

January 9, 1998

Mr. Donald A. Reid  
Senior Vice President, Operations  
Vermont Yankee Nuclear Power Corporation  
185 Old Ferry Road  
Brattleboro, VT 05301

SUBJECT: ENVIRONMENTAL ASSESSMENT OF REQUEST FOR EXEMPTION FROM 10  
CFR 70.24 CRITICALITY ACCIDENT REQUIREMENTS - VERMONT YANKEE  
NUCLEAR POWER PLANT (TAC NO. MA0303)

Dear Mr. Reid:

Enclosed for your information is a copy of an "Environmental Assessment and Finding of No Significant Impact." This assessment relates to your application dated December 16, 1997, which requested an exemption from certain requirements of 10 CFR 70.24, "Criticality Accident Requirements."

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

Sincerely,

/S/

Kahtan N. Jabbour, Senior Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure: Environmental Assessment

cc w/enclosure: See next page

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D. Reid

Vermont Yankee Nuclear Power Station

cc:

Regional Administrator, Region I  
U. S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Chief, Safety Unit  
Office of the Attorney General  
One Ashburton Place, 19th Floor  
Boston, MA 02108

Mr. David R. Lewis  
Shaw, Pittman, Potts & Trowbridge  
2300 N Street, N.W.  
Washington, DC 20037-1128

Mr. Peter LaPorte, Director  
ATTN: James Muckerheide  
Massachusetts Emergency Management  
Agency  
400 Worcester Rd.  
P.O. Box 1496  
Framingham, MA 01701-0317

Mr. Richard P. Sedano, Commissioner  
Vermont Department of Public Service  
120 State Street, 3rd Floor  
Montpelier, VT 05602

Mr. Raymond N. McCandless  
Vermont Division of Occupational  
and Radiological Health  
Administration Building  
Montpelier, VT 05602

Public Service Board  
State of Vermont  
120 State Street  
Montpelier, VT 05602

Ms. Deborah B. Katz  
Box 83  
Shellburne Falls, MA 01370

Chairman, Board of Selectmen  
Town of Vernon  
P.O. Box 116  
Vernon, VT 05354-0116

Mr. Gautam Sen  
Licensing Manager  
Vermont Yankee Nuclear Power  
Corporation  
185 Old Ferry Road  
Brattleboro, VT 05301

Mr. Richard E. McCullough  
Operating Experience Coordinator  
Vermont Yankee Nuclear Power Station  
P.O. Box 157  
Governor Hunt Road  
Vernon, VT 05354

Resident Inspector  
Vermont Yankee Nuclear Power Station  
U. S. Nuclear Regulatory Commission  
P.O. Box 176  
Vernon, VT 05354

G. Dana Bisbee, Esq.  
Deputy Attorney General  
33 Capitol Street  
Concord, NH 03301-6937

Mr. Jonathan M. Block, Esq.  
Main Street  
P.O. Box 566  
Putney, VT 05346-0566

UNITED STATES NUCLEAR REGULATORY COMMISSION

VERMONT YANKEE NUCLEAR POWER CORPORATION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER STATION

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from certain requirements of its regulations for Facility Operating License No.

DPR-28, issued to Vermont Yankee Nuclear Power Corporation (the licensee), for operation of Vermont Yankee Nuclear Power Station located in Windham County, Vermont.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would exempt the licensee from the requirements of 10 CFR 70.24, 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 exemption dated December 16, 1997.

**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 in any given location 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 design features that prevent inadvertent criticality, the staff has determined that it is unlikely that an inadvertent criticality could occur due to the handling of special nuclear material at a commercial power reactor. The requirements of 10 CFR 70.24, therefore, are not necessary to ensure the safety of personnel during the handling of special nuclear material 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 exemption is granted. Inadvertent or accidental criticality will be precluded through compliance with the Vermont Yankee Technical Specifications, 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. Technical Specifications 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 the 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 the Vermont Yankee Station, as identified in the Technical Specifications and the Updated Final Safety Analysis Report (UFSAR).

The change will not increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does involve 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 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 measurable 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 action, the staff considered denial of the proposed action. Denial of the application 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 Vermont Yankee Nuclear Power Station.

Agencies and Persons Consulted:

In accordance with its stated policy, on January 9, 1998, the staff consulted with the Vermont State official, Mr. William K. Sherman, of the Department of Public Service, regarding the environmental impact of the proposed action. The State official had no comments.

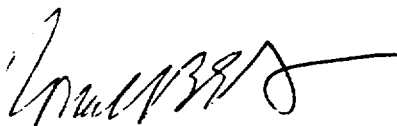
FINDING OF NO SIGNIFICANT IMPACT

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 December 16, 1997, 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, D. C., and at the local public document room located at the Brooks Memorial Library, 224 Main Street, Brattleboro, VT.

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

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read 'Ronald B. Eaton', with a stylized flourish at the end.

Ronald B. Eaton, Acting Director  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation