

April 16, 1993

Docket No. 50-368

Mr. Jerry W. Yelverton
Vice President, Operations ANO
Entergy Operations, Inc.
Route 3 Box 137G
Russellville, Arkansas 72801

Dear Mr. Yelverton:

SUBJECT: ISSUANCE OF AMENDMENT NO. 146 TO FACILITY OPERATING LICENSE
NO. NPF-6 - ARKANSAS NUCLEAR ONE, UNIT NO. 2 (TAC NO. M80869)

The Commission has issued the enclosed Amendment No. 146 to Facility Operating License No. NPF-6 for the Arkansas Nuclear One, Unit No. 2 (ANO-2). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated June 27, 1991, as supplemented April 29, 1992.

The amendment revises the TS for containment penetration conductor overcurrent protective devices. The changes include adding four devices to TS Table 3.8-1, adding a new surveillance requirement section numbered 4.8.2.5.a.2 for the 480V air frame breakers, renumbering existing Surveillance Requirement 4.8.2.5.a.2 as 4.8.2.5.a.3, and rewording Surveillance Requirement 4.8.2.5.b to clarify its intent.

A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 146 to NPF-6
2. Safety Evaluation

cc w/enclosures:
See next page

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

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Sincerely,

A handwritten signature in cursive script, reading "Thomas W. Alexion", is positioned above the typed name.

Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:

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2. Safety Evaluation

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See next page

Mr. Jerry W. Yelverton
Entergy Operations, Inc.

Arkansas Nuclear One, Unit 2

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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 146
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated June 27, 1991, as supplemented April 29, 1992, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

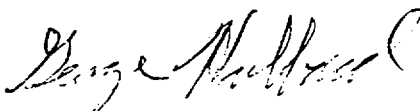
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-6 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 146, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of 30 days from its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



George T. Hubbard, Acting Director
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 16, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 146

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Revise the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE PAGES

3/4 8-11

3/4 8-12

3/4 8-17a

B 3/4 8-1

-

INSERT PAGES

3/4 8-11

3/4 8-12

3/4 8-17a

B 3/4 8-1

B 3/4 8-2

ELECTRICAL POWER SYSTEMS

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.2.5 All containment penetration conductor overcurrent protective devices shown in Table 3.8-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more of the containment penetration conductor overcurrent protective devices shown in Table 3.8-1 inoperable:

- a. De-energize the circuit(s) by tripping the associated backup circuit breaker within 72 hours and verifying the backup circuit breaker to be tripped at least once per 7 days thereafter, or
- b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.5 All containment penetration conductor overcurrent protective devices shown in Table 3.8-1 shall be demonstrated OPERABLE in accordance with the manufacturers' recommendations:

- a. At least once per 18 months:
 1. For at least one 6.9 kv reactor coolant pump circuit, such that all reactor coolant pump circuits and their associated backup circuits are demonstrated OPERABLE at least each 72 months, by performance of:
 - (a) A CHANNEL CALIBRATION of the associated protective relays, and
 - (b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed.
 2. For each type of 480 volt air frame protective device, such that all 480 volt air frame protective devices are demonstrated OPERABLE at least once each $N \times 18$ months, where N is the number of devices of each type, by performance of:
 - (a) A calibration of the protective relays for devices that are actuated by protective relays which includes verification of the range, accuracy, and alarm/trip capability, and

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- (b) A functional test of protective devices that are actuated by protective relays which verifies that the protective device trips when its associated protective relays actuate, and
 - (c) A functional test which consists of injecting primary current in each overcurrent element mounted on the protective device at the specified setpoint and verifying that the protective device trips when each overcurrent element actuates. If any protective device fails to function as designed, all other protective devices of the same type shall be tested.
- 3. For molded case protective devices, such that all protective devices of each type are demonstrated OPERABLE at least once each $N \times 18$ months, where N is the number of devices of each type, by performance of:
 - (a) A functional test of at least one protective device of each type which consists of injection of primary current at the specified setpoint to the protective device and verifying that the protective device trips when the overcurrent elements are actuated. If any protective device fails to function as designed, all other protective devices of the same type shall be tested.
- b. At least once per 60 months, by performing inspections and preventive maintenance on each protective device in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

Primary Device Number	Backup Device Number	Location of Devices	System Powered
52-54G2	52-54C5	MCC 2B54	H ₂ Purge Containment Iso. Valve 2CV-8233-1
52-54G3	52-54B4	MCC 2B54	H ₂ Purge Containment Iso. Valve 2CV-8259-2
52-54J2	52-54J3	MCC 2B54	Containment Elevator Motor 2MM6
52-54K2	52-54J4	MCC 2B54	Containment Building Lighting Panel 27 LA
52-54K3	52-54J8	MCC 2B54	RCP 2P3A Oil Lift Pumps 2P63A1 & A2
52-54K4	52-54F3	MCC 2B54	RCP 2P32B Oil Lift Pumps 2P63B1 & B2
52-61A4	52-61H3	MCC 2B61	Reactor Cavity Cooling Fan 2VSF34B-2
52-61D3	52-61H4	MCC 2B61	Containment Recirculating Fan 2VSF31B-2
52-61D4	52-61H5	MCC 2B61	Containment Recirculating Fan 2VSF31D-2

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

Primary Device Number	Backup Device Number	Location of Devices	System Powered
52-61F2	52-61H6	MCC 2B61	Safety Inject. Tank 2T2C Discharge MOV 2CV-5043-2
52-61G2	52-61K8	MCC 2B61	Check Valve Leakage Drain Valve 2CV-5106-2
52-31G1	52-31G2	MCC 2B31	Pzr Spray Isolation Valve 2CV-4654
52-41F4	42-41F5	MCC 2B41	Pzr Spray Isolation Valve 2CV-4656

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source. ACTION requirements are consistent with Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability."

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants", Revision 1, August 1977 and Generic Letter 84-15. Load Ranges provided in surveillances are allowed to avoid routine overloading of diesel generators. Load in excess of these load ranges for special testing, momentary variation due to changing bus loads, or short term variations shall not invalidate surveillance tests. For the purpose of surveillance testing, the term "standby condition" is defined as the approximate temperature range of the jacket cooling water and engine lube oil sump normally maintained by the engine keep warm systems. An exception to this definition is the engine conditions that exist when performing the hot restart test following the 24 hour EDG endurance run. When performing this test, the engine is near normal operating temperature when in a "standby condition". Additionally, this definition includes the allowance to perform engine prelubrication prior to all planned test starts.

The Diesel Generator Test Schedule, Table 4.8-1 has been developed for the purpose of determining testing requirements based on the number of failures and valid tests using the example provided in Generic Letter 84-15 using a per diesel generator unit basis. The criteria of R.G.1.108 position C.2.e is used for criteria determination.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

Containment electrical penetrations and penetration conductors are protected by either de-energizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance. The 480 volt air frame protective devices utilize electro-mechanical overcurrent elements which are mounted on the protective device and, in some instances, protective relays to trip the protective device. Actuation of the overcurrent element or relay will trip the protective device. The molded case protective devices utilize magnetic or thermal-magnetic overcurrent elements which are contained in the protective device. Actuation of each overcurrent element will trip the protective device.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 146TO

FACILITY OPERATING LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.,

ARKANSAS NUCLEAR ONE, UNIT NO. 2

DOCKET NO. 50-368

1.0 INTRODUCTION

By letter dated June 27, 1991, as supplemented April 29, 1992, Entergy Operations, Inc. (the licensee), submitted a request for changes to the Arkansas Nuclear One, Unit No. 2 (ANO-2) Technical Specifications (TSs). The requested changes would revise the TS for containment penetration conductor overcurrent devices.

The original proposed request to change the TS includes

- 1) adding four devices to TS Table 3.8-1, "Containment Penetration Overcurrent Protective Devices,"
- 2) modifying Surveillance Requirement 4.8.2.5.a.1(a),
- 3) modifying Surveillance Requirement 4.8.2.5.a.1(b),
- 4) adding a new surveillance requirement section numbered 4.8.2.5.a.2 for the 480V air frame breakers, and
- 5) renumbering existing Surveillance Requirement 4.8.2.5.a.2 as 4.8.2.5.a.3 and rewording Surveillance Requirement 4.8.2.5.b to clarify its intent.

The NRC staff reviewed the original request and found changes 1, 4, and 5 to be acceptable. The staff expressed a concern to the licensee that the proposed wording for changes 2 and 3 could be interpreted in a non-conservative manner. By letter dated April 29, 1992, the licensee withdrew its request for changes 2 and 3. In the April 29, 1992, letter the licensee did not also withdraw the proposed Bases changes related to changes 2 and 3. The staff consulted with the licensee and it was agreed that the related Bases changes would be removed as well. The withdrawal did not change the action noticed in the Federal Register (56 FR 41583) on August 21, 1991, and did not affect the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

The licensee proposes to update TS Table 3.8-1 by adding two primary and two secondary overcurrent devices for containment penetrations installed under Design Change Package 82-2072. The proposed change adds overcurrent devices not previously listed in the table. The change is consistent with TS 4.8.2.5, updates Table 3.8-1 to reflect the design change, and is therefore acceptable.

The licensee proposes to add a new surveillance requirement section numbered 4.8.2.5.a.2 to specify testing requirements for the 480V air frame breakers to establish operability, similar to those for the 6.9kV circuit breakers. The licensee proposes to impose new explicit testing requirements for the 480V air frame breakers because there are 480V air frame breakers identified and listed in Table 3.8-1, but explicit testing requirements for these breakers currently do not exist in TS 4.8.2.5.a. (However, the licensee is currently testing these breakers.) The proposed section specifies 1) a performance rate, 2) the calibration of the protective relays, 3) a functional test of the protective relays, and 4) the specific test to be performed to cause breaker trip actuation. The proposed addition is consistent with previously accepted testing requirements for low-voltage breakers at other Combustion Engineering-designed plants (ANO-2 is a Combustion Engineering-designed plant). In addition, periodically establishing operability of the 480V air frame breakers to ensure that the containment penetrations possess overcurrent protection is consistent with General Design Criterion 18 of 10 CFR Part 50, Appendix A, and NRC Regulatory Guide 1.63. Therefore the new surveillance requirement is acceptable.

The licensee proposes to add to the surveillance requirements for the 480V breakers a statement specifying that all other circuit breakers of a type must be tested if any breaker of that type fails to function as designed when tested. This requirement is now specified for the molded case breakers and is consistent with it. In addition, this additional testing ensures operability of the 480V breakers since all of them would now be tested, instead of a sample. Conducting testing of all breakers when indications of degradation exist in a sample is a conservative test practice. The staff finds that the change is, therefore, acceptable.

The licensee proposes to reformat Surveillance Requirement 4.8.2.5.a.2, renumbered as 4.8.2.5.a.3, and to reword Surveillance Requirement 4.8.2.5.b to clarify its intent. In addition, the Bases for TS 4.8.2.5 were changed to add greater detail regarding the testing of the molded case circuit breakers and the 480V air frame breakers. These changes do not change any of the testing requirements specified in the previous TSs. The staff finds that these changes do not affect the original intent and are, therefore, acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (56 FR 41583). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: R. Jenkins, Electrical Engineering Branch
T. Alexion, PD4-1

Date: April 16, 1993