

July 9, 1998

Mr. J. P. O'Hanlon
Senior Vice President - Nuclear
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, Virginia 23060

SUBJECT: ENVIRONMENTAL ASSESSMENT OF REQUEST FOR REVISED EXEMPTION
FROM 10 CFR 70.24(a) CRITICALITY ACCIDENT REQUIREMENTS - SURRY
POWER STATION, UNITS 1 AND 2 (TAC NOS. MA0657 AND MA0658)

Dear Mr. O'Hanlon:

Enclosed for your information is a copy of the "Environmental Assessment and Finding of No Significant Impact." This assessment relates to your application dated January 14, 1998, which requested a revised exemption from certain requirements of 10 CFR 70.24(a), "Criticality Accident Requirements." An assessment was previously published in the Federal Register, dated May 11, 1998, (63 FR 25886). However, it did not mention that the assessment was in response to your application for a revised exemption request.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,
Original signed by:
Gordon Edison, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-280 and 50-281

Enclosure: Environmental Assessment

cc w/encl: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 9, 1998

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POWER STATION, UNITS 1 AND 2 (TAC NOS. MA0657 AND MA0658)

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Sincerely,

A handwritten signature in black ink that reads "Gordon Edison".

Gordon Edison, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-280
and 50-281

Enclosure: Environmental Assessment

cc w/encl: See next page

Mr. J. P. O'Hanlon
Virginia Electric and Power Company

Surry Power Station

cc:

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UNITED STATES NUCLEAR REGULATORY COMMISSIONVIRGINIA ELECTRIC AND POWER COMPANYDOCKET NOS. 50-280 AND 50-281SURRY POWER STATION, UNITS 1 AND 2ENVIRONMENTAL ASSESSMENT AND FINDING OFNO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of a revised exemption from certain requirements of its regulations for Facility Operating License No. DPR-32 and Facility Operating License No. DPR-37, issued to Virginia Electric and Power Company (the licensee), for operation of the Surry Power Station, Units 1 and 2, located in Surry County, Virginia.

ENVIRONMENTAL ASSESSMENTIdentification of Proposed Action:

The proposed action would revise the exemption granted on August 21, 1997, to Virginia Electric and Power Company from the requirements of Title 10 of the Code of Federal Regulations (10 CFR), Part 70.24(a), which requires, in each area in which special nuclear material is handled, used, or stored, a monitoring system that will energize clear audible alarms if accidental criticality occurs. The proposed action would also exempt the licensee from the requirements to maintain emergency procedures for each area in which this licensed special nuclear material is handled, used, or stored to ensure that all personnel withdraw to an area of safety upon the sounding of the alarm, to familiarize personnel with the evacuation plan, and to

designate responsible individuals for determining the cause of the alarm, and to place radiation survey instruments in accessible locations for use in such an emergency.

The proposed action is in accordance with the licensee's application for a revised exemption dated January 14, 1998.

The Need for the Proposed Action:

The purpose of 10 CFR 70.24 is to ensure that if a criticality were to occur during the handling of special nuclear material, personnel would be alerted to that fact and would take appropriate action. At a commercial nuclear power plant the inadvertent criticality with which 10 CFR 70.24 is concerned could occur during fuel handling operations. The special nuclear material that could be assembled into a critical mass at a commercial nuclear power plant is in the form of nuclear fuel; the quantity of other forms of special nuclear material that is stored on site is small enough to preclude achieving a critical mass. Because the fuel is not enriched beyond 5.0 weight percent Uranium-235 and because commercial nuclear plant licensees have procedures and features designed to prevent inadvertent criticality, the staff has determined that inadvertent criticality is not likely to occur due to the handling of special nuclear material at a commercial power reactor. The requirements of 10 CFR 70.24(a), therefore, are not necessary to ensure the safety of personnel during the handling of special nuclear materials at commercial power reactors.

Environmental Impacts of the Proposed Action:

The Commission has completed its evaluation of the proposed action and concludes that there is no significant environmental impact if the revised exemption is granted. Inadvertent or accidental criticality will be precluded through compliance with the Surry Power Station Technical Specifications (TS), the design of the fuel storage racks providing geometric spacing of fuel assemblies in their storage locations, and administrative controls imposed on

fuel handling procedures. TS requirements specify reactivity limits for the fuel storage racks and minimum spacing between the fuel assemblies in the storage racks.

Appendix A of 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," Criterion 62, requires that criticality in the fuel storage and handling system shall be prevented by physical systems or processes, preferably by use of geometrically safe configurations. This is met at Surry Units 1 and 2, as identified in the TS.

Surry TS Section 5.4, Fuel Storage, states that the new fuel assemblies are stored vertically in an array with a distance of 21 inches between assemblies to assure that the effective neutron multiplication factor, K_{eff} , will remain less than or equal to 0.95 if fully flooded with unborated water, and to assure K_{eff} less than or equal to 0.98 under conditions of low-density optimum moderation. The spent fuel assemblies are stored vertically in an array with a distance of 14 inches between assemblies to assure K_{eff} less than or equal to 0.95 if fully flooded with unborated water.

The proposed revised exemption would not result in any significant radiological environmental impacts. The proposed revised exemption would not affect radiological plant effluents or cause any significant occupational exposures since the TS, design controls, including geometric spacing of fuel assembly storage spaces, and administrative controls preclude inadvertent criticality. The amount of radioactive waste would not be changed by the proposed revised exemption.

The proposed revised exemption would not result in any significant nonradiological environmental impacts. The proposed revised exemption involves features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other nonradiological environmental impact.

Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

Since the Commission has concluded that there is no significant environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed revised exemption, the staff considered denial of the requested exemption revision. Denial of the request would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the "Final Environmental Statement for the Surry Power Station."

Agencies and Persons Consulted:

In accordance with its stated policy, the NRC staff consulted with Mr. Foldesi of the Virginia Department of Health on April 22, 1998, regarding the environmental impact of the proposed action. The State official had no comments.

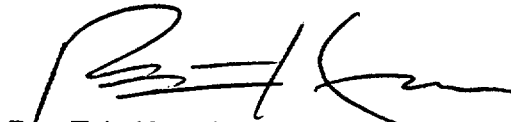
FINDING OF NO SIGNIFICANT IMPACT

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated January 14, 1998, which is available for public inspection at the Commission's Public Document Room, which is located at The Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Swem Library, College of William and Mary, Williamsburg, Virginia.

Dated at Rockville, Maryland, this 9th day of July 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'Pao-Tsin Kuo', with a stylized flourish at the end.

Pao-Tsin Kuo, Acting Director
Project Directorate II-1
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation