

May 11, 1983

DMB 016

DISTRIBUTION:

Docket File  
NRC PDR  
L PDR  
ORB#4 Rdg  
Gray File +4

DEisenhut  
RIngram  
GVising  
OELD  
AEOD  
ACRS-10  
EJordan  
Tippolito  
TBarnhart-4

CMiles  
NSIC  
JTaylor  
RDiggs  
SECY w/NRC 102  
Hornstein  
EBlackwood  
TWambach  
OParr  
V Benaroya

Docket No. 50-313

Mr. John M. Griffin  
Vice President, Nuclear Operations  
Arkansas Power & Light Company  
P. O. Box 551  
Little Rock, Arkansas 72203

Dear Mr. Griffin:

The Commission has issued the enclosed Exemption to certain requirements of Appendix R to 10 CFR 50 for Arkansas Nuclear One, Unit No. 1 (ANO-1) in response to your request for exemption by letter of December 28, 1982, as supplemented by letter dated February 11, 1983. The Exemption pertains to Section III.L.1 of Appendix R, the requirement that the plant be capable of achieving cold shutdown within 72 hours without the use of offsite power.

The basis for this exemption is contained in the Exemption. A copy of the Exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

APPROVED BY  
JOHN F. STOLZ

John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Enclosure:  
Exemption

cc w/enclosure:  
See next page

*to T Wambach  
3/24/83  
W. Shields  
(as modified)  
3/26/83*

B305170677 B30511  
PDR ADDCK 05000313  
F PDR

OFFICE	ORB#4:DL	ORB#4:DL	ORB#5:DL	AD-OR:DL	OELD	D-DL	C-ORB#4:DL
SURNAME	RIngram	GVising	TWambach	GLafias	M. Parr	DEisenhut	JStolz
DATE	3/1/83	3/1/83:cb	3/1/83	3/1/83	3/1/83	3/1/83	3/26/83



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555  
May 11, 1983

DISTRIBUTION:  
Docket File  
ORB#4 Rdg  
RIngram

Docket No. 50-313

Docketing and Service Section  
Office of the Secretary of the Commission

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 1

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies ( 6 ) of the Notice are enclosed for your use.

- Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.
- Notice of Availability of Applicant's Environmental Report.
- Notice of Proposed Issuance of Amendment to Facility Operating License.
- Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- Notice of Availability of NRC Draft/Final Environmental Statement.
- Notice of Limited Work Authorization.
- Notice of Availability of Safety Evaluation Report.
- Notice of Issuance of Construction Permit(s).
- Notice of Issuance of Facility Operating License(s) or Amendment(s).
- Other: Exemption from Appendix R requirements to achieve cold shutdown within 72 hours without the use of offsite power.

Division of Licensing, ORB#4  
Office of Nuclear Reactor Regulation

Enclosure:  
As Stated

OFFICE →	ORB#4: DL					
SURNAME →	RIngram;cf					
DATE →	5/17/83					

Arkansas Power & Light Company

cc w/enclosure(s):

Mr. John R. Marshall  
Manager, Licensing  
Arkansas Power & Light Company  
P. O. Box 551  
Little Rock, Arkansas 72203

Mr. James P. O'Hanlon  
General Manager  
Arkansas Nuclear One  
P. O. Box 608  
Russellville, Arkansas 72801

Mr. Leonard Joe Callan  
U.S. Nuclear Regulatory Commission  
P. O. Box 2090  
Russellville, Arkansas 72801

Mr. Robert B. Borsum  
Babcock & Wilcox  
Nuclear Power Generation Division  
Suite 220, 7910 Woodmont Avenue  
Bethesda, Maryland 20814

Mr. Nicholas S. Reynolds  
Debevoise & Liberman  
1200 17th Street, NW  
Washington, DC 20036

Honorable Ermil Grant  
Acting County Judge of Pope County  
Pope County Courthouse  
Russellville, Arkansas 72801

Regional Radiation Representative  
EPA Region VI  
1201 Elm Street  
Dallas, Texas 75270

Mr. John T. Collins, Regional Administrator  
U. S. Nuclear Regulatory Commission, Region IV  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

Director, Bureau of Environmental  
Health Services  
4815 West Markham Street  
Little Rock, Arkansas 72201

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of	}	
ARKANSAS POWER & LIGHT COMPANY	}	Docket No. 50-313
(Arkansas Nuclear One, Unit No. 1)	}	

EXEMPTION

I.

