

February 24, 2003

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

SUBJECT: PALISADES PLANT - ISSUANCE OF AMENDMENT RE: CONTAINMENT SPRAY
NOZZLES (TAC NO. MB4282)

Dear Mr. Cooper:

The Commission has issued the enclosed Amendment No. 211 to Facility Operating License No. DPR-20 for the Palisades Plant. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 1, 2002, as supplemented November 7, 2002.

The amendment revises the testing frequency for the containment spray nozzles specified in TS Surveillance Requirement 3.6.6.9. The testing frequency for the containment spray nozzles is changed from 10 years to "following maintenance which could result in nozzle blockage."

A copy of our related safety evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

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

Enclosures: 1. Amendment No. 211 to DPR-20
2. Safety Evaluation

cc w/encls: See next page

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DISTRIBUTION

PUBLIC	OGC	JRaval
PDIII-1 Reading	ACRS	RLobel
LRaghavan	WBeckner	PHearn
JEads	GHill(2)	EWeiss
RBouling	AVegel, RGN-III	RDennig

ADAMS Accession No. ML030410045

*Provided SE input by memo

OFFICE	PDIII-1/PM	PDIII-1/LA	RORP/SC*	SPLB/SC*	OGC	PDIII-1/SC
NAME	JEads	RBouling	RDennig	EWeiss	RHoefling	LRaghavan
DATE	02/11/03	02/11/03	08/09/02	01/17/03	02/19/03	02/19/03

OFFICIAL RECORD COPY

Palisades Plant

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December 2002

NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-255

PALISADES PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 211

License No. DPR-20

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Nuclear Management Company, LLC (the licensee), dated March 1, 2002, as supplemented November 7, 2002, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public; and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to the license amendment and Paragraph 2.C.(2) of Facility Operating License No. DPR-20 is hereby amended to read as follows:

The Technical Specifications contained in Appendix A, as revised through Amendment No. 211, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. NMC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

L. Raghavan, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 24, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 211

FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

REMOVE

3.6.6-3

INSERT

3.6.6-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 211 TO FACILITY OPERATING LICENSE NO. DPR-20
NUCLEAR MANAGEMENT COMPANY, LLC

PALISADES PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

By application dated March 1, 2002, as supplemented November 7, 2002, the Nuclear Management Company, LLC (the licensee), requested an amendment to the Technical Specifications (TSs) for the Palisades Plant. The supplement dated November 7, 2002, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on October 15, 2002 (67 FR 63696).

The proposed amendment would revise the testing frequency for the containment spray nozzles specified in TS Surveillance Requirement 3.6.6.9. The testing frequency for the containment spray nozzles would be changed from 10 years to "following maintenance which could result in nozzle blockage."

2.0 EVALUATION

2.1 Regulatory Evaluation

Palisades received its construction permit prior to February 20, 1971, the date of issuance of the final NRC rule promulgating the general design criteria (GDCs) of 10 CFR Part 50, Appendix A. Therefore, 10 CFR Part 50, Appendix A, does not apply to Palisades.

Section 5.1, "General Design Criteria," of the Palisades Updated Final Safety Analysis Report discusses plant-specific GDCs, including GDCs 38, 39, and 40 which specify the requirements for the Palisades containment heat removal system. In particular, Palisades GDC 40 specifies that the containment heat removal system shall be designed for "appropriate" periodic pressure and functional testing to ensure operability of the system.

In accordance with NUREG-1432, "Standard Technical Specifications-Combustion Engineering Plants, Revision 2", the Palisades TSs require a flow surveillance for the containment spray nozzles. This flow surveillance verifies that the containment spray nozzles are unobstructed. The frequency of this test is specified as every 10 years.

2.2 Technical Evaluation

The Palisades containment spray system will function by automatic actuation on a high containment pressure signal or remote-manual initiation (from the control room) to prevent overpressurization of the containment and to reduce the airborne radioactivity in containment by spraying the containment atmosphere following a loss-of-coolant accident or a main steamline break. The containment spray system consists of three half-capacity pumps, two shutdown cooling heat exchangers and all necessary piping, instruments, and accessories. The pumps discharge borated water through a dual set of spray headers and spray nozzles in the containment dome. The "A" spray header consists of 77 spray nozzles and the "B" header, consists of 83 spray nozzles. Following a low level safety injection and refueling water (SIRW) tank signal, the suction for the containment spray pumps switches from the SIRW tank to the containment sump and the water is cooled by flowing through the two shutdown heat exchangers before delivery to the spray nozzles.

According to Table 6-6 of the Palisades Updated Final Safety Analysis Report (UFSAR), Revision 21, the containment spray nozzles are Spray Engineering Company's (SPRAYCO's) Model 1713A nozzles, which are constructed of corrosion-resistant 304 stainless steel. In its March 1, 2002, application, the licensee states that all portions of the containment spray system in contact with borated water are fabricated of stainless steel or other corrosion-resistant material. Therefore, nozzle blockage by corrosion products is precluded.

