



October 22, 2002

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

10 CFR 50.54(f)

**DOCKET 50-255 - LICENSE DPR-20 - PALISADES NUCLEAR PLANT**  
**NRC BULLETIN 2001-01: CIRCUMFERENTIAL CRACKING OF REACTOR PRESSURE**  
**VESSEL HEAD PENETRATION NOZZLES – UPDATED RESPONSE**

On March 29, 2002, Nuclear Management Company (NMC), LLC provided an updated response to the Nuclear Regulatory Commission (NRC) Bulletin (BL) 2001-01, "Circumferential Cracking of Reactor Vessel Head Penetration Nozzles." On August 9, 2002, the NRC transmitted BL 2002-02, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs." While preparing the response to BL 2002-02, an error was discovered in the updated response to BL 2001-01.

A calculation of the effective degradation years (EDY) value was performed as part of the response to BL 2002-02. While developing the EDY calculation, NMC discovered that the equivalent effective full power years (EFPY) value of 22.5 previously reported in the updated response to BL 2001-01 was incorrect. The correct EFPY value is 23.9 years of additional operation from March 1, 2001, until reaching the same time at temperature that the Oconee Nuclear Station Unit 3 had at the time that its leaking nozzles were discovered in February 2001. There is no re-categorizing of susceptibility groups with this change. Palisades remains in the five to thirty year susceptibility group.

NMC is providing an updated response to items 1.a and the reference section. The attachments to the original response remain unchanged and are not included.

**SUMMARY OF COMMITMENTS**

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

I declare under penalty of perjury that the foregoing is true and accurate. Executed on October 22, 2002.

Douglas E. Cooper  
Site Vice-President, Palisades

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

Enclosure

A088  
A0916

**ENCLOSURE**

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

**OCTOBER 22, 2002**

**NRC BULLETIN 2001-01: PALISADES PLANT UPDATED RESPONSE**

**Three Pages Follow**

NRC BULLETIN 2001-01: CIRCUMFERENTIAL CRACKING OF  
REACTOR VESSEL HEAD PENETRATION NOZZLES  
PALISADES PLANT UPDATED RESPONSE

1. Requested Background and Descriptive Information

a. Plant Specific PWSCC Susceptibility Ranking

Palisades Nuclear Plant was originally ranked for the potential for primary water stress corrosion cracking (PWSCC) of the reactor pressure vessel (RPV) top head nozzles using the time-at-temperature model and plant-specific input data reported in MRP-48 [1]. Nuclear Management Company (NMC), LLC re-evaluated the Palisades reactor head temperature in 2002. The re-evaluation results in Palisades being re-categorized into the five to thirty year susceptibility group, with 23.9 effective full power years (EFPYs) of additional operation from March 1, 2001, until reaching the same time at temperature that Oconee Nuclear Station Unit 3 (ONS3) had at the time that its leaking nozzles were discovered in February 2001 [2].

Using the criteria stated in Nuclear Regulatory Commission (NRC) Bulletin 2001-01, Palisades Nuclear Plant falls into the NRC category of plants considered to have a moderate susceptibility to PWSCC of the RPV top head nozzles.

b. Description of Vessel Head Penetration (VHP) Nozzles

Palisades Nuclear Plant has 54 total RPV head nozzles including 45 CRDM nozzles, 8 incore instrument (ICI) nozzles, and one vent nozzle. The vent nozzle is located near the center of the reactor head, at a center-to-center distance of 11.98 inches from the nearest CRDM. The CRDM, ICI and vent nozzles are made of SB-167 Alloy 600. Additional requested nozzle information is provided in Table 2-3 of MRP-48 [1].

c. Description of Reactor Pressure Vessel (RPV) Head Insulation

As reported in Table 2-1 of MRP-48 [1], Palisades Nuclear Plant has blanket contoured RPV head insulation.

Two layers of blanket insulation strips rest upon the reactor head at right angles to each other, beneath a stainless steel cover assembly. The hinged, latched covers are removable. The blankets can be removed and re-installed or replaced. An attached photograph depicts the reactor head area with some covers removed. (Attachment 1)

NRC BULLETIN 2001-01: CIRCUMFERENTIAL CRACKING OF  
REACTOR VESSEL HEAD PENETRATION NOZZLES  
PALISADES PLANT UPDATED RESPONSE

d. Description of RPV Head and Nozzle Inspections Within Past Four Years

As reported in Table 2-1 of MRP-48 [1], Palisades Nuclear Plant has performed visual inspections of the reactor top head area for leaks per the current Generic Letter 88-05 leakage detection program, but no additional RPV head and nozzle inspections have been conducted within the past four years (as of August 31, 2001).

e. Description of the Configuration of Equipment and Cables on Top of the Reactor Pressure Vessel Head

A description of the configuration of equipment and cables on the vessel head is attached to this response. (Attachment 2)

2. Previously Experienced Leakage From or Cracking in VHP Nozzles

Palisades Nuclear Plant has not experienced leakage or cracking in VHP nozzles. No further response to this question is required.

3. Plans for Future Inspections – If Susceptibility Ranking Is Within 5 EFPY of ONS3

The susceptibility ranking for Palisades Nuclear Plant is not within 5 EFPY of ONS3. No further response to this question is required.

4. Plans for Future Inspections – If Susceptibility Ranking Is Greater Than 5 EFPY and Less Than 30 EFPY of ONS3

NMC will perform a 100% effective visual examination of the reactor head upper metal surface during the next refueling outage. Qualification requirements will be to the 1989 Edition of American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI. The acceptance criterion will be zero leakage from the reactor head and penetration nozzles.

The bases for concluding that regulatory requirements are met are discussed in MRP-48 [1].

If leakage is detected, it will be investigated and repaired as needed, in accordance with the current NMC repair/replacement program at Palisades including applicable codes and standards. Any indication of leakage or cracks will be evaluated and characterized using a combination of surface and/or volumetric examinations.

NRC BULLETIN 2001-01: CIRCUMFERENTIAL CRACKING OF  
REACTOR VESSEL HEAD PENETRATION NOZZLES  
PALISADES PLANT UPDATED RESPONSE

5. Reporting of Future Inspection Results

Palisades Nuclear Plant will provide the information requested in Item 5 of NRC Bulletin 2001-01, or indicate that no leakage was identified, within 30 days after plant restart following the next refueling outage.

During the next refueling outage, NMC will perform a 100% effective visual examination of the Palisades reactor vessel head upper metal surface in accordance with BL 2001-01.

References

1. *PWR Materials Reliability Program Response to NRC Bulletin 2001-01 (MRP-48)*, EPRI, Palo Alto, CA: 2001. TP-1006284.
2. EA-C-PAL-01-03348-01, Rev. 2, "Upper Head Fluid Temperature for Palisades Reactor (Westinghouse Calculation CN-WFE-02-5, Rev.0)"

Attachments

Attachment 1, Photograph of Palisades Reactor Vessel Head Insulation

Attachment 2, Configuration of Equipment and Cables on the RPV Head