

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

Docket No. 50-346

THE TOLEDO EDISON COMPANY

and

THE CLEVELAND ELECTRIC ILLUMINATING
 COMPANY

(Davis-Besse Nuclear Power Station,
 Unit No. 1)

EXEMPTION

I.

The Toledo Edison Company and The Cleveland Electric Illuminating Company (the licensees) hold Facility Operating License No. NPF-3 which authorizes The Toledo Edison Company to operate the Davis-Besse Nuclear Power Station, Unit 1 (the facility), at steady-state power levels not in excess of 2772 megawatts thermal. The facility is a pressurized water reactor (PWR) located at the licensees' site in Ottawa County, Ohio. The license is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

II.

On November 19, 1980, the Commission published in the Federal Register (45 FR 76602) revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR 50 regarding fire protection features of nuclear power plants. The revised regulation and new appendix became effective on February 17, 1981. Section III of Appendix R identifies specific fire protection requirements in fifteen subsections, A through O. This exemption relates to certain aspects of Sections III.G, III.L, and III.O, as follows, from which the licensees have requested exemption:

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- a) a requirement of Subsection III.G.2 to provide a complete 3-hour rated fire barrier for the separation of redundant trains of equipment necessary for safe shutdown,
- b) a requirement of Subsection III.L.1 that alternative or dedicated shutdown capability be able to achieve cold shutdown conditions within 72 hours, and
- c) a requirement of Section III.O that the lube oil collection systems be capable of holding the entire lube oil system inventory.

III.

By letter dated September 30, 1983, and as supplemented by letter dated December 30, 1983, the licensees requested exemptions from certain requirements of Section III.G, III.L, and III.O of Appendix R. The specific request and the acceptability of the exemption is addressed herein.

a) Exemption from Section III.G

Subsection III.G.2 of Appendix R to 10 CFR 50 requires that redundant trains of equipment necessary for safe shutdown be separated by one of three specific methods to ensure that one of the redundant trains of equipment will be free of fire damage. One of the methods specified is separation by a fire barrier having a 3-hour rating including all piping, electrical, heating, ventilation, and air conditioning penetrations and personnel access doors. The licensees have requested an exemption from the requirement for a 3-hour rated barrier with respect to a door which separates rooms containing equipment necessary for safe shutdown.

The Davis-Besse Nuclear Power Station is equipped with two auxiliary feedwater (AFW) pumps located in adjacent rooms (Room 237 in Fire Area E, Fire Zone No. E-1 and Room 238 in Fire Area F, Fire Zone F-1) separated by a 3-hour rated fire wall. Door 215 located in the fire wall separating the two rooms is designed as a pressure rated door (10 psi) to protect against the consequences of a high energy line break in either AFW pump room. The door,

however, is not a UL rated fire door and has not been tested by the licensees. Instead, an engineering evaluation has been performed to determine the fire resistance of Door 215, simulating the fire test requirements of NFPA 251. The evaluation demonstrates that the door would permit a temperature rise on the unexposed face of 250°F when subjected to a 1300°F fire exposure for 25 minutes. The licensees have determined that the combustible material in either pump room would have a fire duration of less than 10 minutes. The licensees conclude that the door, if tested, would have a fire resistance significantly longer than the maximum postulated fire duration. We have reviewed the analysis and agree with the licensees. Due to the low fuel load in the area and installed smoke detection system, there is reasonable assurance that an incipient fire would be detected promptly, and the response of the fire brigade to the AFW pump room would be expected in less than 25 minutes. It is our opinion that this combination of features provides reasonable assurance that one train of AFW pumps will remain free of fire damage.

Based on our evaluation, Fire Door 215 provides a level of safety equivalent to the technical requirements of Section III.G and, therefore, the exemption requested is granted.

b) Exemption from Section III.L

Subsection III.L.1 of Appendix R to 10 CFR 50 states, in part, that the alternative shutdown capability shall be able to achieve cold shutdown conditions within 72 hours. Further, Subsection III.L.3 of Appendix R states that the alternative shutdown capability must accommodate post-fire conditions where offsite power is available and where offsite power is not available for 72 hours. Thus, the alternative shutdown capability must be able to achieve cold shutdown conditions within 72 hours, independent of offsite power. The licensees have requested an exemption from the 72-hour requirement for achieving cold shutdown independent of offsite power.

The design of the Davis-Besse Nuclear Power Station is such that pressurizer spray capability is dependent upon operation of the reactor coolant pumps which, in turn, require offsite power. Without pressurizer spray availability, depressurization of the reactor and subsequent cooldown would be determined by the rate of heat loss from the pressurizer to the containment environment. Additionally, the licensees have imposed further restrictions on cooldown in order to avoid formation of steam in the upper reactor vessel head. The licensees limit the cooldown rate to no more than 1.5°F/hour under natural circulation conditions. Using this cooldown restriction, the licensees calculate that 193 hours would be required to achieve cold shutdown conditions, assuming offsite power was unavailable. The licensees assumed the cooldown to cold shutdown would commence one hour after reactor trip.

For plant cooldown, the AFW system in conjunction with the atmospheric dump valves provides initial decay heat removal independent of offsite power. The AFW system utilizes two steam turbine-driven feedwater pumps which are located in separate compartments. The AFW pumps take suction from two condensate storage tanks. The service water system provides an automatic backup AFW supply and the fire protection system can be manually aligned for an additional backup water supply. The service water system utilizes three 100% capacity pumps which take suction from Lake Erie. Each of the three service water pumps can be powered by the emergency onsite diesel generators. Each of the diesel generators are provided with sufficient fuel oil storage for seven days of continuous operation. For long term heat removal, the decay heat removal system will be utilized. The decay heat removal pumps can be powered by the diesel generators.

Since the capability to achieve cold shutdown utilizing onsite power is available, the licensees' proposed cooldown time period is acceptable. Therefore, the exemption requested from the requirement of Section III.L of Appendix R to 10 CFR 50 regarding the alternative shutdown capability to achieve cold shutdown within 72 hours independent of offsite power is granted.

c) Exemption from Section III.0

Section III.0 of Appendix R to 10 CFR 50 requires, in part, that the reactor coolant pump lube oil collection system be designed to collect lube oil leakage in a closed, vented container that can hold the entire lube oil system inventory. The licensees have requested exemption from this requirement.

The Davis-Besse Nuclear Power Station is designed with two reactor coolant loops. Each loop has two reactor coolant pumps (RCP). A high pressure and low pressure lube oil system is provided for each RCP motor. The high pressure system is used only during startup and shutdown. The low pressure system is used during normal operation. Each RCP motor contains 225 gallons of lube oil.

The licensees have provided one 250 gallon oil collection tank for each loop. This provides sufficient capacity to hold the total lube oil inventory of only one RCP motor in each loop with some margin. Any lube oil overflow will drain to the containment sump.

The RCP motor lube oil system does not comply with Section III.0 because the oil collection tank is not sized to contain the entire lube oil system inventory.

Since any lube oil overflow will drain to the containment building sump where there is no other flammable material or hot surfaces which may ignite the oil, the overflow oil will not present an exposure fire hazard to or otherwise endanger safety-related equipment, and since the RCP motor lube oil collection system is capable of withstanding the safe shutdown earthquake, we find the oil collection system acceptable.

Based on our evaluation as discussed above, we conclude the existing RCP motor lube oil collection system provides a level of safety equivalent to the technical requirements of Section III.0 and, therefore, the exemption requested is granted.

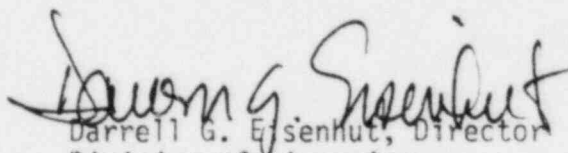
IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the exemptions requested by the licensees' letter as referenced and discussed in II. and III. above are authorized by law, will not endanger life or property or the common defense and security, are otherwise in the public interest, and are hereby granted.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of the exemption will have no significant impact on the environment (49 FR 33071).

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland, this 20th day of August, 1984.