

December 14, 1992

Docket No. 50-368

Mr. Neil S. Carns
Vice President, Operations ANO
Entergy Operations, Inc.
Route 3 Box 137G
Russellville, Arkansas 72801

Dear Mr. Carns:

SUBJECT: ISSUANCE OF AMENDMENT NO. 140 TO FACILITY OPERATING LICENSE
NO. NPF-6 - ARKANSAS NUCLEAR ONE, UNIT NO. 2 (TAC NO. M81933)

The Commission has issued the enclosed Amendment No. 140 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 October 15, 1991.

The amendment deletes two inboard containment purge isolation valves from TS Table 3.6-1.

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. 140 to NPF-6
2. Safety Evaluation

cc w/enclosures:
See next page

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T. Alexion (2)	M. Virgilio	J. Larkins
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C. Grimes(MS11E22)	PD4-1 Plant File	OPA(MS2G5)
OC/LFMB(MS4503)	W. Johnson, RIV	

OFC	LA:PD4-1	PM:PD4-1	OGC	D:PD4-1
NAME	PNoonan	TAlexion	EHoller	JLarkins
DATE	8/31/92	9/2/92	11/23/92	12/14/92

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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 written over 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

cc w/enclosures:
See next page

Mr. Neil S. Carns
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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. 140
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 October 15, 1991, 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.

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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. 140, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



John T. Larkins, 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: December 14, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 140

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

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

REMOVE PAGE

3/4 6-19

INSERT PAGE

3/4 6-19

TABLE 3.6-1 (Cont.)

CONTAINMENT ISOLATION VALVES

<u>PENETRATION NUMBER</u>	<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>ISOLATION TIME (SEC)</u>
A. CONTAINMENT ISOLATION (Cont.)			
2P68	2CV-2060-1	Containment Sump Isolation (inside)	≤ 20
	2CV-2061-2	Containment Sump Drain Isolation (outside)	≤ 20
2P69	2CV-2202-1	Reactor Drain Tank Discharge (inside)	≤ 20
	2CV-2201-2	Reactor Drain Tank Discharge (outside)	≤ 20
B. CONTAINMENT PURGE			
2P6	2SV-8231-2	H ₂ Purge Inlet Isolation (outside)	≤ 20
	2SV-8273-1	H ₂ Purge Outlet Isolation (inside)	≤ 20
	2SV-8271-2	H ₂ Purge Outlet Isolation (outside)	≤ 20
2P58	2SV-8261-2	Containment Atmosphere Sample (outside)	≤ 20
	2SV-8265-1	Containment Atmosphere Sample (inside)	≤ 20
	2SV-8263-2	Containment Atmosphere Sample (outside)	≤ 20
2V1	2CV-8284-2	Containment Purge Inlet Isolation (outside)	≤ 5
	2CV-8283-1	Containment Purge Inlet Isolation (outside)	≤ 5
2V2	2CV-8286-2	Containment Purge Outlet Isolation (outside)	≤ 5
	2CV-8285-1	Containment Purge Outlet Isolation (outside)	≤ 5

TABLE 3.6-1 (Cont.)
CONTAINMENT ISOLATION VALVES

<u>PENETRATION NUMBER</u>	<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>ISOLATION TIME (SEC)</u>
C. MANUAL			
2P7	2CV-5850#*	"A" S/G Sample Isolation (inside), operated from 2C17	N.A.
	2CV-5858#*	"B" S/G Sample Isolation (inside), operated from 2C17	N.A.
2P19	2FP-35#	Refueling Canal Recirculation Line (inside)	N.A.
	2FP-34	Refueling Canal Recirculation Line (outside)	N.A.
2P32	2CV-1015#*	"A" S/G Blowdown Isolation (inside), operated from 2C33	N.A.
2P37	2SV-5872#*	SI Tank 2T2A Sample (inside)	N.A.
	2SV-5873#*	SI Tank 2T2B Sample (inside)	N.A.
	2SV-5874#*	SI Tank 2T2C Sample (inside)	N.A.
	2SV-5875#*	SI Tank 2T2D Sample (inside)	N.A.
2P42	2PH-44#	Plant Heating Return Isolation (inside)	N.A.
	2PH-45	Plant Heating Return Isolation (outside)	N.A.
2P43	2SA-68	Service Air Supply Isolation (outside)	
2P46	2BA-217	Breathing Air Supply Isolation (outside).	
2P48	2PH-22	Plant Heating Supply Isolation (outside)	N.A.
	2PH-23#	Plant Heating Supply Isolation (inside)	N.A.
2P64	2CV-1065#*	"B" S/G Blowdown Isolation (inside), operated from 2C33	N.A.

