



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

February 9, 2011

Mr. Samuel L. Belcher  
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 – RE: THE LICENSE AMENDMENT REQUEST  
FOR EXTENDED POWER UPRATE OPERATION (TAC NO. ME1476)

Dear Mr. Belcher:

By letter dated May 27, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091610103), Nine Mile Point Nuclear Station, LLC (NMPNS or the licensee) submitted a license amendment request (LAR) for Nine Mile Point, Unit No. 2 (NMP2). The proposed amendment requests an increase in the maximum steady-state power level at NMP2 from 3467 megawatts thermal (MWt) to 3988 MWt. This represents a 15-percent increase over the current licensed thermal power.

Based on its review of the LAR and the supplemental information provided by the NMPNS in letter December 13, 2010 (ADAMS Accession No. ML103500364), the Nuclear Regulatory Commission (NRC) staff has determined that additional information is needed to support its review. Enclosed is the NRC staff's request for additional information (RAI). The RAI was discussed with your staff on January 27 and February 8, 2011, and it was agreed that your response would be provided within 60 days from the date of this letter.

Sincerely,

A handwritten signature in black ink, reading "R. Guzman", with a long horizontal line extending to the right.

Richard V. Guzman, Senior Project Manager  
Plant Licensing Branch I-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-410

Enclosure:  
As stated

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REQUEST FOR ADDITIONAL INFORMATION (RAI) FOR  
LICENSE AMENDMENT REQUEST RE: EXTENDED POWER UPRATE (EPU)  
NINE MILE POINT NUCLEAR STATION, LLC  
NINE MILE POINT NUCLEAR STATION, UNIT NO. 2  
DOCKET NO. 50-410

By letter dated May 27, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091610103), Nine Mile Point Nuclear Station, LLC (NMPNS or the licensee) submitted a license amendment request (LAR) for Nine Mile Point, Unit No. 2 (NMP2). The proposed amendment requests an increase in the maximum steady-state power level at NMP2 from 3467 megawatts thermal (MWt) to 3988 MWt. This represents a 15-percent increase over the current licensed thermal power.

Based on its review of the license amendment request and the supplemental information provided by the NMPNS in letter dated December 13, 2010 (ADAMS Accession No. ML103500364), the Nuclear Regulatory Commission staff has determined that additional information requested below will be needed to support its review.

1. In letter dated December 13, 2010, the licensee stated that:

All fuel assembly types were analyzed using CASMO4 at 4.95% enrichment (including the manufacturing tolerance of  $\pm 0.05\%$  enrichment which is equivalent to the 5.0% enrichment discussed in NMP2 Updated Safety Analysis Report Section 9.1.2.2).

The above statement appears inadequate to support an enrichment of 5.0%. Analysis at 4.95% with a  $\pm 0.05\%$  tolerance would justify an enrichment of 4.95%. By the same reason, the updated safety analysis report also appears inadequate. Clarify this statement.

The various submittals lack clarity of the licensed enrichment limit. The NMP2 power uprate safety analysis report (PUSAR) Table 2.8-10 specifies 5.0%. PUSAR Table 2.8-10 specifies 4.9%. The letter dated December 13, 2010, specifies 4.95%. What is the enrichment limit justified by analysis? Specify this limit in the Technical Specifications (TSs) in accordance with Title 10 of the *Code of Federal Regulations*, (10 CFR) Section 50.36.

2. In letter dated December 13, 2010, the licensee stated that:

The current GE14 fuel lattice design satisfies the NMP2 new fuel vault storage criteria outlined in Technical Specification (TS) Section 4.3 provided that the peak, in-core eigenvalue of any constituent fuel lattice, as computed by either the GNF lattice physics codes TGBLA04A or TGBLA06A, does not exceed 1.29.

However, the PUSAR lists a peak in-core eigenvalue limit of 1.3392. Clarify this discrepancy and specify this limit in the TSs in accordance with 10 CFR 50.36. In addition, provide the in-

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rack maximum k-effective for new fuel storage determined by analysis and the supporting analysis.

3. On page 3 of Attachment 1 of its response dated December 13, 2010, the licensee states that NMP2 added 10 new Holtec Boral spent fuel storage racks in the NMP2 spent fuel pool as part of the Phase I re-rack via a 10 CFR 50.59 evaluation. Afterward, NMP2 performed the Phase II re-rack, similarly using a 10 CFR 50.59 evaluation in support of the modification, which replaced 16 original Boraflex spent fuel storage racks with Holtec Boral racks. The licensee further stated that the new Boral spent fuel storage racks are incorporated into the criticality analysis that has been submitted in support of NMP2's EPU LAR. It is not clear to the NRC staff how the licensee can ensure that the Boral material will continue to perform its intended function in the future. As such, please discuss how the neutron absorber will be monitored and maintained (e.g. use of surveillance program). If a program is utilized, discuss in detail the approach that will be used in the monitoring program, specifically the methods and techniques utilized (e.g., visual, weight, volumetric, surface inspection, neutron attenuation testing), frequency of inspection, sample size, data collection and acceptance criteria.
  - a. Please indicate the installation date for new and replacement Boral storage racks.
  - b. Please discuss whether NMP2 utilizes a Boral coupon program for the new and replacement Boral storage racks. If a coupon program is being used, please describe the program. Specifically:
    - (i) Identify the quantity and location of coupons relative to the spent fuel racks.
    - (ii) Describe how the coupons are mounted and whether they are fully exposed to the spent fuel pool water.
    - (iii) Discuss whether any coupons that are removed and inspected using non destructive techniques will be re-inserted in the spent fuel pool for future evaluation.
    - (iv) Indicate whether the Boral racks in the spent fuel pool are vented or not.
4. Please describe how the areal density of the Boral material will be measured (e.g., neutron attenuation) and maintained to prevent an inadvertent criticality. Please include a description of the testing, parameters measured, calculations, and acceptance criteria.

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Sincerely,

/ra/

Richard V. Guzman, Senior Project Manager  
Plant Licensing Branch I-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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ADAMS Accession No.: ML110400037 \*RAI provided by memo. No substantial changes made. NRR-088

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