

October 5, 1978

Docket No.: 50-313

Mr. William Cavanaugh, III
Executive Director, Generation
and Construction Department
Arkansas Power & Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Cavanaugh:

The Commission has issued the enclosed Amendment No. 36 to Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1 (ANO-1). The amendment consists of changes to the Technical Specifications in response to your letter dated July 19, 1978, as supplemented September 25, 1978.

The amendment modifies the Technical Specifications for ANO-1 to allow the handling of a 25 ton shielded shipping cask on a one time basis to remove and ship irradiated B₄C test rods which are stored in the ANO-1 fuel storage pool.

Your letter dated September 25, 1978, requested that we proceed with our present review to allow your use of the NAC-1 with appropriate conditions without limitations on the number of times it can be used. Our review of this matter requires our review of the effect of a dropped cask on the safety related switch gear under the travel path of the cask and will probably require additional information. Therefore, before we continue with your specific request and because of our limited resources for continuing the review, we request your plans and schedules for future handling of the NAC-1 cask which would justify our continuing review.

We note by our letter dated August 15, 1978, that your initial requested action of July 19, 1978, falls in Class IV which requires an amendment fee of \$12,300. Since you have requested our continuing review of this action to allow unlimited handling of the NAC-1 cask, we consider this to be a partial response to your request. If after the final evaluation of the total action, it is determined that the fee classification is changed, we will advise you accordingly.

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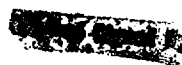
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Arkansas Power & Light Company - 2 -

Copies of the Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,


Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures:

1. Amendment No. **36**
2. Safety Evaluation
3. Notice

cc w/enclosures: See next page

*SEE PREVIOUS YELLOW FOR CONCURRENCES

OFFICE >	ORB#4:DOR	ORB#4:DOR	OELD	C-LEMB	C-ORB#4:DOR
SURNAME >	RIngram*	W. King:rf	CWoodhead*	NOMiller	RReid
DATE >	9/29/78	10/4/78	10/3/78	10/4/78	10/5/78

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Executive Director, Generation
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Arkansas Power & Light Company,
P. O. Box 551
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Copies of the Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

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Enclosures and cc: See next page

OFFICE	ORB#4:DOR	ORB#4:DOR	C-PSB:DOR	C-PSB:DOR	OELD	C-ORB#4:DOR
SURNAME	Ringram	GVissing:rf	GLainas	VNoonan	WWoodward	RReid
DATE	9/29/78	9/28/78	10/1/78	10/1/78	10/3/78	1/1/78

Arkansas Power & Light Company

cc w/enclosures:

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Mr. John W. Anderson, Jr.
Plant Superintendent
Arkansas Nuclear One
Post Office Box 608
Russellville, Arkansas 72801

Arkansas Polytechnic College
Russellville, Arkansas 72801

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

Chief, Energy Systems Analyses
Branch (AW-459)
Office of Radiation Programs
U. S. Environmental Protection Agency
Room 645, East Tower
401 M Street, S. W.
Washington, D. C. 20460

U. S. Environmental Protection Agency
Region VI Office
ATTN: EIS COORDINATOR
1201 Elm Street
First International Building
Dallas, Texas 75270

cc w/enclosures & incoming dtd:
7/19 & 9/25/78
Director, Bureau of Environmental
Health Services
4815 West Markham Street
Little Rock, Arkansas 72201



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

ARKANSAS POWER & LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE - UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 36
License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The filing by Arkansas Power & Light Company (the licensee) dated July 19, 1978, as supplemented by letter dated September 25, 1978, 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 licensee's filing, 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 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.

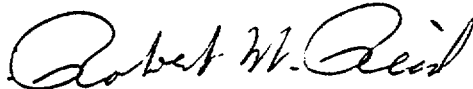
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 36, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 5, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 36

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Revise the Appendix A Technical Specifications as follows:

Remove Pages

59

Insert Pages

59

Changes on the revised page are identified by marginal lines.