TABLE 3.6-1 (Cont.)
CONTAINMENT ISOLATION VALVES

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	2CV-5858#*	"B" S/G Sample Isolation (inside), operated from 2C17	N.A.
2P19	2FP-35#	Refueling Canal Recirculation Line (inside)	N.A.
	2FP-34	Refueling Canal Recirculation Line (outside)	N.A.
2P32	2CV-1015#*	"A" S/G Blowdown Isolation (inside), operated from 2C33	N.A.
2P37	2SV-5872#*	SI Tank 2T2A Sample (inside)	N.A.
	2SV-5873#*	SI Tank 2T2B Sample (inside)	N.A.
	2SV-5874#*	SI Tank 2T2C Sample (inside)	N.A.
	2SV-5875#*	SI Tank 2T2D Sample (inside)	N.A.
2P42	2PH-44#	Plant Heating Return Isolation (inside)	N.A.
	2PH-45	Plant Heating Return Isolation (outside)	N.A.
2P43	2SA-68	Service Air Supply Isolation (outside)	
2P46	2BA-217	Breathing Air Supply Isolation (outside).	
2P48	2PH-22	Plant Heating Supply Isolation (outside)	N.A.
	2PH-23#	Plant Heating Supply Isolation (inside)	N.A.
2P64	2CV-1065#*	"B" S/G Blowdown Isolation (inside), operated from 2C33	N.A.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 140 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 October 15, 1991, Entergy Operations, Inc. (the licensee) submitted a request for changes to the Arkansas Nuclear One, Unit No. 2 (ANO-2) Technical Specifications (TS). The requested changes would delete two inboard containment purge isolation valves 2CV-8289-1 and 2CV-8291-1 from TS Table 3.6-1. In addition, the licensee requested an exemption from compliance with the requirements of General Design Criterion (GDC) 56 to allow use of the redundant outboard isolation valves 2CV-8283-1 and 2CV-8285-1 to maintain containment integrity. The licensee indicated that as a follow-up to Information Notice 88-73, it discovered that the sloped valve body seals of the inboard containment purge isolation valves 2CV-8289-1 and 2CV-8291-1 are oriented in a direction which is less likely to seal when pressurized from the containment side. Because of the system design, it is not possible to perform traditional local leak rate testing (LLRT) of the valves with pressure applied to the valve's disc from the containment side. Previously LLRT was conducted by pressuring the inboard isolation valves from a reverse direction.

The proposed change will allow the use of existing redundant outboard containment isolation valves in the two affected penetrations to provide essentially equivalent double isolation capability assumed in the design basis analysis. The licensee indicated that the modifications to allow proper leak rate testing of the currently installed inboard valves or complete replacement will result in substantial cost without a significant reduction in any safety limit.

2.0 EVALUATION

The licensee indicated that the main purge supply and exhaust lines that penetrate the containment building utilize three isolation valves in series—one valve inside the containment and two valves outside the containment. The two redundant outboard isolation valves in the purge lines are air-operated, fail closed, 54-inch butterfly valves with resilient seals. The valves are controlled by key operated handswitches from the control room and are maintained in a sealed closed position in operational Modes 1, 2, 3 and 4 by removing the keys from the handswitches in accordance with TS

3.6.1.6. The valves also receive an automatic close signal upon initiation of the containment isolation actuation or safety injection actuation (CIS/SIS). The first outboard isolation valve receives a close signal from CIS/SIS #1 and the second outboard isolation valve from CIS/SIS #2. Position indication for each valve is provided in the control room.

The licensee stated that the containment purge system is not credited for performing any safety-related function and is not required to operate during a design basis accident. The closed redundant outboard isolation valves will provide a double barrier to the release of radioactivity for the purge lines following a design basis event. A vent line originally provided to route any potential leakage past the first outboard valve to the Penetration Rooms Ventilation System is sealed closed with a welded pipe cap to maintain a double containment isolation barrier.

Operation of either the inboard or the outboard purge isolation valves to provide containment isolation during operation Modes 5 or 6 is not required to maintain the offsite doses within the limits of 10 CFR Part 100 in accordance with the ANO-2 design basis fuel handling accident analysis. One outboard containment isolation valve in each penetration is designed to close automatically upon detection of high activity levels to prevent the release of radioactivity through the purge system.

The proposed arrangement of containment isolation valves for the containment purge system, in which both isolation valves are located outside the containment, does not conform with the explicit requirements of GDC 56. GDC 56 requires one inside and one outside containment isolation valve, unless it can be demonstrated that isolation provisions for a specific class of lines are acceptable on some other defined basis. The licensee indicated that although no explicit guidelines are provided for alternate containment isolation design provisions for lines such as containment purge lines, the guidance contained in Standard Review Plan (SRP) Section 6.2.4, Item II 6.d is relevant to the proposed ANO-2 design. The above guidance states that both isolation valves may be located outside containment if the isolation valve nearest containment and the piping between the containment and the valve is conservatively designed to preclude a breach of piping integrity. The design of the ANO-2 outboard containment isolation valves and associated piping complies with this criterion. The licensee stated that the outboard containment isolation valves and the associated piping are designed to Seismic Category I standards and have a design temperature and pressure rating of 300°F and 65 psig, respectively.

These design ratings exceed the calculated peak design basis accident containment conditions. The valves and piping associated with the containment purge supply and exhaust are classified as Safety Class 2 and are protected from the dynamic effects of potential pipe ruptures. The outboard isolation valves and associated piping will be tested in accordance with the other TS requirements for isolation valves. Additionally, periodic replacement of the valve's resilient seal is included in the plant preventive maintenance program. Therefore, the use of the redundant outboard isolation valves in

each of these containment penetrations which are sealed closed during operational Modes 1 through 4 will provide acceptable isolation provisions for purge system penetrations.

The only potential concern resulting from the use of redundant outboard valves to provide containment isolation is the possibility of tornado missile damage. The licensee stated that the outboard isolation valves are located in close proximity to each other. The physical arrangement minimizes the piping between the isolation valves which could be subjected to potential tornado missile damage. These valves are located at high elevation and are significantly shielded from horizontal tornado missiles by the containment and auxiliary buildings. Using the techniques of NUREG/CR-4713, the likelihood of any size tornado generating a missile that impacts any part of the outside containment purge piping or valves within 30 days following a LOCA of any size is calculated to be much less than 10^{-10} per year. Therefore, the possibility of tornado missile damage to the purge isolation valves or piping concurrent with a LOCA is not considered credible.

In a telephone conversation with the staff, the licensee also stated that the nature of the LLRT of the outboard containment purge isolation valves will require that the inboard containment purge isolation valves continue to be maintained. The test is performed by pressurizing between the inboard purge isolation valve and the outboard purge isolation valve being tested and measuring the pressure decay. The decay rate is equated to valve leakage, all of which will be attributed to the outboard isolation valve. The licensee indicated that it will continue to maintain the inboard containment purge isolation valves as safety related equipment and will keep them sealed closed during operational Modes 1 through 4, and the existing containment isolation signal will be maintained as an additional impediment to the release of radioactivity through the containment piping.

The staff has reviewed the licensee's submittal as discussed above and finds that the containment isolation provisions for the two penetrations associated with the containment purge supply and exhaust lines are acceptable on the basis that the use of redundant outboard containment isolation valves on each penetration, which are designed to the acceptance criteria of II 6.d of SRP 6.2.4 and are tested per 10 CFR Part 50, Appendix J, provide an equivalent degree of containment isolation as that assumed in the design basis accident analysis. With the additional impediment to the release of radioactivity provided by the inboard isolation valves, which will be kept sealed closed during operational Modes 1 through 4, the proposed change does not involve a significant reduction in margin of safety.

3.0 SUMMARY

Based on the above evaluation, the staff finds that the proposed TS change, to remove the inboard containment isolation valves 2CV-8289-1 and 2CV-8291-1 from the listing of the containment isolation valves, is acceptable because the redundant containment purge isolation valves provide an essentially equivalent degree of double containment isolation assumed in the design basis analysis.

In addition, the licensee will maintain the inboard purge isolation valves as safety-related equipment and keep them sealed closed during operating Modes 1 through 4 with the existing containment isolation signals, for additional impediment to the release of radioactivity.

The staff also concludes that an exemption from GDC 56 is not needed in that GDC 56 provides that the isolation provisions for a specific class of lines may be demonstrated acceptable on some other defined basis. Containment isolation provisions for the containment purge supply and exhaust lines are acceptable on the basis described in this evaluation.

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 (57 FR 40211). 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. Goel, SPLB

Date: December 14, 1992