

October 11, 2001

Mr. Douglas E. Cooper
Site Vice President
Palisades Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES PLANT - REVISED WITHDRAWAL SCHEDULE FOR REACTOR
PRESSURE VESSEL SURVEILLANCE CAPSULE T-150 (TAC NO. MB2862)

Dear Mr. Cooper:

By letter dated August 24, 2001, Nuclear Management Company (NMC) submitted for the Nuclear Regulatory Commission (NRC) staff's review and approval a request to modify the reactor pressure vessel (RPV) surveillance capsule withdrawal schedule for the Palisades Plant. The proposed change would defer indefinitely the withdrawal and testing of RPV surveillance capsule T-150. Currently, according to the withdrawal schedule contained in Table 4-20 of the Palisades Final Safety Analysis Report (FSAR), surveillance capsule T-150 is scheduled for withdrawal at the end of operating cycle 16. Surveillance capsule T-150 is located above the active core region and was inserted in the RPV as a capsule to evaluate the effect of the thermal environment on RPV material properties. NMC's submittal was made in accordance with the provision of Section III.B.3 of Appendix H to Title 10 of the *Code of Federal Regulations*, Part 50, which specifies that "[a] proposed withdrawal schedule must be submitted with a technical justification as specified in [10 CFR 50.4]. The proposed schedule must be approved [by the NRC] prior to implementation."

The NRC staff has completed its evaluation of NMC's proposed capsule deferral request and finds it to be prudent and acceptable, as noted in the enclosed safety evaluation. Therefore, NMC should implement the proposed change to the Palisades RPV surveillance capsule withdrawal schedule and revise FSAR Table 4-20 accordingly, pursuant to 10 CFR 50.71(e).

This completes our efforts under TAC No. MB2862. If you have questions regarding this letter, please contact me at (301) 415-3049 or by e-mail at dsh@nrc.gov.

Sincerely,

/RA/

Darl S. Hood, Senior Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosure: Safety Evaluation

cc w/encl: See next page

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NAME	DHood	RBouling	KWichman	WReckley
DATE	10/11/01	10/10/01	10/4/01	10/11/01

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Palisades Plant

cc:

Mr. Roy A. Anderson
Chief Nuclear Officer
Nuclear Management Company, LLC
700 First Street
Hudson, WI 54016

Michigan Department of Attorney General
Special Litigation Division
630 Law Building
P.O. Box 30212
Lansing, MI 48909

Mr. Robert A. Fenech, Senior Vice President
Nuclear, Fossil, and Hydro Operations
Consumers Energy Company
212 West Michigan Avenue
Jackson, MI 49201

Laurie A. Lahti
Licensing Manager
Nuclear Management Company, LLC
27780 Blue Star Memorial Highway
Covert, MI 49043

Arunas T. Udry, Esquire
Consumers Energy Company
212 West Michigan Avenue
Jackson, MI 49201

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

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

Mr. John Paul Cowan
Senior Vice President
Palisades Plant
Nuclear Management Company, LLC
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

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

Drinking Water and Radiological
Protection Division
Michigan Department of
Environmental Quality
3423 N. Martin Luther King Jr Blvd
P. O. Box 30630 CPH Mailroom
Lansing, MI 48909-8130

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING REVISED WITHDRAWAL SCHEDULE FOR

REACTOR PRESSURE VESSEL SURVEILLANCE CAPSULE T-150

NUCLEAR MANAGEMENT COMPANY, LLC

PALISADES PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

By letter dated August 24, 2001, Nuclear Management Company, LLC (NMC), submitted for the Nuclear Regulatory Commission (NRC) staff's review and approval a request to modify the withdrawal schedule for a surveillance capsule located inside the reactor pressure vessel (RPV) at the Palisades Plant. The proposed change would indefinitely defer the withdrawal and testing of RPV surveillance capsule T-150. Currently, according to the withdrawal schedule contained in Table 4-20, "Reactor Vessel Surveillance Coupon Removal Schedule," of the Palisades Final Safety Analysis Report (FSAR), surveillance capsule T-150 is scheduled for withdrawal at the end of operating cycle 16. Surveillance capsule T-150 is located above the active core region and was inserted in the RPV as a capsule to evaluate the effect of the thermal environment on RPV material properties. NMC's submittal was made in accordance with the provision of Section III.B.3 of Appendix H to Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR Part 50), which specifies that "[a] proposed withdrawal schedule must be submitted with a technical justification as specified in [10 CFR 50.4]. The proposed schedule must be approved [by the NRC] prior to implementation."

2.0 REGULATORY REQUIREMENTS AND STAFF POSITIONS

Nuclear power plant licensees are required by Appendix H to 10 CFR Part 50 to implement RPV surveillance programs to "monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region...which result from exposure of these materials to neutron irradiation and the thermal environment." Regarding RPV surveillance program design and specimen testing, Appendix H to 10 CFR Part 50 incorporates by reference the editions of the American Society for Testing and Materials (ASTM) Standard Practice E 185, "Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," through the 1982 edition.

ENCLOSURE

Under Appendix H to 10 CFR Part 50, the licensee's RPV surveillance program design and withdrawal schedule is required to meet the requirements of the edition of ASTM E 185 that is current on the issue date of the American Society of Mechanical Engineers (ASME) Code to which the RPV was purchased, although later editions may be used, up to and including the 1982 edition. The test procedures and reporting requirements must, however, meet the requirements of the 1982 edition of ASTM E 185, to the extent practical, for the configuration of the specimens in the capsules.

The edition of ASTM E 185 that was current at the time of purchase of the Palisades RPV was the 1966 edition (ASTM E 185-66). In ASTM E 185-66, Paragraph 4.3 states that "[i]t is desirable to place sets of specimens in a portion of the system where they will be exposed to the reactor temperature cycles with a negligible exposure to neutrons. These specimens will give a measure of any material changes due to time and temperature." However, this paragraph constituted a recommendation of the ASTM standard, not a requirement. Hence, the inclusion of thermal effect capsules in RPV surveillance programs is not necessary to meet the specific regulatory requirements of Appendix H to 10 CFR Part 50. In addition, it should be noted that subsequent editions of ASTM E 185 (those from the 1973 edition on) omit discussion of surveillance capsules to specifically address thermal environment effects completely.

3.0 NMC'S BASIS

In the August 24, 2001, letter, NMC stated three technical reasons for requesting this indefinite deferral of the withdrawal and testing of surveillance capsule T-150. First, NMC noted that even if the capsule were tested, NMC was unaware of a clearly defined method that would allow the results from the testing of capsule T-150 to be used to remove the thermal effect from the total effect observed by the materials in the surveillance capsules removed from the beltline region. Secondly, NMC noted that if results from testing to evaluate the effect of the thermal environment were needed in the future, more relevant information would be acquired from testing capsule T-150 at a later date, after the accumulation of more operating time, rather than testing it after operating cycle 16. Thirdly, NMC noted that in the event that more data were needed about the effects of irradiation on the Palisades RPV materials, preserving capsule T-150 could permit it to be relocated in the future to an accelerated capsule position in the beltline region.

4.0 NRC STAFF EVALUATION

The NRC staff reviewed the information supplied by NMC and the regulatory requirements stated in section 2.0 above. On the basis of that review, the NRC staff agrees with the technical reasons provided by NMC for indefinitely deferring the testing of Palisades surveillance capsule T-150. At this time, the NRC staff finds that there is no technical reason or regulatory requirement of Appendix H to 10 CFR Part 50 related to ensuring RPV integrity which necessitates the testing of capsule T-150. Further, the NRC staff agrees with NMC's conclusion that if a need for test data related to RPV material exposure to the thermal environment should be identified in the future, it is advisable to maintain capsule T-150 in the Palisades RPV at this time so that it may accumulate additional operating time and provide data more closely relevant to the facility's end-of-license condition. Finally, the NRC staff recognizes that if NMC should need to acquire additional data in the future regarding the response of Palisades RPV materials to neutron irradiation, it would be advantageous to have preserved capsule T-150 for relocation to the RPV beltline region.

5.0 CONCLUSION

On the basis of the its above evaluation, the NRC staff concludes that indefinite deferral of the withdrawal and testing of Palisades surveillance capsule T-150 is prudent and acceptable. NMC should implement the change as proposed and modify the RPV surveillance program withdrawal schedule in Table 4-20 of the Palisades FSAR to reflect this change, pursuant to 10 CFR 50.71(e).

Principal Contributor: M. Mitchell

Date: October 11, 2001