

September 10, 2003

Mr. Daniel J. Malone
Site Vice President
Palisades Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES PLANT - REQUEST FOR ADDITIONAL INFORMATION
REGARDING LICENSE AMENDMENT TO INCREASE RATED THERMAL
POWER (TAC NO. MB9469)

Dear Mr. Cooper:

We are reviewing your application dated June 3, 2003, requesting an amendment to revise the Technical Specifications for the Palisades Plant to increase the rated thermal power by 1.4 percent from 2530 megawatts thermal to 2565.4 megawatts thermal. This power level increase is considered a measurement uncertainty recapture power uprate. We find that additional information is needed to complete our review. Our request for additional information is enclosed.

Based on discussions with R. Gerling of your staff, a mutually agreeable date for your response is within 25 days of the date of this letter. If you have any questions regarding this letter or if circumstances result in your need to revise the response date, please contact me at (301) 415-1471 or by e-mail at jhe@nrc.gov.

Sincerely,

/RA/

Johnny H. Eads, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosure: Request for Additional Information

cc w/encl: See next page

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PDIII-1 Reading	RJenkins	EDuncan, RIII
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ADAMS Accession No. ML032530016

*Provided input by memo

OFFICE	PDIII-1/PM	PDIII-1/LA	EEIB/SC*	EEIB/SC*	SRXB/SC*	PDIII-1/SC
NAME	JEads	RBouling	EMarinos	RJenkins	JUhle	DHood for LRaghavan
DATE	09/10/03	09/10/03	09/04/2003	07/25/2003	07/25/2003	09/10/03

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Palisades Plant

cc:

Mr. Robert A. Fenech, Senior Vice President
Nuclear, Fossil, and Hydro Operations
Consumers Energy Company
One Energy Plaza
Jackson, MI 49201

Arunas T. Udry, Esquire
Consumers Energy Company
One Energy Plaza
Jackson, MI 49201

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60532-4351

Supervisor
Covert Township
P. O. Box 35
Covert, MI 49043

Office of the Governor
P. O. Box 30013
Lansing, MI 48909

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
Palisades Plant
27782 Blue Star Memorial Highway
Covert, MI 49043

Michigan Department of Environmental Quality
Waste and Hazardous Materials Division
Hazardous Waste and Radiological
Protection Section
Nuclear Facilities Unit
Constitution Hall, Lower-Level North
525 West Allegan Street
P.O. Box 30241
Lansing, MI 48909-7741

Michigan Department of Attorney General
Special Litigation Division
525 West Ottawa St.
Sixth Floor, G. Mennen Williams Building
Lansing, MI 48913

Manager, Regulatory Affairs
Nuclear Management Company, LLC
27780 Blue Star Memorial Highway
Covert, MI 49043

Steven T. Wawro
Nuclear Asset Director
Consumers Energy Company
Palisades Plant
27780 Blue Star Memorial Highway
Covert, MI 49043

John Paul Cowan
Executive Vice President & Chief Nuclear
Officer
Nuclear Management Company, LLC
700 First Street
Hudson, WI 54016

Jonathan Rogoff, Esquire
General Counsel
Nuclear Management Company, LLC
700 First Street
Hudson, WI 54016

August 2003

REQUEST FOR ADDITIONAL INFORMATION
REGARDING LICENSE AMENDMENT TO INCREASE RATED THERMAL POWER
PALISADES PLANT

By application dated June 3, 2003, the Nuclear Management Company, LLC (NMC), submitted a request to increase rated thermal power by 1.4 percent from 2530 megawatts thermal to 2565.4 megawatts thermal. This power level increase is considered a measurement uncertainty recapture (MUR) power uprate. Please provide the following additional information:

1. Most power uprate applications use instrument uncertainties in terms of percent power from the plant data or provided by the instrument vendor for each parameter affecting power calorimetric, and combine those uncertainties using the square root sum of squares methodology to calculate total power measurement uncertainty. This calculated power measurement uncertainty was subtracted from the 2 percent (required by 10 CFR Part 50, Appendix K) to determine the proposed power uprate. For the proposed power uprate, NMC assumed measured values of various parameters, including feedwater flow. These assumed values from References 9.5, 9.6, and 9.10 were used to calculate power calorimetric uncertainty as per Attachment 1, "Uncertainty Calculation for the Secondary Calorimetric Heat Balance, EA-ELEC08-0001, Revision 1," to Enclosure 4 of the application. Enclosure 4 states that Crossflow system implementing procedures ensure the assumptions and requirements of the uncertainty calculation remain valid.

Please provide References 9.5, 9.6, and 9.10 for staff review. What is the plant-specific ultrasonic flow measurement (UFM) system measurement uncertainty for the assumed 11,357,000 lbm/hr feedwater flow with the assumption in Section 4.2.2 of Attachment 1, and how was it determined?

2. Section 8 of Attachment 1 states that the calorimetric calculations used the plant process computer (PPC) point indications of feedwater flow and temperature. However, it also states that the control room indications of feedwater flow and temperature with larger uncertainties than the PPC point indications, may also be used in the power calorimetric. Identify the affect of using control room indication, instead of PPC point indication, on power calorimetric results used for the proposed power uprate.
3. In Section 7 of Attachment 1, the UFM corrected total calorimetric uncertainty is listed as " $\pm 0.49\%$ Power $\pm 0.55\%$ Power" and that for the uncorrected feedwater flow (venturi measurement) is listed as " $\pm 1.13\%$ Power $\pm 1.21\%$ Power." Confirm that it respectively means $\pm 0.49\%$ or $\pm 0.55\%$ power and $\pm 1.13\%$ or $\pm 1.21\%$ power; otherwise explain.
4. Item 1.G of Regulatory Issue Summary 2002-03 requires all licensees requesting an MUR power uprate to provide the basis for the proposed allowed outage time (AOT) for the UFM. Most applicants for power uprates propose AOTs ranging from 24 to 72 hours and quantify the maximum error in core power measurement due to venturi measurements during the AOT. NMC has proposed a 31-day AOT with an additional 25-percent grace period on the basis that this is currently specified in Palisades' procedures. Provide justification that the proposed AOT is not excessive and will only cause an acceptable error in core power measurement.

ENCLOSURE

5. Provide, in detail, the effect of the proposed power uprate on the environmental qualification of electrical equipment.
6. Provide details about the grid stability analysis, including assumptions, results, and conclusions for the proposed power uprate condition.
7. Provide, in detail, the effect of the proposed power uprate on the station blackout coping capability.
8. Provide, in detail, the existing ratings and the effect of the proposed power uprate on the following equipment:
 - main generator
 - isophase bus
 - main power transformer
 - start-up transformer
 - station power transformer
9. Upon reviewing large-break loss-of-coolant accident models for power uprates, the Nuclear Regulatory Commission (NRC) recently found plants that require changes to their operating procedures because of inadequate hot leg switch-over times and boron precipitation modeling. Discuss how NMC's analyses account for boric acid buildup during long-term core cooling and discuss how your predicted time to initiate hot leg injection corresponds to the times in Palisades' operating procedures.
10. In the June 3, 2003, application, NMC indicates that all of the accident and transient analyses of record remain bounding for the proposed power level. However, the NRC staff notes that when calculating departure from nucleate boiling (DNB), licensees typically use nominal power levels. These power levels typically do not bound the MUR uprated power levels. Provide the core power levels and the power uncertainties used in NMC's DNB analyses and explain why these input values bound the proposed power uprate.
11. As stated on page 15 of Enclosure 4, axial and circumferential outside diameter stress-corrosion cracking (ODSCC) at the hot leg top of tubesheet are two of the six active damage mechanisms that have been identified in the steam generator tubing at Palisades.

On page 16 of Enclosure 4, NMC indicates that ODSCC at the top of the tubesheet has the greatest potential to be affected by the slight increase in T_{hot} (which will occur due to the power uprate). However, the NMC concludes that the onset of this damage mechanism will not occur until after the end of the license.

The information on these two pages conflicts. Please discuss the discrepancy and clarify whether ODSCC at the top of the tubesheet has been identified in the Palisades steam generator tubing, and what the impact of the proposed power uprate will have on this damage mechanism.