

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)	
)	
VIRGINIA ELECTRIC AND POWER)	Docket No. 50-280
COMPANY)	
)	
Surry Power Station, Unit 1)	

EXEMPTION

I.

The Virginia Electric and Power Company (the licensee) is the holder of Facility Operating License No. DPR-32, which authorizes operation of the Surry Power Station, Unit 1. The license provides, among other things, that it is subject to all rules, regulations and Orders of the Commission now or hereafter in effect.

The Surry facility consists of two pressurized water reactors at the licensee's site located in Surry County, Virginia. This exemption addresses only Surry, Unit 1.

II.

On November 19 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR Part 50 regarding fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains 15 subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power

plant. One of these 15 subsections, III.O., is the subject of this exemption request. Specifically, Subsection III.O. requires that each reactor coolant pump (RCP) have an oil collection system capable of collecting oil from potential pressurized and non-pressurized leakage sites and routing it to a vented, closed container of sufficient capacity to hold the entire lube oil system inventory.

III.

By letter dated November 14, 1990, the licensee requested a one-time exemption from the requirements of Subsection III.O of Appendix R, for one of the three RCPs at Surry, Unit 1.

Prior to the shutdown for refueling at the end of Operating Cycle 10 on October 8, 1990, the Surry, Unit 1 RCP motor oil collection system satisfied the requirements of Subsection O. The Unit 1 "C" RCP motor required a routine, 5-year refurbishment at the end of Operating Cycle 10. This required that the RCP motor be shipped to an offsite facility. A replacement motor was purchased for the "C" pump; however, certain components of the new RCP motor have a different physical configuration than the motor which was removed. Because of the configurational differences, the RCP oil collection system from the original "C" motor cannot be fitted to the new motor without extensive modifications, which cannot be made within the current Cycle 10 refueling outage. Consequently, a one-time exemption was requested from Subsection III.O to permit an interim oil collection method in conjunction with other compensatory measures to mitigate the consequences should a oil fire occur. The exemption would be effective through Operating Cycle 11, which is currently scheduled to commence on December 5, 1990 and end in February 1992.

The acceptability of the exemption request is addressed below. More details are contained in the NRC staff's related Safety Evaluation dated December 6, 1990. 1990.

Reactor Coolant Pump Oil Collection System

The licensee, for this cycle of operation, has proposed an interim oil collection method for the "C" pump motor. This method consists of implementing certain fire protection modifications in the "C" RCP/steam generator cubicle in conjunction with compensatory measures. Through implementation of this method, the licensee will detect potential lube oil system leakage in the spare RCP motor by an increase in motor temperature and any leakage which does occur will be confined and contained in the "C" RCP/steam generator cubicle.

The "C" cubicle is located southeast of the reactor vessel. The cubicle has a concrete base at the minus 3 ft. 6 in. elevation with the concrete walls extending up to the 47 ft. 4 in. elevation. The access doors to this cubicle are located at the minus 3 ft. 6 in. and the 18 ft. 6 in. elevations. In addition, there are penetrations in the walls and the floor of the cubicle. This cubicle is located adjacent to the cable penetrations from the cable vault. The licensee, in order to contain any potential oil leakage from the "C" RCP motor or a fire condition in the "C" cubicle, has implemented the following additional interim fire protection modifications:

- Four-inch oil-tight dikes have been installed at the door openings;
- Pipes which penetrate the cubicle floor are sleeved. The piping sleeves extend 4 in. above the floor of the cubicle. The pipes which extend from the sleeves are provided with either a spray cover or the penetration is filled with a liquid-tight fire-rated penetration sealant material;

- A heat detector has been installed above the "C" RCP motor. This detector is annunciated in the control room;
- The "C" cubicle is separated from the cable penetration area by the crane wall. The open penetrations in the crane wall will be sealed with fire-rated penetration sealant material; and
- Spray shields will be installed as necessary to prevent high pressure oil spray from impinging on hot reactor coolant system (RCS) piping.

In addition to the above fire protection modifications, the licensee will maintain the following compensatory measures during the operation phase of Cycle 11:

- RCP motor bearing temperature increase is an indication of an oil leak. Therefore, the licensee will conduct more frequent surveillance of the "C" RCP motor temperature-related parameters;
- Plant procedures will be revised prior to startup to address operator actions and their expected response to adverse motor temperature conditions (e.g., containment entry to assess the reason for the temperature condition, shutdown of the pump, response of the fire brigade);
- Additional fire brigade briefings will be held on the potential for a fire in the "C" cubicle and on the means to mitigate a fire in this area; and
- Additional foam fire suppression equipment will be maintained outside the containment. This equipment, to be used by the fire brigade in the event of a lube oil fire, will be located near the containment access hatch.

Based on our evaluation of the licensee's proposed interim oil collection method and compensatory measures, we agree that if a lube oil system failure leading to a leak and a subsequent fire were to occur in the "C" RCP motor, the consequences of the fire would be mitigated and the plant's ability to achieve safe shutdown conditions would not be affected.

Therefore, the staff concludes that the licensee's interim oil collection method, consisting of temporary fire protection modifications, compensatory measures, and the partially installed oil collection system as described above, results in an acceptable fire hazard level which is essentially equivalent to that which existed with the permanent oil collection system. The staff also concludes that this method provides reasonable assurance that any potential lube oil leakage from the "C" RCP motor will be adequately controlled and contained within the "C" RCP/steam generator cubicle. The staff finds the licensee's request to operate the "C" RCP, with an interim oil collection method in place for Cycle 11 to be acceptable and, therefore, the licensee's request for exemption is granted.

IV.

Pursuant to 10 CFR 50.12(a)(2)(v), the licensee must have made good faith efforts to comply with the regulation. The NRC staff believes that VEPCO could not have reasonably foreseen the configurational incompatibility between the existing and replacement "C" pump motors and has taken appropriate measures to mitigate the effects of this incompatibility.

Based on our evaluation, the NRC staff has concluded that special circumstances as described in 10 CFR 50.12(a)(2)(v) exist, in that the exemption would provide only temporary relief from the applicable regulation, and VEPCO has made good faith efforts to comply with the requirements of Appendix R.

V.

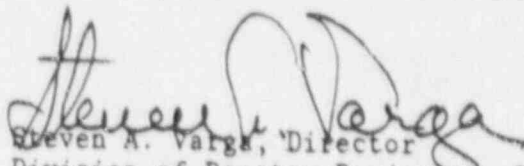
Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or common defense and security and is otherwise in the public interest, and hereby grants an exemption from the requirements of Subsection III.0 of Appendix R to 10 CFR Part 50 to the extent discussed in Section III above. This exemption will be effective for the duration of Operating Cycle 11 for Surry, Unit 1, which is currently scheduled to end in February 1992.

Pursuant to 10 CFR 51.32 the Commission has determined that the granting of this exemption will not result in any significant environmental impact (55 FR 50256).

A copy of the licensee's request for exemption dated November 14, 1990, as well as the staff's associated Safety Evaluation dated December 6 , 1990, are available for public inspection at the Commission's Public Document Room, 2120 L Street, N.W., Washington, D.C., and at the Swem Library, College of William and Mary, Williamsburg, Virginia 23185.

This exemption is effective upon issuance and will expire at the end of Operating Cycle 11.

FOR THE NUCLEAR REGULATORY COMMISSION


Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 6th day of December, 1990.