report (UFSAR) does not provide analyses of reactivity insertion events occurring during the plant operating conditions allowed by the TS with the reactor mode switch in the Refuel position (i.e., refueling, cold shutdown, and hot shutdown). The possibility of inadvertent criticality due to a control rod withdrawal error during these operating conditions is minimized by design features and procedural controls that are not affected by the proposed amendment. Adequate shutdown margin is maintained in accordance with existing TS requirements, such that the reactor will be subcritical, with margin, with the highest worth control rod fully withdrawn. Withdrawal of more than one control rod is prevented when the reactor mode switch is in the Refuel position. In addition, the APRM system does not provide any meaningful core monitoring or protection in the refueling, cold shutdown, and hot shutdown operating conditions since reactor neutron flux levels during these operating conditions are below the APRM indicating range. The source range and intermediate range neutron monitoring systems provide adequate neutron flux monitoring during these operating conditions and automatically initiate protective actions (scram or control rod withdrawal block) when required.

The change to the TS operability requirements for the APRM "Downscale" control rod withdrawal block function is a clarification to more simply and clearly indicate that this function is not required when the reactor mode switch is in the Startup and Refuel positions. This change is consistent with plant design and does not change the actual TS operability requirements; thus, previously evaluated accidents are not affected by this proposed change.

Based on the above discussion, it is concluded that the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed changes to the TS operability requirements for the APRM system do not introduce any new accident precursors and do not involve any physical plant alterations or changes in the methods governing normal plant operation that could initiate a new or different kind of accident. The proposed amendment does not alter the intended function of the APRM system and does not adversely affect the ability of the system to provide core protection for at-power reactivity insertion events.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No.

Margin of safety is related to confidence in the ability of the fission product barriers (fuel cladding, reactor coolant system, and primary containment) to perform their design functions during and following postulated accidents. The proposed amendment does not alter setpoints or limits established or assumed by the accident analyses. The proposed TS changes to eliminate the requirements that the APRM system "Upscale" and "Inoperative" scram and control rod withdrawal block functions be operable when the reactor mode switch is in the Refuel position have no impact on the performance of the fission product barriers since these APRM functions do not provide any meaningful core monitoring or protection during the plant operating conditions allowed by the TS with the reactor mode switch in the Refuel position (i.e., refueling, cold shutdown, and hot shutdown). The TS will continue to require operability of these APRM functions when the reactor mode switch is in the Startup and Run positions to provide core protection for postulated reactivity insertion events occurring during power operating conditions, consistent with the plant safety analyses.

The change to the TS operability requirements for the APRM "Downscale" control rod withdrawal block function is a clarification to more simply and clearly indicate that this function is not required when the reactor mode switch is in the Startup and Refuel positions. This change is consistent with plant design and does not change the actual TS operability requirements; thus, previously evaluated accidents are not affected by this proposed change.

Based on the above discussion, it is concluded that the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, NMPNS concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.3 Conclusions

In conclusion, 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.