Another postulated mode of blockage of the spray headers and nozzles is solid boric acid accumulation in the spray lines or nozzles due to borated water. The spray lines within containment are filled with borated water up to 735 feet elevation. This elevation is below the point where water would enter the area of piping containing the spray nozzles. This ensures that the spray nozzles remain dry and provides a more rapid spray initiation. The water level of 735 feet cannot be exceeded during normal operation since the highest elevation of the suction source (the SIRW tank) is 670 feet. In its November 7, 2002, supplemented letter, the licensee states that the spray headers and nozzles are not subject to flow from the containment spray system, the low pressure safety injection system, or the shutdown cooling system since the headers are isolated by a control valve during MODES 1, 2, and 3 when the containment spray system is required to be OPERABLE. The headers are isolated by a control valve and a manual valve when in other operational MODES.

The other mode of blockage (other than blockage by corrosion products or solidified boric acid) would be due to debris (termed foreign material) in the spray headers or nozzles. The licensee stated in the March 1, 2002, application that no maintenance has been performed on the spray headers or nozzles since the last containment spray nozzle flow blockage test in 1992. Therefore, the results of this test may be assumed to still be valid.

Due to their location at the top of the containment, introduction of foreign material from an exterior source into the containment spray headers is unlikely.

The licensee stated that maintenance that breaches certain piping systems, including the containment spray system piping, is controlled by site procedures which establish foreign material exclusion (FME) controls. The FME controls require post maintenance verification of system cleanliness and freedom from foreign materials. These controls provide protection from the introduction of foreign material into open piping during maintenance. In its March 1, 2002,

application, the licensee committed to modify work order process controls for maintenance on containment spray system piping to specifically require an engineering evaluation to determine whether verification is necessary to ensure that the containment spray nozzles remain unobstructed. Palisades procedures will require an evaluation to determine whether a containment spray nozzle blockage test would be required to ensure the nozzles remain unobstructed.

Additionally, in its November 7, 2002, supplemental letter, the licensee states that any condition adverse to quality (e.g., loss of control of an FME program) would result in a condition report which, in turn, would trigger an operability determination and corrective actions.

2.3 Performance History at Palisades

Palisades experienced two inadvertent spray actuations in 1984. These two events are discussed in Licensee Event Report (LER) 84-011-00 and the licensee's November 7, 2002, supplemental letter. The licensee states that subsequent surveillance tests conducted in 1987 and 1992 showed no evidence of blockage.

The last flow test was performed in 1992. The licensee states that no maintenance has been performed on the system since that date which required opening the system. Therefore, the performance history at Palisades of the testing of the containment spray system for nozzle blockage supports the licensee's request to change the testing frequency for the containment spray nozzles.

2.4 Industry Experience and Failure Mechanisms

Review of industry experience using the NRC's Sequence Coding and Search System for Licensee Event Reports indicates that spray systems of similar design are highly reliable (i.e., not susceptible to plugging). The NRC staff reviewed industry experience and found that, with a few exceptions, once tested after construction, containment spray nozzles have not been subject to blockage. The exceptions include a case of one pressurized-water reactor (PWR) where a chemical added to the inner surface of a spray system pipe to eliminate a corrosion problem became detached and the loose material blocked some spray nozzles. Spray piping in PWRs, and in particular at Palisades, is corrosion resistant. Therefore, this failure mechanism is not applicable to Palisades. In addition, the licensee for another PWR found debris (identified as construction debris) in the spray nozzle headers. Analysis of this event showed that the containment spray system remained capable of performing its safety function. The fraction of blockage was not significant and the sprays remained functional. The debris was found by visual observation, not by an air flow test. Also, in its March 1, 2002, application, the licensee discussed a spray blockage in a boiling-water reactor wetwell spray. The piping material in that case was carbon steel rather than the corrosion-resistant stainless steel used at Palisades.

2.5 Evaluation Conclusion

As a result of reviewing the licensee's request to revise the testing frequency for the containment spray nozzles from 10 years to "following maintenance which could result in nozzle blockage," and reviewing and assessing all the applicable information including that provided by the licensee, the NRC staff concludes that the design of the Palisades containment spray

system, the FME controls, and the licensee's commitment on work order process controls provide reasonable assurance that the potential for nozzle obstruction is acceptably low. The FME controls provide protection from the introduction of foreign materials into open piping during maintenance, and require post-maintenance verification of system cleanliness and freedom from foreign materials. The licensee will modify the work order process controls for maintenance of the containment spray system piping to specifically require an engineering evaluation to determine whether verification is necessary to ensure the containment spray nozzles remain unobstructed. Based on this, the NRC staff finds the amendment request acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Michigan State official was notified of the proposed issuance of the amendment. The Michigan State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (67 FR 63696). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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.

Principal Contributors: J. Raval
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Date: February 24, 2003