- 3.8.10 The reactor building purge isolation system, including the radiation monitors shall be tested and verified to be operable within 7 days prior to refueling operations.
- 3.8.11 Irradiated fuel shall not be removed from the reactor until the unit has been subcritical for at least 72 hours.
- 3.8.12 All fuel handling in the Auxiliary Building shall cease upon notification of the issuance of a tornado watch for Pope, Yell, Johnson, or Logan counties in Arkansas. Fuel handling operations in progress will be completed to the extent necessary to place the fuel handling bridge and crane in their normal parked and locked position.
- 3.8.13 No loaded spent fuel shipping cask shall be carried above or into the Auxiliary Building equipment shaft unless atmospheric dispersion conditions are equal to or better than those produced by Pasquill type D stability accompanied by a wind velocity of 2 m/sec. In addition, the railroad spur door of the Turbine Building shall be closed and the fuel handling area ventilation system shall be in operation.
- 3.8.14 For the maximum fuel pool heat load capacity (i.e., seven reload batches (413 assemblies) stored in the pool at the time of discharge of the full core) the full core to be discharged shall be cooled in the reactor vessel a minimum of 175 hours prior to discharge.
- 3.8.15 Loads in excess of 2000 pounds shall be prohibited from travel over fuel assemblies in the storage pool.
- * 3.8.16 The spent fuel shipping cask shall not be carried by the auxiliary building crane pending the evaluation of the spent fuel cask drop accident and the crane design by AP&L and NRC review and approval.

Bases

Detailed written procedures will be available for use by refueling personnel. These procedures, the above specifications, and the design of the fuel handling equipment as described in Section 9.7 of the FSAR incorporating built-in interlocks and safety features, provide assurance that no incident could occur during the refueling operations that would result in a hazard to public health and safety. If no change is being made in core geometry, one flux monitor is sufficient. This permits maintenance on the instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. The decay heat removal pump is used to maintain a uniform boron concentration.⁽¹⁾ The shutdown margin indicated in Specification 3.8.4 will keep the core subcritical, even with all control rods withdrawn from the core.⁽²⁾ The boron concentration will be maintained above 1800 ppm. Although this concentration is sufficient to maintain the core $k_{eff} \leq 0.99$ if all the control rods were removed from the core, only a few control rods will be removed at any one time during fuel shuffling and replacement. The k_{eff} with all rods in the core and with refueling boron concentration is approximately 0.9. Specification 3.8.5 allows the control room operator to inform the reactor building personnel of any impending unsafe condition detected from the main control board indicators during fuel movement.

- * On a one time basis during Cycle 3 operation a 25 ton NAC-1 cask shall be allowed to be carried by the auxiliary building crane for the purpose of removing the fuel storage pool irradiated B₄C test rods. The cask handling shall be in accordance with restriction set forth in AP&L letter dated September 25, 1978.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 36 TO FACILITY OPERATING LICENSE NO. DPR-51
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE, UNIT NO. 1
DOCKET NO. 50-313

Introduction

By letter dated July 19, 1978, supplemented by letter dated September 25, 1978, Arkansas Power & Light Company (AP&L or the licensee) requested approval to allow handling of a 25 ton cask in the fuel handling and storage area at Arkansas Nuclear One, Unit No. 1 (ANO-1). With the licensee's concurrence, we determined that the implementation of the request would be a change in the Technical Specifications (TS) appended to Facility Operating License No. DPR-51. This proposed change would allow the cask handling on a one time basis.

Background

As part of a generic type concern related to postulated shipping cask drop accidents on all existing operating reactor facilities, AP&L was requested by letter dated August 31, 1976, to provide additional information on the cask handling and possible cask drop accidents at ANO-1.

Prior to the resolution of this concern, ANO-1, by letter dated October 7, 1976, proposed to expand the storage capacity of the spent fuel storage pool. By letter dated December 17, 1976, we issued Amendment No. 17 to Facility Operating License DPR-51 for ANO-1 which authorized changes which increased the spent fuel storage capacity. This amendment also provided a TS which prohibits the movement of a spent fuel shipping cask by the Auxiliary Building crane pending the evaluation of the spent fuel cask drop accident and crane design by AP&L and approval by the NRC.

The proposed change dated July 19, 1978, as modified by letter dated September 25, 1978, would allow AP&L to remove and ship irradiated B₄C test rods which are stored in the storage pool to Babcock & Wilcox Company on a one time basis using the 25 ton NAC-1 shielded shipping cask.

Discussion

The arrangement of the ANO-1 Auxiliary Building is such as to enable the cask transporter to bring the shielded shipping casks to the overhead electric crane pickup point within the Auxiliary Building. By means of the handling yoke associated with the cask, it would be raised approximately 50 feet, to a carrying height of 9" above the operating floor elevation of 404' - 0". The hoisting system would be electrically interlocked to stop upward cask motion when this elevation is reached. The cask would then be transported, by bridge and trolley motion, sequentially over the ceiling of a portion of the control room housing relay panels, the cask decontamination area and then the cask loading pit where it would then be lowered. The cask loading pit is joined to the spent fuel storage pool by means of a gate.

