

September 27, 1999

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

SUBJECT: ENVIRONMENTAL ASSESSMENT OF REQUEST FOR EXEMPTION FROM  
10 CFR PART 50, APPENDIX R, SECTION III.G.2.c, "FIRE PROTECTION OF  
SAFE SHUTDOWN CAPABILITY," FOR ARKANSAS NUCLEAR ONE,  
UNIT NO. 2 (TAC NO. MA1545)

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 8, 1997 (2CAN109703), as supplemented by your letter dated February 25, 1999 (2CAN029905), which requested an exemption from certain requirements of 10 CFR Part 50, Appendix R, Section III.G.2.c, "Fire Protection of Safe Shutdown Capability."

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

Sincerely,

ORIGINAL SIGNED BY

M. Christopher Nolan, Project Manager, Section 1  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosure: Environmental Assessment

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UNITED STATES NUCLEAR REGULATORY COMMISSIONENTERGY OPERATIONS, INC.DOCKET NO. 50-368ARKANSAS NUCLEAR ONE, UNIT NO. 2ENVIRONMENTAL ASSESSMENT AND FINDING OFNO 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. NPF-6 issued to Entergy Operations, Inc. (the licensee), for operation of Arkansas Nuclear One, Unit 2 (ANO-2), located in Pope County, Arkansas.

ENVIRONMENTAL ASSESSMENTIdentification of Proposed Action:

The proposed action would exempt the licensee from the requirements of Title 10 of the Code of Federal Regulations, Part 50 (10 CFR Part 50), Appendix R, Section III.G.2.c, regarding the fire protection of the safe shutdown capability for equipment located below the 354 foot elevation of the ANO-2 intake structure. The licensee is requesting an exemption from the specific requirement to provide fire detectors and an automatic fire suppression system to protect redundant trains of safe shutdown equipment that are located in the same fire zone.

The proposed action is in accordance with the licensee's application for exemption dated October 8, 1997, as supplemented by letter dated February 25, 1999.

The purpose of 10 CFR Part 50, Appendix R, Section III.G.2, is to ensure that adequate fire protection features are provided for redundant cables or equipment located in the same fire area outside of primary containment such that at least one of the redundant trains of safe

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shutdown equipment will remain available during and after any postulated fire in the plant to achieve and maintain safe shutdown conditions. Section III.G.2.c requires the following means of assurance:

Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

The ANO-2 intake structure below the 354 foot elevation consists of three service water intake bays, which contain service water (SW) piping and conduits. The bays are approximately 7 feet by 32 feet and are separated from one another by 2-foot thick, non-rated concrete walls. The bays are separated from the ground level by an 18-inch thick, non-rated concrete slab on metal decking. The floor of the bays is typically covered with water 16 feet deep. The ceiling height is approximately 14 feet above the normal pool level. Of the three bays, only the "A" SW intake bay contains redundant cables. The licensee stated that the total in-situ combustible loading is 3,469,060 BTUs, which is equivalent to a fire severity to a standard fire duration of less than 4 minutes. Each bay is administratively controlled as a "confined space," thus limiting access by personnel during routine operations and precluding the accumulation of combustibles. In addition, the licensee's administrative procedures limit the transient combustibles to 5 pounds unless personnel are continuously present in the area. In such cases, the personnel could be either the craft personnel responsible for using the combustible materials or a continuous fire watch. Water to the bay is normally provided through a sluice gate for the bays where the circulating pumps take suction.

Service water is required to be available to supply cooling water for various safe shutdown components including the diesel generators and the shutdown cooling heat exchangers. Additionally, SW can be aligned to the emergency feedwater system in the event that the desired condensate source is depleted. The time critical function is to supply cooling

for the diesel generators. The licensee stated that, on the basis of its calculations, the diesel generators (and therefore the SW system components) are not required to be operated during the first 30 minutes of a postulated fire event. The licensee allows the operators to manually align the SW system because the diesel generators are not required during the first 30 minutes of a fire event and sufficient time is available to complete the alignment.

The SW system consists of two independent seismic category 1 flow paths that furnish cooling water to two independent trains of 100 percent capacity engineered safety feature equipment, and two non-seismic category 1 flow paths. The SW system has three 100 percent capacity pumps. One pump is dedicated to each of the two SW trains while the third pump is designated as a swing pump and can be aligned to either train. The two loops of the SW system are also electrically independent with two separate divisions of electrical power designated as the red and green train. The red train power for SW is aligned to either SW pump 2P4A or SW pump 2P4B, while the green train power is aligned to either SW pump 2P4C or SW pump 2P4B.

The four power cables associated with the 2P4A, 2P4B, and 2P4C SW pumps interface with the "A" SW intake bay challenging the protection criteria specified in Section III.G.2 of Appendix R. The red train power to 2P4A is provided with a fire wrap rated as a 1-hour rated barrier. The red train power to 2P4B is embedded in the concrete wall of the "A" SW intake bay, which provides an equivalent 1-hour rated fire barrier. The green train power to 2P4B is provided with a fire wrap rated for a 1-hour barrier. The cables for the red train power to 2P4A and the green train power to 2P4B are routed together inside of a protective moisture barrier. The green train power to 2P4C is routed independently and is approximately 6 feet (horizontally) from the protective moisture barrier providing some physical separation. Therefore, based on the preceding discussion, this area would require the addition of fire

detectors and an automatic fire suppression system in order to comply with the requirements of 10 CFR Part 50, Appendix R, Section III.G.2.c.

Power and control cables for the sluice gates are also located in the SW intake bays. Sluice gate valves 2CV1470-1, 2CV1472-5, and 2CV1474-2 are normally open, which corresponds to the safe shutdown position. The redundant control cables are separated horizontally by approximately 8 feet. As stated previously, the time critical function of the SW system is to provide cooling to the diesel generators. The licensee stated that if a fire were to cause the sluice gates to spuriously close, adequate time would be available before service water was required to manually realign any affected component.

The Need for the Proposed Action:

The proposed action is needed because the addition of fire detectors and an automatic fire suppression system to the SW intake bays is considered infeasible due to the construction of the intake structure and the fact that the room is partially water-filled during normal conditions.

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.

The proposed action will not increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released off site, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regards to potential nonradioactive impacts, the proposed action does not involve any historic sites. It does not affect nonradiological plant effluents and has no other environmental impacts. Therefore, there are no significant nonradiological environmental impacts associated with the proposed action.

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

Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the requested action (i.e., the "no-action" alternative). Based on the physical characteristics of the SW intake bays, the NRC staff has determined that there is a low probability of occurrence for a fire event in the ANO-2 intake structure below the 354 foot elevation. This low probability of occurrence combined with the lack of combustible material, administrative controls, and the fire protection features provided is sufficient to show adequate protection for redundant equipment in the SW system. Therefore, the features associated with the ANO-2 Intake Structure below the 354 foot elevation are sufficient to achieve the underlying purpose of Appendix R, Section III.G.2.c. Therefore, denial of the application would result in no change in the 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, Unit 2.

Agencies and Persons Consulted:

In accordance with its stated policy, on June 24, 1999, the staff consulted with the Arkansas State official, Mr. Bernie Bevill, Supervisor, Quality and Evaluation Section, 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

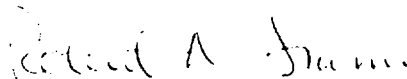
On the basis of the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment.

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 8, 1997, as supplemented by letter dated February 25, 1999. These letters are available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room at the Tomlinson Library, Arkansas Tech University, Russellville, Arkansas.

Dated at Rockville, Maryland, this 27th day of September.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Gramm, Chief, Section 1  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation