November 28, 2000

Mr. Craig G. Anderson
Vice President, Operations ANO
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72801

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: ACTION REQUIREMENTS FOR INOPERABLE ELECTRICAL BUSES IN MODES 5 AND 6 (TAC NO. MA9090)

Dear Mr. Anderson:

The Commission has issued the enclosed Amendment No. 227 to Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit No. 2 (ANO-2). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 25, 2000.

The amendment changes the action statements for TS 3.8.2.2, A.C. Distribution - Shutdown, and TS 3.8.2.4, D.C. Distribution - Shutdown, by replacing the requirement to establish containment integrity within 8 hours with a requirement to immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions. Related changes to the associated Bases are also made.

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

Sincerely,

/RA/

Thomas W. Alexion, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures:
1. Amendment No. 227 to NPF-6
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION

PUBLIC	RidsNrrPMTAlexion
PDIV-1 RF	RidsNrrLADJohnson
RidsNrrDripRtsb (WBeckner)	RJenkins
RidsNrrDlpmPdiv (SRichards)	RidsRgn4MailCenter (KBrockman)
RidsOgcRp	L.Hurley,RIV
RidsAcrsAcnwMailCenter	D. Bujol,RIV
G.Hill(2)	
RidsNrrDlpmPdivLpdiv1 (RGramm)	

Accession No.: *SE input date, **see previous concurrence

OFFICE	PDIV-1/PM	PDIV-1/LA	EEIB/SE	OGC	PDIV-1/SC
NAME	TAlexion	DJohnson	CHolden*	RWeisman**	RGramm
DATE	11/28/00	11/28/00	10/31/00	11/21/00	11/28

DOCUMENT NAME: G:\PDIV-1\ANO2\AMDA9090.wpd

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NRR-058

Arkansas Nuclear One

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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 227
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 May 25, 2000, 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. 227, 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 its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A Gramm

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

Attachment: Changes to the Technical Specifications

Date of Issuance: November 28, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 227

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3/4 8-7	3/4 8-7
3/4 8-10	3/4 8-10
B 3/4 8-1	B 3/4 8-1

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following A.C. electrical busses shall be OPERABLE:

1 - 4160 volt Emergency Bus

1 - 480 volt Emergency Load Center Bus

4 - 480 volt Motor Control Center Busses

2 - 120 volt A.C. Vital Busses

APPLICABILITY: MODES 5 and 6

ACTION:

With less than the above complement of A.C. busses OPERABLE and energized, immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The specified A.C. busses shall be determined OPERABLE at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.4 As a minimum, the following D.C. electrical equipment and bus shall be energized and OPERABLE:

1 - 125-volt D.C. bus, and

1 - 125-volt battery bank and charger supplying the above D.C. bus.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above complement of D.C. equipment and bus OPERABLE, immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions.

SURVEILLANCE REQUIREMENTS

4.8.2.4.1 The above required 125-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 125-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.

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" and the Revised Standard Technical Specifications (NUREG 1432). The evaluation of a common cause failure (degradation that may affect the OPERABILITY of the remaining diesel generator) should be completed within 24 hours from when the affected diesel generator is determined to be inoperable.

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. Upon loss of a required power source, suspension of core alterations, the handling of irradiated fuel, and activities involving positive reactivity additions act to minimize the probability of the occurrence of postulated events. Suspension of these activities shall not preclude placing fuel assemblies in a safe position.

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 system. 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 criterial determination.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 227 TO

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 May 25, 2000, 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 change the action statements for TS 3.8.2.2, A.C. Distribution - Shutdown, and TS 3.8.2.4, D.C. Distribution - Shutdown, by replacing the requirement to establish containment integrity within eight hours with a requirement to immediately suspend core alterations, the movement of irradiated fuel assemblies, and any operations involving positive reactivity additions. Related changes to the associated Bases are also proposed.

2.0 EVALUATION

The current ANO-2 TSs 3.8.2.2 and 3.8.2.4 specify that containment integrity be established within eight hours if less than the required complement of alternating current (AC) or direct current (DC) distribution equipment is operable. The licensee proposes to replace the establishment of containment integrity action in TSs 3.8.2.2 and 3.8.2.4 with the following actions:

> "Immediately suspend core alterations, the movement of irradiated fuel assemblies, and any other operations involving positive reactivity additions."

The licensee also proposed to add the following statement to Bases 3/4.8, "Electrical Power Systems:"

> "Upon loss of a required power source, suspension of core alterations, the handling of irradiated fuel, and activities involving positive reactivity additions act to minimize the probability of the occurrence of postulated events. Suspension of these activities shall not preclude placing fuel assemblies in a safe position."

The principal differences between the proposed changes and TS 3.8.10 of NUREG-1432, Volume 1, Combustion Engineering Standard Technical Specifications (CESTS) are:

(1) declaration of associated supported required features as inoperable, (2) initiation of action to restore the required AC or DC distribution subsystems to an operable condition, and (3) declaration of associated required shutdown cooling subsystems as inoperable and not in operation. The above differences in the CESTS, while appropriate for the identification and restoration of inoperable equipment, are not material to the decision whether to replace the containment integrity action with the proposed actions, as they are addressed, as necessary, in other ANO-2 TSs.

During operation in Modes 1 through 4, a design basis accident could cause a release of radioactive material into the containment. In these modes of operation, prevention against the release of this radioactive material to the environment is accomplished by maintaining containment integrity. In Modes 5 and 6, however, the probability and consequences of these events are lower because of the reactor coolant system pressure and temperature limitations. A minimum complement of electrical power sources and distribution systems is established to assure adequate power for systems required to recover from a boron dilution event or a fuel handling accident. A single power train/division is adequate when in Modes 5 and 6 because there is additional time available to restore power before fuel damage would occur. Additionally, because of the lack of a containment pressurization potential, less stringent requirements are needed to isolate the containment from the outside atmosphere. These less stringent requirements are applied during core alterations or the movement of irradiated fuel within containment, as addressed in TS 3.9.4 relating to containment penetrations.

When the number of energized AC or DC power distribution systems are less than the minimum required by the TS, sufficient power may not be available to recover from a fuel handling accident or a boron dilution event. Consequently, the proposed action statements require immediate suspension of core alterations, the handling of irradiated fuel, and activities involving positive reactivity additions within the containment. These actions would preclude the occurrence of the postulated events during the period of time when the complement of AC or DC distribution subsystems is less than adequate. It should be noted that the proposed action requirements for TSs 3.8.2.2 and 3.8.2.4 are equivalent to those now specified in TS 3.8.1.2 for the minimum AC power sources required in Modes 5 and 6.

A containment boundary will continue to be provided when there are operations being conducted which could lead to a fuel handling accident or boron dilution event. Containment penetration closure is equivalent to containment integrity under these circumstances. In sum, the TS containment penetration closure requirements provide the necessary conservatism and mitigation of unforeseen situations during shutdown. Therefore, since there is no need for establishing containment integrity in Modes 5 and 6, and the proposed changes to the action statements provide appropriate protection to mitigate the loss of the electrical distribution function, the subject changes are acceptable.

3.0 EVALUATION SUMMARY

Based upon the above evaluation, the staff concludes that the proposed changes for TSs 3.8.2.2 and 3.8.2.4, and Bases 3/4.8 are acceptable based on the following:

- The new action requirements provide appropriate measures, given the expected conditions during Modes 5 and 6 operation, in order to prevent or control the

consequences of a fuel handling or boron dilution event. Given that the potential for a containment pressurization condition during a fuel handling or boron dilution event is low, these measures are better suited than existing action requirements in order to maintain the plant in a safe condition.

- The subject changes provide greater consistency with the existing action requirements, as specified in TS 3.8.1.2, that are associated with inoperable AC sources in Modes 5 and 6.

4.0 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.

5.0 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. 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 (65 FR 43045, dated July 12, 2000). 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.

6.0 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 Contributor: R. Jenkins

Date: November 28, 2000