

March 31, 2000

Mr. Daniel G. Malone
Acting Director, Licensing
Palisades Plant
27780 Blue Star Memorial Highway
Covert, MI 49043

SUBJECT: PALISADES PLANT - ISSUANCE OF EXEMPTION FROM APPENDIX R OF
10 CFR PART 50 REGARDING CAPACITY OF PRIMARY COOLANT PUMP OIL
COLLECTION SYSTEM (TAC NO. MA6289)

Dear Mr. Malone:

By letter dated August 13, 1999, as revised and supplemented by letters dated November 3, 1999, and March 15, 2000, you requested an exemption from the requirements of 10 CFR Part 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," regarding the capacity of the oil collection system for the motors of three primary coolant pumps (P-50A, P-50B, and P-50C) at the Palisades Plant.

The NRC staff has evaluated the information provided and concludes that the capacity of the existing collection tanks, in conjunction with the low risk associated with minor amounts of potential oil overflow to the containment sump, meets the underlying purpose of Section III.O of Appendix R to 10 CFR Part 50. Therefore, the NRC staff finds special circumstances exist upon which to base an exemption from the requirements of Section III.O of Appendix R to 10 CFR Part 50.

Pursuant to 10 CFR 50.12, the NRC grants the enclosed exemption for the Palisades Plant. A copy of the exemption has been forwarded to the Office of the Federal Register for publication.

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: Exemption

cc w/encl: See next page

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February 2000

requirements is to provide reasonable assurance that leakage from primary coolant pump lube oil systems will not lead to a fire that could damage safety-related equipment during normal or design-basis accident conditions.

Pursuant to 10 CFR 50.12(a), the Commission may grant exemptions from requirements of 10 CFR Part 50 that are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security, provided that special circumstances are present. Pursuant to 10 CFR 50.12(a)(2)(ii), special circumstances are present whenever “application of the regulation in the particular circumstances...is not necessary to achieve the underlying purpose of the rule.”

III.

The Palisades Plant consists of a two-loop, pressurized water reactor with two primary coolant pumps returning flow from each of the two steam generators to the reactor core. Each of the four primary coolant pumps is powered by a vertical shaft motor with upper and lower bearing assemblies. Each bearing assembly has its own separate lubrication system consisting of an oil reservoir and associated piping. The upper reservoir for each pump motor could contain up to 87 gallons of lube oil, of which 76 gallons would be in the oil reservoir and 11 gallons in the associated piping systems (including lift and backstop pumps and their respective oil coolers). The nominal volume of the lower reservoir is 18 gallons, with no significant volume in the associated piping. Thus, the total inventory of lube oil that each primary coolant pump motor could contain is 105 gallons.

Each of the four primary coolant pump motors has a separate closed and vented oil collection tank to collect oil leakage. Each of the oil collection tanks for the motors of primary coolant pumps P-50A, P-50B, and P-50C has a usable capacity of 79 gallons, which is

insufficient (by 26 gallons) to contain the entire lube oil inventory of the pump motor. There is reasonable assurance that the oil collection systems would withstand a safe shutdown earthquake.

Operating procedures and practices at the Palisades Plant are such that oil spillage due to overflowing an existing collection tank is unlikely. The operating levels in the upper and lower lubricating oil reservoirs must be maintained above a minimum level to keep the bearings properly lubricated during motor operation. The operating level for the upper reservoir is about 20 gallons and the operating level for the lower reservoir is about 5 gallons. Any significant leakage or change in leakage trends would be identified through regular monitoring by control room operators and by oil level alarms. The operators would shut down a primary coolant pump if oil leakage caused either reservoir to reach an operating level low enough to threaten motor bearing damage, or if the lubricating oil level dropped at a rate that would cause concern about safe pump operation. Stopping the pump (and its oil lift pump) would depressurize the leaking lubricating oil system. The cause of the oil leakage would be investigated and repaired, and the collection tank would be pumped out before returning the pump to operation. Stopping a primary coolant pump during reactor operation would result in an immediate reactor shutdown.

In the unlikely event that operators allowed leakage in a primary coolant pump motor's upper oil system to drain the entire system without taking action to stop the pump, approximately 8 gallons of oil could overflow the oil collection tank onto the floor in containment. Approximately 26 gallons could overflow onto the floor in the less likely event that both the upper and lower oil systems were to develop gross leakage simultaneously with no operator action.

Lubricating oil that might overflow an oil collection tank would flow down to lower floor elevations and eventually into the containment sump. The motor oil has a flash point of over

400 °F and the containment atmosphere is nominally 80 °F to 100 °F when the primary coolant pumps are in operation. The oil would not come into contact with any hot pipes, hot equipment surfaces, or electrical ignition sources in the tank areas or in the flow paths to the sump. Thus, the oil would not become a fire hazard and would drain to a safe location.

By its response to Question 6.2 of Generic Letter 86-10, "Implementation of Fire Protection Requirements," the NRC staff has previously addressed the use of splash shields and the containment sump for the collection tank volume. The NRC staff concluded that, although an exemption would be required, it would be acceptable if the collected overflow of lube oil drained to the sump, and there were no sources of ignition in the area. The NRC staff finds that the exemption requested for the Palisades Plant meets the guidelines for an acceptable exemption as addressed by the NRC staff in Generic Letter 86-10.

Accordingly, the usable capacity of the existing lube oil collection tanks for the motors of primary coolant pumps P-50A, P-50B, and P-50C, in conjunction with the low risk associated with minor amounts of potential oil overflow to the containment sump, which would not lead to a fire, satisfies the underlying purpose of Section III.O of Appendix R to 10 CFR 50.

IV.

Pursuant to 10 CFR 50.12(a), the Commission has determined that special circumstances exist at the Palisades Plant in that application of the regulation regarding the capacity of lube oil collection containers is not necessary to achieve the underlying purpose of that requirement in Appendix R to 10 CFR Part 50. The Commission has also determined that this exemption is authorized by law, will not present an undue risk to public health and safety, and is consistent with the common defense and security. Therefore, the Commission hereby grants the licensee an exemption from the requirements of Section III.O of Appendix R to 10 CFR Part 50 regarding the specified capacity of lube oil collection containers. This

exemption applies to the lube oil collection containers for the motors of primary coolant pumps P-50A, P-50B, and P-50C, based on the facts set forth herein.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact upon the quality of the human environment (65 FR 16971).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John A. Zwolinski, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 31st day of March 2000.

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