

November 7, 2002

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

10 CFR 50.90

PALISADES NUCLEAR PLANT  
DOCKET 50-255  
LICENSE DPR-20  
LICENSE AMENDMENT REQUEST: SURVEILLANCE REQUIREMENT FREQUENCY  
FOR CONTAINMENT SPRAY NOZZLE INSPECTIONS - RESPONSE TO REQUEST  
FOR ADDITIONAL INFORMATION (TAC NO. MB 4282)

By letter dated March 1, 2002, Nuclear Management Company, LLC (NMC) requested Nuclear Regulatory Commission (NRC) review and approval of a license amendment for the Palisades Nuclear Plant. NMC proposed 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.

On October 7, 2002, the NRC issued a request for additional information (RAI) in relation to the above license amendment request. Enclosed is NMC's response to the RAI.

**SUMMARY OF COMMITMENTS**

This letter contains no new commitments and no revisions to existing commitments.



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Site Vice-President, Palisades

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

Enclosure

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**ENCLOSURE**

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

**NOVEMBER 7, 2002**

**LICENSE AMENDMENT REQUEST:  
SURVEILLANCE REQUIREMENT FREQUENCY FOR  
CONTAINMENT SPRAY NOZZLE INSPECTIONS  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

**5 Pages Follow**

REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT REQUEST FOR  
CONTAINMENT SPRAY NOZZLE INSPECTIONS  
PALISADES NUCLEAR PLANT

**NUCLEAR REGULATORY COMMISSION (NRC) REQUEST - INTRODUCTION**

*By application dated March 1, 2002, the Nuclear Management Company, LLC (the licensee), submitted a request to change Technical Specification (TS) 3.6.6.9 to allow performance of the surveillance requirement for the containment spray nozzle inspection "following maintenance which could result in nozzle blockage" rather than at the currently specified 10-year frequency. Please provide the following additional information:*

**NRC REQUEST**

1. *Experience at the Donald C. Cook Nuclear Plant (D.C. Cook), Unit 1, seems to indicate that boric acid plate-out with the potential to block flow through the containment spray headers and nozzles can occur following an inadvertent spray actuation.' (see Licensing Event Report (LER) 98-027-02).*
- (a) *Has Palisades ever had an inadvertent actuation of containment spray?*

**NUCLEAR MANAGEMENT COMPANY (NMC) RESPONSE**

There were two inadvertent actuations on July 19, 1984 (see Licensee Event Report (LER) 84-011-00). The actuations were a result of personnel errors made while performing containment pressure switch calibrations. An estimated 1000 to 3000 gallons of borated water were sprayed into the containment building during the event. No spray actuations have occurred since this event.

**NRC REQUEST**

- (b) *If yes, what type of inspection of the spray system piping and nozzles was done and what other steps were taken to ensure that no boric acid build-up occurred?*

**NMC RESPONSE**

Following the 1984 actuation, containment cleanup activities were performed. No documentation can be found to confirm that a formal inspection was conducted of the spray system piping and nozzles at that time. Procedurally, the spray headers are required to be drained and refilled with demineralized water following an actuation. The subsequent

REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT REQUEST FOR  
CONTAINMENT SPRAY NOZZLE INSPECTIONS  
PALISADES NUCLEAR PLANT

surveillance inspections performed in 1987 and 1992, as documented in the March 1, 2002, submittal, confirm that the spray system piping and nozzles have remained free from obstruction.

**NRC REQUEST**

- (c) *If no, what type of inspection would be done following an inadvertent spray actuation? Why is this method sufficient to detect blockage due to boric acid plate-out?*

**NMC RESPONSE**

N/A

**NRC REQUEST**

2. *Experience at D. C. Cook, Units 1 and 2, seems to indicate that the typical test for blockage in the containment spray lines and nozzles may not be effective in detecting debris in the spray lines, at least the amount reported in LER 98-027-02.*

*Do your testing records for Palisades show any evidence that the TS-required containment spray flow blockage test may have a sensitivity to debris in the lines or nozzles which is too low (i.e., debris is present but not detected by this test)? For example, has construction debris or other debris been found in the containment spray system as a result of later inspections, tests, or repair work other than the containment spray system blockage test required by the TSs?*

**NMC RESPONSE**

Palisades testing records do not show any evidence that the TS-required containment spray flow blockage test may have a sensitivity to debris in the lines or nozzles which is too low. The spray nozzle tests that have been performed previously have not shown evidence of construction debris in the system. The tests revealed the system is unobstructed. Maintenance and inspection activities, which have required opening of other system components, have not revealed any debris.

REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT REQUEST FOR  
CONTAINMENT SPRAY NOZZLE INSPECTIONS  
PALISADES NUCLEAR PLANT

***NRC REQUEST***

3. *Describe any previous maintenance activities on the containment spray system that had the potential to introduce debris. What assurance is there that no such debris presently exists (including debris from construction)?*

**NMC RESPONSE**

The containment spray system (CSS) and the low pressure safety injection (LPSI)/shutdown cooling systems (SDC) have had various types of maintenance during the life of the plant. This includes opening and reclosing of pumps and valves. NMC has a foreign material exclusion program that has proven effective in keeping foreign material out of these safety related systems. Various ASME Section XI Inservice Tests, ISI pressure test activities and various maintenance activities provide assurance that no foreign material presently exists in these systems.

***NRC REQUEST***

4. *With respect to the foreign material exclusion (FME) controls at Palisades:*
- (a) *Describe how the FME controls would prevent debris from remaining in the containment spray system piping, headers, and nozzles following maintenance, testing, or inspections which result in opening the system.*

**NMC RESPONSE**

The FME program at Palisades contains elements, such as physical barriers or the use of lanyards, to assure foreign material does not enter the system. The FME program establishes barriers around systems that are going to be opened and controls materials entering and exiting those areas. If any discrepancy occurs, the corrective action process is initiated to research the scope of the issue, determine what actions are necessary to return the area to the required level of cleanliness and determine whether testing is necessary. These elements are an integral part of the work order process.

REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT REQUEST FOR  
CONTAINMENT SPRAY NOZZLE INSPECTIONS  
PALISADES NUCLEAR PLANT

***NRC REQUEST***

- (b) *Why are the FME controls sufficient, following any maintenance, testing, or inspections that results in opening the system, to ensure that nothing remains in the system sufficient to block the system and cause a decrease in spray flow?*

**NMC RESPONSE**

Final inspections, prior to reclosure, ensure that materials and tools brought to the maintenance site are removed and that the system is clean. Work practices, such as verification checklists, are used to ensure the system is clean prior to closure so that nothing remains in the system sufficient to block the system and cause a decrease in spray flow.

***NRC REQUEST***

- [c] *Why should a blockage test not be run to provide increased assurance that the containment spray system is still capable of performing its safety function after the system is opened?*

**NMC RESPONSE**

In addition to the previous responses, 4(a) and 4(b), the spray headers are not subjected to flow from the CSS or the LPSI/SDC systems. The nozzles are kept dry and therefore free from borated water, which would create a corrosive environment. These headers are isolated by a control valve when operability is required and by a control and manual valve during shutdown periods. These actions provide increased assurance that the containment spray system is still capable of performing its safety function after the system is opened.

***NRC REQUEST***

5. *Following maintenance on a component of the containment spray system, what specific criteria are used to determine whether a flow blockage test of the containment spray system is required? Who makes the decision? What level of management approves this decision?*

REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT REQUEST FOR  
CONTAINMENT SPRAY NOZZLE INSPECTIONS  
PALISADES NUCLEAR PLANT

**NMC RESPONSE**

Maintenance activities associated with the containment spray system, or any safety class system, procedurally requires that a pre-maintenance inservice inspection (ISI) review be performed. The appropriate ISI pressure testing requirements are validated during this review. The ISI pressure testing requirements are initially determined during the maintenance planning process. Following maintenance on the CSS, any condition adverse to quality would result in a condition report. The condition would be evaluated on a case-by-case basis. If required, a nozzle test would be specified and performed. The condition report would trigger an operability determination and corrective actions. Corrective actions require approval of assigning and accepting by department managers. Additionally, increased outage scope, such as to perform a flow blockage test, requires approval of plant management.