

Mr. C. Randy Hutchinson
 Vice President, Operations ANO
 Entergy Operations, Inc.
 1448 S. R. 333
 Russellville, AR 72801

September 18, 1998

SUBJECT: ENVIRONMENTAL ASSESSMENT OF REQUEST FOR EXEMPTION FROM
 10 CFR 70.24, "CRITICALITY ACCIDENT REQUIREMENTS," FOR ARKANSAS
 NUCLEAR ONE, UNITS 1 AND 2 (TAC NOS. MA1278 AND MA1279)

Dear Mr. Hutchinson:

Enclosed for your information is a copy of an "Environmental Assessment and Finding of No Significant Impact." This assessment relates to your application of October 31, 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,
ORIGINAL SIGNED BY:
 William Reckley, Senior Project Manager
 Project Directorate IV-1
 Division of Reactor Projects III/IV
 Office of Nuclear Reactor Regulation

Docket Nos. 50-313 and 368

Enclosure: Environmental Assessment

cc w/encl: See next page

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

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William Reckley, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

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Mr. C. Randy Hutchinson
Entergy Operations, Inc.

Arkansas Nuclear One, Units 1 & 2

cc:

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& Chief Operating Officer
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County Judge of Pope County
Pope County Courthouse
Russellville, AR 72801

UNITED STATES NUCLEAR REGULATORY COMMISSION

ENTERGY OPERATIONS, INC.

DOCKET NOS. 50-313 AND 50-368

ARKANSAS NUCLEAR ONE, UNITS 1 AND 2

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 Nos. DPR-51 and NPF-6 issued to Entergy Operations, Inc. (the licensee), for operation of Arkansas Nuclear One, Units 1 and 2 (ANO-1 and ANO-2), located in Pope County, Arkansas.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action:

The proposed action would exempt the licensee from the requirements of 10 CFR 70.24(a) as it pertains to the handling and storage of unirradiated fuel at ANO-1 and ANO-2. The requirements of 10 CFR 70.24(a) include (1) having a monitoring system that will energize clear audible alarms if accidental criticality occurs in each area in which special nuclear material is handled, used, or stored and (2) having emergency procedures and conducting related drills to familiarize personnel with the evacuation plan, for each area in which this licensed special nuclear material is handled, used, or stored.

The proposed action is in accordance with the licensee's application for exemption dated October 31, 1997.

The Need for the Proposed Action:

The purpose of 10 CFR 70.24 is to ensure that if a criticality event (or accident) were to occur during the handling of special nuclear material, personnel would be alerted to that fact

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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 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 exemption is granted. Inadvertent or accidental criticality will be precluded through compliance with the ANO-1 and ANO-2 Technical Specifications (TSs), the design of the new fuel storage area, and administrative controls imposed on fuel handling procedures. TSs requirements specify reactivity limits for new fuel assemblies and key design features for the new fuel storage racks, including the minimum spacing between the unirradiated fuel assemblies.

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 ANO-1 and ANO-2, as identified in the TSs and the Updated Safety Analysis Reports

(USARs). The TSs for storage racks and limits on fuel enrichment for ANO-1 and ANO-2 are such that the ratio of neutron production to neutron absorption and leakage (k -effective) will not exceed 0.98 assuming optimum moderation by an aqueous foam and will not exceed 0.95 when the storage area is flooded with unborated water.

The proposed exemption would not result in any significant radiological impacts. The proposed exemption would not affect radiological plant effluents since the handling and storage of new fuel does not impact the normal operations of the plant that generate radioactive wastes and design and administrative controls previously described provide adequate controls to preclude accidental releases from an inadvertent criticality. The proposed exemption would not cause any significant occupational exposures since the TSs, design controls (including geometric spacing of fuel assembly storage spaces) and administrative controls preclude inadvertent criticality. Existing programs at ANO-1 and ANO-2 also provide reasonable confidence that personnel would be alerted to and would know how to respond to a radiological accident involving the handling and storage of fuel assemblies. The amount of radioactive waste would not be changed by the proposed exemption.

The proposed exemption does not result in any significant nonradiological environmental impacts. The proposed exemption involves features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect non-radiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant non-radiological 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 exemption, the staff

considered denial of the requested exemption (no-action alternative). 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 Arkansas Nuclear One, Units 1 and 2.

Agencies and Persons Consulted:

In accordance with its stated policy, on August 19, 1998, the staff consulted with Mr. Bernie Bevell, Director, Division of Radiation Control and Emergency Management, 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 October 31, 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, DC, and at the local public document room located at the Tomlinson Library, Arkansas Tech University, Russellville, AR 72801.

Dated at Rockville, Maryland, this 18th day of September 1998.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink that reads "William D. Reckley". The signature is written in a cursive style with a long horizontal stroke extending to the right.

William D. Reckley, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation