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

July 20, 1990

Docket Nos. 50-313
and 50-368

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Mr. Neil S. Carns
Vice President, Nuclear
Arkansas Nuclear One
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Carns:

This package is being reissued in its entirety to amend the issuance date, the effective date, and a reference in the Safety Evaluation.

No changes have been made to any conclusion or technical aspects within the package.

Sincerely,

Thomas W. Alexion

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

Chester Poslusny Jr.

Chester Poslusny, Jr., Project Manager
Project Directorate IV-1
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

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July 16, 1990

Docket Nos. 50-313
and 50-368

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FRosa
GHolahan

Mr. Neil S. Carns
Vice President, Nuclear
Arkansas Nuclear One
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Carns:

SUBJECT: ISSUANCE OF AMENDMENT NOS.131 AND 106TO FACILITY OPERATING LICENSE NOS. DPR-51 AND NPF-6 - ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 (TAC NOS. 66575 AND 66557)

The Commission has issued the enclosed Amendment Nos.131 and 106 to Facility Operating License Nos. DPR-51 and NPF-6 for the Arkansas Nuclear One, Units 1 and 2 (ANO-1&2). These amendments consist of changes to the Technical Specifications (TSs) in response to your applications dated October 30, 1987 as supplemented on September 27, 1989 for Units 1 and 2 and January 29, 1990 for Unit 1 only.

The amendments change the expiration date for the Unit 1 Facility Operating License No, DPR-51 from December 6, 2008 to May 20, 2014, and change the expiration date for the Unit 2 Facility Operating License No. NPF-6 from December 6, 2012 to July 17, 2018.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's next Bi-weekly Federal Register notice.

Sincerely,
original signed by
Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

original signed by
Chester Poslusny, Jr., Project Manager
Project Directorate IV-1
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 131 to DPR-51
2. Amendment No. 106 to NPF-6
3. Safety Evaluation

cc w/enclosures:
See next page
Document Name: ANO 1&2 AMENDMENT

*PLEASE SEE PREVIOUS CONCURRENCE

*PD4/LA	*PD4/PM	*PD4/PM	*DEST/EMTB	*DEST/EMEB	*DEST/SGGB	*SRXB	*SPLB
PNoonan	CPolsuny	TAlexion	C.Y.Cheng	L.Marsh	G.Bagchi	RJones	CMcCracken
02/22/90	02/26/90	03/8/90	03/8/90	03/13/90	03/26/90	03/28/90	03/30/90

SICB	*RAB	*SELB	*OGC-Rock.	PD4-1/D (A)
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Docket Nos. 50-313
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LCunningham	SNewberry	FRosa
LMarsh	GBagchi	

Mr. T. Gene Campbell
Vice President, Nuclear
Arkansas Power and Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Campbell:

SUBJECT: ISSUANCE OF AMENDMENT NOS. AND TO FACILITY OPERATING LICENSE NOS. DPR-51 AND NPF-6 - ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 (TAC NOS. 66575 AND 66557)

The Commission has issued the enclosed Amendment Nos. and to Facility Operating License Nos. DPR-51 and NPF-6 for the Arkansas Nuclear One, Units 1 and 2 (ANO-1&2). These amendments consist of changes to the Technical Specifications (TSs) in response to your applications dated October 30, 1987 as supplemented on September 27, 1989 for Units 1 and 2 and January 29, 1990 for Unit 1 only.

The amendments change the expiration date for the Unit 1 Facility Operating License No, DPR-51 from December 6, 2008 to May 20, 2014, and change the expiration date for the Unit 2 Facility Operating License No. NPF-6 from December 6, 2012 to July 17, 2018.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's next Bi-weekly Federal Register notice.