Arkansas Power and Light Company (AP&L or the licensee) is the holder of Facility Operating License No. DPR-51, which authorizes the operation of Arkansas Nuclear One, Unit 1 (the facility). The facility consists of a pressurized water reactor (PWR), located at the licensee's site in Russellville, Arkansas.

The license is subject to all rules and regulations of the Nuclear Regulatory Commission (the Commission).

II.

10 CFR 50.48, "Fire Protection", and Appendix R to 10 CFR Part 50, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979" set forth certain specific fire protection features required to satisfy the General Design Criterion related to fire protection (Criterion 3, Appendix A to 10 CFR 50).

Section III.L requires that the alternative and dedicated shutdown capability provided for a specific fire area be able to achieve cold shutdown conditions within 72 hours without the use of offsite power.

### III.

By letter dated December 28, 1982, as supplemented by letter dated February 11, 1983, the licensee requested exemption from the specific requirements of Appendix R, Section III.L, which requires that the plant be capable of achieving cold shutdown within 72 hours without the use of offsite power. The acceptability of this request is addressed below.

### IV.

Without offsite power, the reactor coolant pumps cannot be operated and, therefore, the auxiliary pressurizer spray capability is lost. The licensee has indicated that the facility is unable to achieve cold shutdown within 72 hours because of the additional time required to cool and depressurize the reactor coolant system (RCS) without auxiliary pressurizer spray. The licensee provided a summary of a very conservative analysis which assumes no steam void formation in the upper reactor vessel (RV) head. This analysis, which was performed by Babcock and Wilcox (B&W), concludes that a minimum of 135 hours is needed to reach the decay heat removal system cut-in point of 291 psig and 280°F. Void formation in the upper RV head is permitted by emergency procedures under controlled conditions that would sustain natural circulation in the primary system. Additionally, it is estimated that it will take approximately five hours

to reduce the RCS temperature from 280°F to 200°F (cold shutdown) with the decay heat removal system in operation. Therefore, a total of approximately 140 hours will be required to reach cold shutdown without voiding the RV head. This cold shutdown condition can be achieved without the use of offsite power. If necessary, cold shutdown conditions can be achieved in 72 hours; however, this procedure would permit flashing in the RV head. The licensee chose not to take credit for this procedure, but instead to provide a more conservative analysis based upon no flashing in the upper head.

Section III.L.3 requires the assumption of loss of offsite power for 72 hours. A fire scenario as it relates to offsite power and the safe shutdown equipment could proceed in the following ways:

- (1) No loss of offsite power, power source to safe shutdown equipment maintained;
- (2) Loss of offsite power but it is restored within 72 hours, power source for all safe shutdown equipment available to attain cold shutdown;
- (3) Loss of offsite power for more than 72 hours, hot shutdown conditions satisfactory, no need to go to cold shutdown;
- (4) Loss of offsite power for more than 72 hours, cold shutdown can be attained in 140 hours by the method proposed by the licensee and is not needed before then;
- (5) Loss of offsite power for more than 72 hours, cold shutdown is needed before 140 hours, the emergency operating procedure for controlled cooldown with void formation in upper head can be used.

These scenarios are listed in their probability of occurrence. Only the last two would be considerations for this exemption request. Both of these cases can be accommodated; however, the option of reaching cold shutdown in 140 hours with no void formation in the upper head is preferable for overall plant safety.

Based upon this conservative approach of the licensee, together with the unlikeliness of the events that would require both cold shutdown and the inability to return offsite power within 72 hours as well as the availability of a less preferred method of controlled cooldown in less than 72 hours, if needed, we conclude that an approximate time of 140 hours is acceptable to achieve cold shutdown without offsite power. We therefore conclude that an exemption from the requirements of Section III.L to the extent that it requires the capability to achieve cold shutdown within 72 hours without offsite power should be granted.

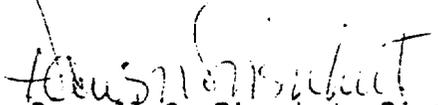
V.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the exemption requested by the licensee's letters as referenced and discussed in III. and IV. above is authorized by law, will not endanger life or property or the common defense and security, is otherwise in the public interest, and is hereby granted.

The Commission has determined that the granting of this exemption will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhut, Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland  
this 11th day of May 1983