

March 1, 2002

U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

10 CFR 50.90

NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES NUCLEAR PLANT, DOCKET 50-255, LICENSE DPR-20
LICENSE AMENDMENT REQUEST: SURVEILLANCE REQUIREMENT FREQUENCY
FOR CONTAINMENT SPRAY NOZZLE INSPECTIONS

Pursuant to 10 CFR 50.90, Nuclear Management Company, LLC (NMC) requests Nuclear Regulatory Commission review and approval of a license amendment for the Palisades Nuclear Plant. NMC proposes to revise Appendix A, Technical Specifications (TS) for the containment spray nozzle inspection surveillance requirement (SR) 3.6.6.9 frequency to "Following maintenance which could result in nozzle blockage" rather than at the currently specified 10-year frequency. This amendment is requested to reduce the effect that performing the surveillance would have on crane availability during refueling outages, as well as to reduce overall cost and improve personnel safety and radiation dose. The proposed change has been shown to be acceptable through plant operating and industry experience.

Enclosure 1 provides a detailed description of the proposed change, background and technical analysis, No Significant Hazards determination, and Environmental Review Consideration. Enclosure 2 provides the revised TS page reflecting the proposed change. Enclosure 3 provides the annotated TS page showing the changes proposed. Enclosure 4 provides an annotated TS Bases page for information, since the bases are not a part of the TSs.

A001

NMC requests approval of this proposed license amendment by September 6, 2002, in order to accommodate planning for the next refueling outage, which is the next time the subject surveillance is due. NMC further requests a 60-day implementation period following amendment approval.

A copy of this request has been provided to the designated representative of the State of Michigan.

SUMMARY OF COMMITMENTS

This letter contains the following commitment:

Work order process controls for maintenance on containment spray system piping shall require that an engineering evaluation be performed, to determine whether verification is necessary to ensure the containment spray nozzles remain unobstructed.



Laurie A. Lahti
Manager, Licensing

CC Administrator, Region III, USNRC
Project Manager, NRR, USNRC
NRC Resident Inspector - Palisades

Enclosures

NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES NUCLEAR PLANT
DOCKET 50-255

LICENSE AMENDMENT REQUEST
SURVEILLANCE REQUIREMENT FREQUENCY FOR CONTAINMENT SPRAY
NOZZLE INSPECTIONS

To the best of my knowledge, the content of this license amendment request, which proposes to change the surveillance frequency for containment spray nozzle inspections, is truthful and complete.

By Laurie Lahti
Laurie A. Lahti
Manager, Licensing

Sworn and subscribed to before me this 1st day of March, 2002

Janice M. Milan
Janice M. Milan, Notary Public
Allegan County, Michigan
(Acting in Van Buren County, Michigan)
My commission expires September 6, 2003

(Seal)

ENCLOSURE 1

**NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES PLANT
DOCKET 50-255**

**LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90:
SURVEILLANCE REQUIREMENT FREQUENCY FOR CONTAINMENT SPRAY
NOZZLE INSPECTIONS**

8 Pages

PALISADES NUCLEAR PLANT
DOCKET 50-255

1.0 INTRODUCTION

Nuclear Management Company, LLC (NMC) requests to amend Operating License DPR-20 for the Palisades Nuclear Plant. NMC proposes to revise Appendix A, Technical Specifications (TS) for the containment spray nozzle inspection surveillance requirement (SR) 3.6.6.9 frequency to "Following maintenance which could result in nozzle blockage" rather than at the currently specified 10-year frequency. This amendment is requested to reduce the effect that performing the surveillance would have on crane availability during refueling outages, as well as to reduce overall cost and improve personnel safety and radiation dose. The proposed frequency has been shown to be acceptable through plant operating and industry experience.

2.0 DESCRIPTION OF THE PROPOSED AMENDMENT

NMC proposes that the frequency for Technical Specification SR 3.6.6.9 be revised to "Following maintenance which could result in nozzle blockage" rather than at the currently specified 10-year frequency.

3.0 BACKGROUND

The containment spray system, which is part of the engineered safeguards, containment cooling system, consists of a dual set of spray headers and spray nozzles located at the top of the containment. SR 3.6.6.9, requires each containment spray nozzle to be verified unobstructed on a 10-year frequency. Demonstrating that each spray nozzle is unobstructed provides assurance that spray coverage of the containment during an accident is not degraded. Due to the passive design of the nozzle, the currently required verification at 10-year interval was considered adequate to detect obstruction of the spray nozzles. The Technical Specification Bases describes that the verification is performed with the containment spray inlet valves closed and the spray header drained of any solution. Low-pressure air or smoke can be blown through test connections, which can be visually observed as smoke or balloon movement for each nozzle.

PALISADES NUCLEAR PLANT
DOCKET 50-255

4.0 TECHNICAL ANALYSIS

The containment spray nozzles are expected to perform their function if they remain unobstructed. The spray nozzles are not expected to be subject to clogging from corrosion induced obstructions. All portions of the containment spray system in contact with borated water are fabricated of stainless steel or other corrosion resistant material. The spray lines within containment are maintained filled to elevation 735 feet to provide for rapid-spray initiation. This elevation is below the point where water would enter the area of piping containing the spray nozzles, thereby ensuring that the spray nozzles stay dry. Due to the nozzle location at the top of the containment, introduction of foreign material from sources external to the spray nozzles is unlikely. Leakage into the containment spray header is not expected to occur during normal operations. The highest elevation from the suction source is no greater than 670 feet. Since each spray header is verified filled to a level of 735 feet it is improbable for leakage to occur into the spray header during normal operations when systems are in standby. During periods of shutdown cooling operation, operating procedures require isolating each spray header using existing manual isolation valves to avoid leakage into the spray headers.

Foreign materials that can cause nozzle obstruction are not expected to remain in the system following maintenance. Maintenance that breaches certain piping systems, including the containment spray system piping, is controlled by site procedures which establish foreign material exclusion (FME) controls. These controls provide protection from introduction of foreign materials into open piping during maintenance, and require post-maintenance verification of system cleanliness and freedom from foreign materials. NMC shall 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 the containment spray nozzles remain unobstructed.

A review of maintenance history indicates there have been no occasions where the potential existed for spray nozzle blockage. No maintenance has been performed on spray headers or nozzles since the last containment spray nozzle test in 1992. Prior to 1992, the two spray header control valves were repaired to address operating and leakage problems. Since 1992 the two spray header control valves have performed satisfactorily. Maintenance on other portions of the containment spray system has included routine periodic activities and one instance of a containment spray pump drainpipe nipple repair.

PALISADES NUCLEAR PLANT
DOCKET 50-255

Containment spray nozzle testing performed during 1976, 1981, 1987 and 1992 confirmed unobstructed flow from each spray header nozzle. In Amendment 174 to DPR-20, dated October 31, 1996, the frequency for spray nozzle testing was changed from 5 years to 10 years as suggested in Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operations."

Review of industry experience found no cases where Palisades' type of spray header/nozzle design has experienced clogging. A 1991 boiling water reactor (BWR) torus suppression chamber spray header case was discovered where spray nozzles became clogged. The materials of construction in this case were carbon steel piping with brass nozzles. The cause of the corrosion was indicated as intermittent wetting and drying of the spray ring and nozzles, due to boundary valve leakage/cycling during surveillance testing. As noted previously, the Palisades spray piping and nozzles are made of stainless steel, and the spray headers are maintained in a dry state at the level of the nozzles. Thus, the BWR experience is not considered directly applicable.

The proposed amendment would benefit safe and efficient refueling outage performance by eliminating unnecessary testing. The airflow test impacts crane availability during refueling outages and presents a potential personnel safety risk for the individual(s) required to access the top of containment for test performance. In addition, performance of spray nozzle testing incurs additional expense and personnel radiation dose.

Nozzle blockage is, therefore, considered unlikely during routine operations and maintenance, since (1) the system is kept in a normally dry state in the nozzle rings; (2) the location of the spray nozzles at the top of containment limits the possibility of introduction of foreign material from sources external to the spray nozzles; and (3) FME controls established during maintenance limit the possibility of introduction of foreign materials into spray header piping, and provide for verification, prior to system closure, that no foreign material was inadvertently introduced. The ten-year frequency to verify the nozzles are not obstructed is, therefore, unnecessary. Verification that the nozzles are not obstructed following maintenance which could result in nozzle blockage is appropriate because this is the only activity that could create a condition that would lead to nozzle blockage.

PALISADES NUCLEAR PLANT
DOCKET 50-255

In accordance with 10 CFR 50.36(c)(3), the proposed SR 3.6.6.9 will serve to assure the to maintain the necessary quality of containment spray nozzles such that the containment spray system can fulfill its intended safety function.

NUREG-1432, "Standard Technical Specifications - Combustion Engineering Plants," Revision 2, contains SR 3.6.6A.9, which requires verification that containment spray nozzles are unobstructed at the first refueling and every 10 years thereafter. While the proposed frequency differs from that presented in NUREG-1432, Revision 2, the likelihood is very small that normal operation of the containment spray system would result in nozzle blockage. Therefore, the proposed surveillance offers an acceptable alternative to that included in NUREG-1432.

On June 29, 2000, the Nuclear Regulatory Commission approved a similar Technical Specification change for the Perry Nuclear Power Plant, Unit 1, Docket 50-440, License NPF-58, Amendment 113. The scope of the change included the proposed frequency contained in this submittal.

PALISADES NUCLEAR PLANT
DOCKET 50-255

5.0 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Nuclear Management Company, LLC (NMC) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment." The following evaluation supports the finding that operation of the facility in accordance with the proposed change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change revises the surveillance frequency for containment spray nozzle inspections from every ten years to following maintenance which could result in nozzle blockage. Analyzed events are initiated by the failure of plant structures, systems or components. The containment spray system is not considered as an initiator of any analyzed event. The proposed change does not have a detrimental impact on the integrity of any plant structure, system or component that initiates an analyzed event. The proposed change will not alter the operation of, or otherwise increase the failure probability of any plant equipment that initiates an analyzed accident. As a result, the probability of any accident previously evaluated, is not significantly increased.

This change does not affect the plant design. Due to the plant design, the spray headers are maintained dry at the level of the nozzles. Formation of corrosion products is unlikely due to the corrosion resistant materials used in spray header construction. Due to their location at the top of the containment, introduction of foreign material from sources external to the spray nozzles is unlikely. Since loss of foreign material control when working within the affected boundary is the most likely cause for obstruction, testing or inspection following such an occurrence would verify nozzle condition, and the system would be capable of performing its safety function. As a result, the consequences of any accident previously evaluated are not significantly affected.

Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

PALISADES NUCLEAR PLANT
DOCKET 50-255

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change does not involve a physical alteration of the plant or a change in the methods governing normal plant operation. No new or different type of equipment will be installed. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Involve a significant reduction in a margin of safety.

The margin of safety for this system is based on the capacity of the spray headers. Since the system is not susceptible to corrosion induced obstruction or obstruction from sources external to the spray nozzles, and performance of maintenance on the system would require evaluation of the potential for nozzle blockage and the possible need for a test or inspection, the likelihood that the spray nozzles might be blocked would not be affected by the reduction in surveillance frequency. Therefore, the capacity of the system would remain unaffected. Hence, this change does not involve a significant reduction in the margin of safety.

Based on the evaluation above, NMC has determined that the proposed change does not involve significant hazards consideration.

6.0 ENVIRONMENTAL REVIEW CONSIDERATION

NMC has determined that the proposed amendment would not change requirements with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, but would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

PALISADES NUCLEAR PLANT
DOCKET 50-255

7.0 CONCLUSION

Based on the considerations discussed above, (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. The Palisades Plant Review Committee has reviewed this amendment request and has determined that the change involves no significant hazards consideration. The Palisades Offsite Safety Review Committee has concurred in this determination.

ENCLOSURE 2

**NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES PLANT
DOCKET 50-255**

**LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90:
SURVEILLANCE REQUIREMENT FREQUENCY FOR CONTAINMENT SPRAY
NOZZLE INSPECTIONS**

**REVISED TECHNICAL SPECIFICATION PAGE 3.6.6-3
AND
TECHNICAL SPECIFICATION PAGE CHANGE INSTRUCTIONS**

3 Pages

ATTACHMENT TO LICENSE AMENDMENT NO.

FACILITY OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

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

REMOVE

3.6.6-3

INSERT

3.6.6-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.7	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.8	Verify each containment cooling fan starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.9	Verify each spray nozzle is unobstructed.	Following maintenance which could result in nozzle blockage

ENCLOSURE 3

**NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES PLANT
DOCKET 50-255**

**LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90:
SURVEILLANCE REQUIREMENT FREQUENCY FOR CONTAINMENT SPRAY
NOZZLE INSPECTIONS**

**MARK-UP OF TECHNICAL SPECIFICATION PAGE 3.6.6-3
(Showing proposed change)**

2 Pages

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.7	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.8	Verify each containment cooling fan starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.9	Verify each spray nozzle is unobstructed.	10 years Following maintenance which could result in nozzle blockage

ENCLOSURE 4

**NUCLEAR MANAGEMENT COMPANY, LLC
PALISADES PLANT
DOCKET 50-255**

**LICENSE AMENDMENT REQUEST PURSUANT TO 10 CFR 50.90:
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NOZZLE INSPECTIONS**

**MARK-UP OF TECHNICAL SPECIFICATION BASES – FOR INFORMATION
(Showing expected changes following approval of this request)**

2 Pages

BASES

SURVEILLANCE
REQUIREMENTS

based on engineering judgement and has been shown to be acceptable through operating experience. See SR 3.6.6.6 and SR 3.6.6.7, above, for further discussion of the basis for the 18 month Frequency.

SR 3.6.6.9

With the containment spray inlet valves closed and the spray header drained of any solution, an inspection of spray nozzles, or a test that blows low pressure air or smoke can be blown through test connections can be completed. Performance of this SR demonstrates that each spray nozzle is unobstructed and provides assurance that spray coverage of the containment during an accident is not degraded. ~~Due to the passive design of the nozzle, a test at 10 year intervals is considered adequate to detect obstruction of the spray nozzles.~~ Verification following maintenance which could result in nozzle blockage is appropriate because this is the only activity that could lead to nozzle blockage.

REFERENCES

1. FSAR, Section 5.1
 2. FSAR, Section 14.18
 3. FSAR, Sections 6.2
 4. FSAR, Section 6.3
 5. ASME, Boiler and Pressure Vessel Code, Section XI
 6. FSAR, Table 14.18.1-3
 7. FSAR, Table 14.18.2-1
 8. FSAR, Table 9-1
 9. EA-MSLB-2001-01 Rev. 0, Containment Response to a MSLB Using CONTEMPT-LT/28, April 2001.
 10. EA-LOCA-2001-01 Rev. 0, Containment Response to a LOCA Using CONTEMPT-LT/28, April 2001.
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