To preclude the possibility of cask travel over the fuel storage pool during these operations, diverse electrical interlocks (a limit switch and a power disconnect from the main contact rails) are provided. The AP&L analysis in the ANO-1 Final Safety Analysis Report (FSAR) shows that, for the postulated unlikely event of a cask drop accident into the spent fuel storage area, with the crane postulated to travel laterally at full speed and with no operator action, the swing of the cask would not be sufficient to allow the cask to fall into the spent fuel storage area.

To preclude the possibility of cask drop heights exceeding those assumed in the ANO-1 analyses, while the cask is being transported over the operating floor, AP&L has proposed to disable the hoist raising and lowering circuits once the cask has been raised to the proper elevation.

To further minimize the probability of a cask drop accident, AP&L has proposed that the handling and movement of the cask be limited, on a one time basis only, to remove and ship B₄C test rods to Babcock & Wilcox Company using the 25 ton NAC-1 shielded shipping container.

AP&L has also proposed to add an impact limiter consisting of 2" of hexagonal honeycomb material under the cask in addition to the impact limiter which is attached to the cask for shipping purposes.

From the data supplied by AP&L, it appears the maximum dynamic load experienced by the handling yoke would not exceed the 75,000 pound test load conducted by the United States Testing Company, Inc., should a power failure be experienced by the hoist. Further, AP&L has indicated that during a lift, the hoist will slowly take the slack out of the lifting system in order to limit the magnitude of this dynamic load imposed on the lifting device.

Evaluation

We have reviewed the cask drop accident data submitted by the licensee by letters dated July 19 and September 25, 1978. The review included the method used to establish concrete capability and the acceptance criteria for determining that the postulated event (a cask drop of 9") would not damage the concrete floor and thus, the equipment below the floor. We find the method and acceptance criteria used are acceptable and agree with the licensee that a 9" drop of the 25 ton cask will not damage the concrete floor. Our findings are contingent upon the use of the 2" hexagonal honeycomb material when traversing this area.

We find it acceptable that the lifting procedures will limit the magnitude of the dynamic load imposed upon the lifting device.

To preclude cask drop heights exceeding the 9 inches assumed in their analysis over the relay panel room, the licensee indicates that electrical interlocks will stop the hoist. To provide additional assurance that higher drop heights will not occur due to electrical malfunctions or operator errors, the licensee has agreed to disable the hoists raising and lowering control circuits once the proper cask carrying height has been attained and before the cask traverses the operating floor. We find these measures to be acceptable.

The crane is rated for 110 tons while the NAC-1 cask weighs 25 tons. Therefore, for this proposed operation, the crane's factor of safety (at rated load) has been increased by a factor of four. This, plus the additional measure of disabling the hoist control circuits after the cask has been raised to the proper carrying height and before bridge and trolley motions take place, we believe provides sufficient assurance that unacceptable consequences will not occur and is therefore acceptable for the described operations.

We find that limiting the proposed activity to a one time event minimizes the probability of a cask drop and is acceptable.

In summary, we find that the proposed handling of the NAC-1 25 ton cask with handling yoke and the auxiliary crane, the proposed limitations, and the condition that this would be a one time activity will: (1) adequately protect against a postulated cask drop, (2) provide assurance that the floor will withstand a postulated cask drop and (3) further minimize the probability of a postulated cask drop accident. We find the proposed handling of the NAC-1 cask to be acceptable and does not significantly reduce the margin of safety.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: October 5, 1978

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-313ARKANSAS POWER & LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 36 to Facility Operating License No. DPR-51, issued to Arkansas Power & Light Company (AP&L or the licensee), which revised the Technical Specifications for operation of Arkansas Nuclear One, Unit No. 1 (ANO-1 or the facility) located in Pope County, Arkansas. The amendment is effective as of its date of issuance.

The amendment modifies the Technical Specifications for ANO-1 to allow the handling of a 25 ton shielded shipping cask on one time basis to remove and ship irradiated B_4C test rods which are stored in the ANO-1 fuel storage pool.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

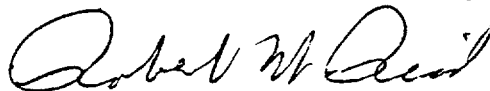
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The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal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

For further details with respect to this action, see (1) the licensee's filing dated July 19, 1978, as supplemented September 25, 1978, (2) Amendment No. 36 to License No. DPR-51, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Arkansas Polytechnic College, Russellville, Arkansas. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 5th day of October 1978,

FOR THE NUCLEAR REGULATORY COMMISSION



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors