September 20, 2007

Mr. Keith J. Polson
Vice President Nine Mile Point
Nine Mile Point Nuclear Station, LLC
P.O. Box 63
Lycoming, NY 13093

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING NINE MILE POINT NUCLEAR STATION, UNIT NO. 2, IMPLEMENTATION OF ARTS/MELLLA (TAC NO. MD5233)

Dear Mr. Polson:

By letter dated March 30, 2007, Nine Mile Point Nuclear Station, LLC requested an amendment to the Nine Mile Point Nuclear Station, Unit No. 2 (NMP2) Renewed Facility Operating License. The proposed license amendment would change the NMP2 Technical Specifications to reflect an expanded operating domain resulting from implementation of Average Power Range Monitor/Rod Block Monitor/Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA).

The Nuclear Regulatory Commission (NRC) staff has reviewed the information provided in that letter and has determined that additional information is needed to complete its review. Enclosed is the NRC staff's request for additional information (RAI), which is in addition to the NRC staff's RAI of August 16, 2007. The RAI was discussed with your staff on September 4, 12, and 18, 2007, and it was agreed that your response would be provided within 45 days from the date of this letter.

Sincerely,

/ra/

Marshall J. David, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-410

Enclosure:
RAI

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

NINE MILE POINT NUCLEAR STATION, UNIT NO. 2

IMPLEMENTATION OF ARTS/MELLLA

The Nuclear Regulatory Commission (NRC) staff has performed its initial review of your March 30, 2007, request to revise the Nine Mile Point Nuclear Station, Unit No. 2 (NMP2) Technical Specifications (TSs) to reflect an expanded operating domain resulting from implementation of Average Power Range Monitor/Rod Block Monitor/Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA). As a result of that review, we have determined that additional information is required to adequately evaluate the acceptability of the proposed revision. The items that follow are numbered as a continuation of the items in our August 16, 2007, request for additional information.

17. Section 12 of Attachment (7) of your request states that NMP2 evaluated the effects of the higher mass and energy release profiles and concluded that the resulting subcompartment pressures, temperatures and humidity levels are acceptable with respect to the existing design criteria. Please provide a detailed explanation and assumptions for performing the environmental qualification analyses. Also, provide a comparison between existing and new data/profiles (i.e., temperature, humidity, pressure, and radiation) and technical justifications to support the above conclusion.

18. Setpoint Calculation Methodology: Please provide documentation (including sample calculations) of the methodology used for establishing the limiting setpoint or nominal setpoint (NSP) and the limiting acceptable values for the As-Found and As-Left setpoints as measured in periodic surveillance testing as discussed in items 20 and 21, below. Indicate the related Analytical Limits and other limiting design values (and the sources of these values) for each setpoint.

19. Safety Limit (SL)-Related Determination: Please provide a statement as to whether or not the setpoint is a limiting safety system setting (LSSS) for a variable on which an SL has been placed as discussed in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(c)(1)(ii)(A). Such setpoints are described as "SL-Related" in the discussions that follow. In accordance with 10 CFR 50.36(c)(1)(ii)(A), the following guidance is provided for identifying a list of functions to be included in the subset of LSSSs specified for variables on which SLs have been placed as defined in Standard TS (STS) Sections 2.1.1, Reactor Core SLs and 2.1.2, Reactor Coolant System Pressure SLs. This subset includes automatic protective devices in TSs for specified variables on which SLs have been placed that: (1) initiate a reactor trip; or (2) actuate safety systems. As such these variables provide protection against violating reactor core safety limits, or reactor coolant system pressure boundary safety limits.

    Examples of instrument functions that might have LSSSs included in this subset in accordance with the plant-specific licensing basis are, rod block monitor (RBM) withdrawal blocks, feedwater and main turbine high water level trip, and end of cycle

recirculation pump trip. For each setpoint, or related group of setpoints, that you determined not to be SL-Related, explain the basis for this determination.

20. For Setpoints Determined to be SL-Related: The NRC letter to the Nuclear Energy Institute Setpoint Methods Task Force dated September 7, 2005 (ADAMS Accession Number ML052500004), describes Setpoint-Related TS (SRTS) that are acceptable to the NRC for instrument settings associated with SL-Related setpoints. Specifically: Part "A" of the Enclosure to the letter provides Limiting Condition for Operation (LCO) notes to be added to the TS, and Part "B" includes a check list of the information to be provided in the TS Bases related to the proposed TS changes.

    a. Describe whether and how you plan to implement the SRTS suggested in the September 7, 2005, letter. If you do not plan to adopt the suggested SRTS, then explain how you will ensure compliance with 10 CFR 50.36 by addressing items b. and c., below. The NRC staff's position on complying with 10 CFR 50.36 is provided in RIS 2006-17.

    b. As-Found Setpoint Evaluation: Describe how surveillance test results and associated TS limits are used to establish operability of the safety system. Show that this evaluation is consistent with the assumptions and results of the setpoint calculation methodology. Discuss the plant corrective action processes (including plant procedures) for restoring channels to operable status when channels are determined to be "inoperable" or "operable but degraded." If the criteria for determining operability of the instrument being tested are located in a document other than the TS (e.g., plant test procedure), explain how the requirements of 10 CFR 50.36 are met.

    c. As-Left Setpoint Control: Describe the controls employed to ensure that the instrument setpoint is, upon completion of surveillance testing, consistent with the assumptions of the associated analyses. If the controls are located in a document other than the TS (e.g., plant test procedure), explain how the requirements of 10 CFR 50.36 are met.

21. For Setpoints not Determined to be SL-Related: Describe the measures to be taken to ensure that the associated instrument channel is capable of performing its specified safety functions in accordance with applicable design requirements and associated analyses. Include in your discussion, information on the controls you employ to ensure that the As-Left trip setting after completion of periodic surveillance is consistent with your setpoint methodology. Also, discuss the plant corrective action processes (including plant procedures) for restoring channels to operable status when channels are determined to be "inoperable" or "operable but degraded." If the controls are located in a document other than the TS (e.g., plant test procedure), describe how it is ensured that the controls will be implemented.

22. The next to the last paragraph on page 9 of Attachment (1) of your request states, "With the implementation of the ARTS/MELLLA license amendment, the rod block function (with three power dependent Allowable Values) will be credited in the transient analysis with protecting the MCPR SL specified in TS 2.1.1.2 and will have associated LSSSs." The

NRC staff requests the following information with regards to protecting an SL:

a. Describe the difference between the Minimum Critical Power Ratio (MCPR) SL and the MCPR operating limit.

b. Will the RBM protect the MCPR SL or the MCPR operating limit?

c. Identify all RBM LSSSs that ensure a TS SL is not exceeded. This information will be used by the NRC staff to assess the adequacy of the surveillance requirements (SRs) in maintaining the necessary quality of the RBM system and its components for the applicable modes of other specified conditions. This information will also be used by the staff to ensure the requirements of 10 CFR 50.36(c)(1)(ii)(A) are met.

d. The second and third sentences of Comment and Recommendation 9, on page 11 of the RBM Instrument Limits Calculation, "0000-0053-1006 NMP2 A-M-T506-RBM-Calc-2006, Revision 0, dated January 2007," appears to disagree with the RBM power dependent setpoints being LSSSs.

   Discuss this apparent discrepancy.

e. With the implementation of your request, address how General Design Criteria 20, 22, and 25 are met for the RBM. Also, describe the quality standards to which the RBM has been designed, procured, tested and will be maintained. In addition, describe the power supply design and quality, and what would occur if the RBM lost power.

23. Attachment (1) of your request indicates that the application of the notes suggested in the September 7, 2005, NRC letter are unnecessary for the RBM. The basis of this position is that the RBM has no drift characteristic with no As-Left and As-Found tolerances since the RBM only performs digital calculations on digitized input signals. Since the trip setpoint is a numerical value stored in the digital hardware and not subject to drift, the As-Left and As-Found values for the setpoint are the same as the setpoint. Therefore, there are no As-Left or As-Found tolerance bands associated with the RBM.

    The NRC staff disagrees with the position that the notes are not applicable. For SL-Related digital instruments, notes may be appropriate. The notes could be worded differently than the wording suggested in the September 7, 2005, NRC letter and may be in the form of a single note. Since there is no drift characteristic and no As-Left or As-Found tolerances, the notes should address: (1) steps to be taken for the condition where the As-Found channel setpoint is not the NSP, (2) the document where the NSP is specified, and (3) the document where the methodology used to determine the NSP is specified. Please provide notes, as appropriate.

    Also, discuss where drift associated with analog-to-digital and digital-to-analog conversions of signals, which provide inputs to the RBM, are accounted for in the SRs.

24. Item (d) of Attachment (4) of your request discusses modifications to the Multi-Vendor Data Acquisition System (MVD). The NRC staff requests the following information with

regards to the MVD equipment and the anticipated changes to it:

a. By functional description, identify the functions by which the licensee anticipates using the MVD.

b. Explain what functions will change, and then the procedural steps to incorporate the modifications to the MVD for the ARTS logic implementation.

25. On page 1-4 of Attachment (7) of your request, it was stated that the APRM Flow-Biased Simulated Thermal Power (STP) scram line is conservatively not credited in any NMP2 safety analyses. It was further stated that the APRM Flow-Biased STP rod block line is conservatively not credited in any NMP2 safety analyses, although it is part of the NMP2 design configuration. Also, it was stated that the setpoint changes for these systems were made for operational flexibility purposes and provides the inputs to the NMP2 TS changes. The NRC staff believes that as long as the setpoints remain part of the TS (even though they are not credited in any safety analysis), the setpoints and their uncertainty analysis should still be determined using the same criteria and rigor as if they were credited in the safety analysis. Please explain.

26. On page 9 of Attachment (1) of your request, it was stated that the Rod Withdrawal Error (RWE) event will continue to be evaluated each reload as a potentially limiting event. On page 4-12 of Attachment (7) of your request, it was stated that implementing your request will upgrade the performance of the system such that the RWE event will never be the limiting transient. Please explain this apparent discrepancy.