Sincerely,

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

Chester Poslusny, Jr., Project Manager
Project Directorate IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

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SNewberry	LCunningham	FRosa		FHebdon
04/2/4/90	04/6/90	04/23/90	04/24/90	04/6/90

w/minor changes

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

July 16, 1990

Docket Nos. 50-313
and 50-368

Mr. Neil S. Carns
Vice President, Nuclear
Arkansas Nuclear One
P. O. Box 551
Russellville, Arkansas 72801

Dear Mr. Carns:

SUBJECT: ISSUANCE OF AMENDMENT NOS.131 AND 106TO FACILITY OPERATING LICENSE NOS. DPR-51 AND NPF-6 - ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 (TAC NOS. 66575 AND 66557)

The Commission has issued the enclosed Amendment Nos. 131and 106to Facility Operating License Nos. DPR-51 and NPF-6 for the Arkansas Nuclear One, Units 1 and 2 (ANO-1&2). These amendments consist of changes to the Technical Specifications (TSs) in response to your applications dated October 30, 1987 as supplemented on September 27, 1989 for Units 1 and 2 and January 29, 1990 for Unit 1 only.

The amendments change the expiration date for the Unit 1 Facility Operating License No. DPR-51 from December 6, 2008 to May 20, 2014, and change the expiration date for the Unit 2 Facility Operating License No. NPF-6 from December 6, 2012 to July 17, 2018.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's next Bi-weekly Federal Register notice.

Sincerely,

Thomas W. Alexion

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

Chester Poslusny Jr.

Chester Poslusny, Jr., Project Manager
Project Directorate IV-1
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 131 to DPR-51
2. Amendment No. 106 to NPF-6
3. Safety Evaluation

cc w/enclosures:
See next page

cc:

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Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Office of Executive Director
for Operations
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Arlington, Texas 76011

Honorable Joe W. Phillips
County Judge of Pope County
Pope County Courthouse
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Rockville, Maryland 20852

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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 131
License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Arkansas Power and Light Company dated October 30, 1987, as supplemented on September 27, 1989 and January 29, 1990, comply 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, as amended, 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 Paragraph 3. of Facility Operating License No. DPR-51 and is hereby amended to read as follows:

   This license is effective as of the date of issuance and shall expire at midnight, May 20, 2014.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Richard F. Dudley

Richard F. Dudley, Acting Director
Project Directorate IV-1
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Date of Issuance: July 16, 1990

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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 106
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Arkansas Power and Light Company dated October 30, 1987, as supplemented on September 27, 1989, comply 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, as amended, 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 Paragraph F. of Facility Operating License No. NPF-6 and is hereby amended to read as follows:

   This license is effective as of the date of issuance and shall expire at midnight, July 17, 2018.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Richard F. Dudley

Richard F. Dudley, Acting Director
Project Directorate IV-1
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Date of Issuance: July 16, 1990

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 131 AND 106 TO

FACILITY OPERATING LICENSE NOS. DPR-51 AND NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NOS. 1 AND 2

DOCKET NOS. 50-313 AND 50-368

1.0 INTRODUCTION

By letters dated October 30, 1987 as supplemented on September 27, 1989 for Units 1 and 2 and January 29, 1990 for Unit 1 only, Arkansas Power and Light Company (AP&L) requested amendments to the Facility Operating License Nos. DPR-51 and NPF-6 for Arkansas Nuclear One, Units 1 and 2 (ANO-1&2). The proposed amendments would change the expiration date for ANO-1 from December 6, 2008 to May 20, 2014, and for ANO-2 from December 6, 2012 to July 17, 2018.

2.0 DISCUSSION

Section 103.c of the Atomic Energy Act of 1954 provides that a license is to be issued for a specified period not exceeding 40 years. The Code of Federal Regulations in 10 CFR 50.51 specifies that each license will be issued for a fixed period of time not to exceed 40 years from date of issuance. Also, 10 CFR 50.56 and 10 CFR 50.57 allow the issuance of an operating license pursuant to 10 CFR 50.51 after the construction of the facility has been substantially completed, in conformity with the construction permit and when other provisions specified in 10 CFR 50.57 are met. The currently licensed terms for Arkansas Nuclear One, Units 1 and 2 are 40 years commencing with the issuance of the construction permits (December 6, 1968 and December 6, 1972). Accounting for the time that was required for plant construction, this represents an effective operating license term of 34½ years for each unit. Consistent with Section 103.c of the Atomic Energy Act and Sections 50.51, 50.56 and 50.57 of the Commission's regulations, AP&L, by its application of October 30, 1987, seeks extensions of the operating license terms for ANO-1&2 from the date of operating license issuance.

3.0 EVALUATION

AP&L's request for extension of the operating licenses is based on the fact that a 40-year service life was considered during the design and construction of the plant. Although this does not mean that some components will not wear out during the plant lifetime, design features were incorporated which maximize the inspectability of structures, systems and equipment. Surveillance and maintenance practices which were implemented in accordance with the ASME code and the facility Technical Specifications provide assurance that any unexpected degradation in plant equipment will be identified and corrected.

3.1 Mechanical Equipment

The original Safety Analysis Reports for ANO-1&2 as approved by NRC's Safety Evaluation Reports, have evaluated the adequacy of safety-related mechanical systems, equipment, and components for 40 years of plant operation. It is clear that the design of the plant considered a 40-year service life. Where a specific design lifetime is specified in the Safety Analysis Report, it is at least 40 years (i.e., 32 EFPY at 80% capacity factor). Examples include the description of the reactor pressure vessel, reactor coolant system components, and control element drive mechanisms. In other cases, performance requirements govern the design and no specific design lifetime is stated.

Although some mechanical equipment and components might wear out or need replacement during the plant operating lifetime, existing surveillance and maintenance programs are sufficient to maintain or determine the need for replacement of safety-related components. Periodic inservice inspection and testing requirements have been incorporated into procedures to provide the added assurance that any unanticipated degradation in systems or equipment will be identified and corrected in a timely manner. Therefore, the staff concludes that safety-related mechanical systems, equipment, and components considered will not be impacted by a 40-year operating lifetime.

3.2 Electrical Equipment

The staff has also evaluated the safety implications of extending the ANO-1&2 operating license on safety-related electrical systems and equipment. This evaluation considered AP&L's review of extended service life impacts on equipment, integrated dose qualifications and environmental qualifications in response to 10 CFR 50.49. For safety-related electrical equipment within the scope of 10 CFR 50.49, aging reviews have been conducted by AP&L so as to establish a qualified life for the equipment.

For this equipment, the staff believes that the licensee has controls in place to ensure that required surveillance and maintenance are performed. These are described in the Environmental Qualification Program Manual and ANO procedures. The current AP&L Equipment Qualification (EQ) program is in compliance with 10 CFR 50.49. There are currently no known open EQ issues which are affected by the extension of the operating license.

Based on this evaluation, the staff concludes that electrical systems design, electrical equipment selection and application, and environmental qualification of electrical equipment either considered the effects of a 40-year operational lifetime or will not be affected by a 40-year operational lifetime.

3.3 Reactor Vessel Integrity

The ANO-1 reactor vessel was designed considering the effects of 40 years of operation with a plant capacity factor of 80% (32 EFPY). The B&W Owners Group (BWOG) Integrated Reactor Vessel Material Surveillance Program and the Cavity Dosimetry Program provide the means to continuously monitor the cumulative effects of neutron exposure on reactor vessel materials through 32 EFPY. The analyses of four ANO-1 plant-specific surveillance capsules, which were irradiated at Davis Besse, are documented in the following reports: BAW-1440 (April 1977); BAW-1698 (November 1981); BAW-1836 (July 1984), and BAW-2075 (May 1989).

Specifically for the most recent test, the capsule received an average fast fluence of 1.46×10^{19} n/cm^2 (E greater than 1.0 MeV). Based on the calculated fast flux at the reactor vessel wall, an 80% load factor, and the planned fuel management, the projected fast fluence that the ANO-1 reactor vessel inside surface will receive in 40 calendar years of operation is 9.75×10^{18} n/cm^2 (E greater than 1.0 MeV).

These reports conclude that the current analytical techniques used for predicting the change in both the increase in RT_{NDT} and the decrease in upper-shelf toughness properties are conservative. In addition, the results indicate that the reactor vessel materials exhibited normal changes in tensile strength from exposure to neutron fluence. These analyses show that the expected cumulative neutron fluence on the ANO-1 reactor vessel will not be a limiting consideration for 32 EFPY of plant operation. Completion of the BWOG Integrated Reactor Vessel Material Surveillance Program will ensure compliance with 10 CFR Part 50, Appendices G and H, through 32 EFPY.

The method of Regulatory Guide 1.99, Rev. 2, predicts a decrease in the Charpy upper-shelf energy to below 50 ft-lbs for the controlling weld metal at the vessel inside wall. However, using surveillance data and the prediction techniques presented in BAW-1803, AP&L calculated that none of the reactor vessel material (including the most limiting weld metal) upper-shelf energies will decrease to below 50 ft-lbs during the vessel design life. The uncertainties of the procedures used to evaluate the materials' upper-shelf energies necessitated that a fracture analysis be performed on the most limiting weld metal. This low upper-shelf elastic-plastic toughness analysis of the controlling weld in the ANO-1 reactor vessel is provided in Section 9 of BAW-2075. The analysis used the methodology documented in B&W Topical Report BAW-10046A, Rev. 2. The NRC approved the B&WOG analysis procedures in 1986. The low upper-shelf fracture analysis demonstrated that the most limiting weld metal has adequate irradiated toughness properties to assure safe operation to 32 EFPY.

The results of the tension tests indicated that the materials exhibited normal behavior relative to neutron fluence exposure. The Charpy impact data results exhibited the characteristic increase in transition temperature and decrease in upper-shelf energy. These results demonstrated that the current techniques used for predicting the change in both RT_{NDT} and

upper-shelf properties due to irradiation are conservative. The B&W recommended operating period was extended to 32 EFPY as a result of the fourth capsule evaluation. These new operating limitations are in accordance with the requirements of Appendix G of 10 CFR Part 50. AP&L plans to submit new pressurization, heatup and cooldown limit curves in 1990 based on the results of the fourth capsule examination.

AP&L also plans to install neutron dosimetry in the ANO-1 cavity in 1990 to meet Appendix H monitoring requirements. This dosimetry will be consistent with the B&W Owners Group Dosimetry Program, as described in BAW-1875.

As required by 10 CFR 50.61, AP&L has submitted to the NRC the projected values of RT_{PTS} for ANO-1 reactor vessel materials through the end of the current license and through 32 EFPY. This submittal included results derived from the B&W Owners Group Report BAW-1895, "Pressurized Thermal Shock Evaluations in Accordance With 10 CFR 50.61 for BWOG Reactor Pressure Vessels," dated January 1986. Table 4-6 of the referenced report shows that the RT_{PTS} for all ANO-1 reactor vessel materials is well within the NRC screening criteria through both the current license term, and 32 EFPY. The most limiting material is the middle circumferential weld WF-112, which will have an RT_{PTS} of 251°F upon expiration of the current license and an RT_{PTS} of 264°F at the end of 32 EFPY. These values are below the 10 CFR 50.61 screening criteria of 300°F for circumferential welds. As required by the NRC Safety Evaluation for the ANO-1 PTS evaluation, AP&L is required to submit a revaluation of RT_{PTS} and comparison with the predicted value with future pressure-temperature submittals as per 10 CFR Part 50, Appendix G.

The ANO-2 reactor vessel was also designed considering the effects of 40 years of operation at a plant capacity factor of 80% (32 EFPY). The reactor Vessel Material Surveillance Program for ANO-2 contains six in-reactor surveillance capsules that are used to monitor cumulative effects of power operation on reactor vessel materials. This program ensures that the ANO-2 reactor vessel will meet the requirements of 10 CFR Part 50, Appendices G and H through 32 EFPY.

All the reactor vessel materials are predicted to have a low susceptibility to neutron radiation damage because of their high unirradiated charpy V-notch upper shelf energy, and their low copper, phosphorous and nickel content. The results of the first capsule analysis, which were documented in a Battelle Columbus Laboratory Report dated May 1, 1984, supported the prediction that cumulative neutron fluence will not be a limiting consideration for reactor vessel operation through full design life. These results indicated that at a fast neutron fluence of 3.5×10^{18} n/cm^2, base metal longitudinal specimens had the largest reduction in upper shelf energy. This reduction was from 155 ft-lb to 142 ft-lb, which is still substantially higher than the 50 ft-lb criteria of 10 CFR Part 50, Appendix G. Additional surveillance capsules are scheduled to be removed and analyzed to further characterize irradiation-induced property changes for the ANO-2 reactor vessel over the 32 EFPY.

As required by 10 CFR 50.61, AP&L has determined projected values of RT_{PTS} for the ANO-2 reactor vessel materials. The results of this analysis submitted to the NRC on January 22, 1986, showed that the RT_{PTS} for each material in the ANO-2 reactor vessel was below the NRC screening criteria through the current license and through 32 EFPY. The most limiting material was intermediate shell plate, heat number C8161-3, which will have an RT_{PTS} of 173° upon expiration of the current license and a RT_{PTS} of 179.6°F at the end of 32 EFPY. These values are well within the 10 CFR 50.61 screening criteria of 270°F for plate materials. The NRC review of the AP&L 10 CFR 50.61 submittal found the material properties of reactor vessel beltline materials, the projected fluence at the inner surface of the reactor vessel for the end of life of the plant and the calculated RT_{PTS} for the end of life of the plant to be acceptable. The NRC Safety Evaluation dated July 20, 1987, also found that the RT_{PTS} value of 179.6°F for the limiting plate material at the end of 32 EFPY, which is beyond the current expiration date of the license to be acceptable. As required by the NRC Safety Evaluation for the ANO-2 PTS evaluation, AP&L will submit a reevaluation of RT_{PTS} and comparison with the predicted value with future pressure-temperature submittals as per 10 CFR Part 50, Appendix G.

We conclude that there are no special considerations to indicate reactor vessel degradation for Arkansas Nuclear One, Units 1 and 2 due to the proposed operating lifetime extensions. The structural integrity of the reactor vessels is assured because each vessel was originally designed for 32 EFPY usage (40 years at 80% plant capacity); each is monitored, inspected, and tested to detect degradation processes at an early stage of development; and each unit is operated with procedures to assure that design conditions are not exceeded.

3.4 Structures

For ANO-1 and ANO-2, the auxiliary and turbine buildings and intake structures are constructed of reinforced concrete and structural steel. The reactor building (ANO-1) is a steel-lined, post-tensioned and reinforced concrete structure. The containment (ANO-2) is also a steel-lined, post-tensioned and reinforced concrete structure. Industrial experience with such materials establishes that a service life well in excess of forty (40) years can be anticipated.

Surveillance, inspection, and testing programs are in place to monitor the condition of the reactor building/containment structures so that any degradation can be identified and corrected. In particular the ANO-1 reactor building and the ANO-2 containment integrated leak rate test (ILRT) performed at least three times every 10 years, verifies the leak tightness of these structures throughout their service life. Surveillances of the post-tensioning system are also provided which further verify reactor building/containment integrity. From the results of tendon surveillances so far performed for the reactor building/containment, there is the possibility that some of the tendon forces may go below the minimum required values if the operating license terms are extended from the date of operating license issuance. This condition is to be identified and rectified as required by the facility technical specification on tendon surveillance.

3.5 Elevated Reactor Building Temperatures (ANO-1)

The reactor building air temperature has been higher than expected throughout the operating history of ANO-1. Since 1974, this has been, and continues to be, the subject of investigative and corrective actions. The Justification for Continued Operation (JCO), submitted to the NRC on August 27, 1987 described the results of a comprehensive evaluation of safety implications of the elevated reactor building temperature. The evaluation included a detailed review of the plant's design basis, accident analysis, structural performance, system and equipment performance, and equipment qualification. The JCO concluded that operation with elevated reactor building temperatures has no significant adverse effects on plant components, systems, and structures, nor on overall safety or the plant's response to postulated accidents and transients.

Furthermore, AP&L has committed to develop a long term action plan. Actions will be oriented toward two areas: further evaluation of elevated temperature effects; and reduction of reactor building bulk average temperature. Long term inspections, preventative maintenance, and replacement intervals for structures and systems adversely affected by past and future reactor building temperatures will be modified as necessary to provide assurance that their performance during normal and transient conditions is as required to ensure safe operation of ANO-1.

During late 1988, AP&L informed the NRC of a self-imposed operating limitation upon ANO-1, based on AP&L's discovery of reduced service water flow, and other discrepancies which could have reduced the post LOCA long-term containment cooldown and therefore call into question the qualification of safety-related equipment located in the containment. These deficiencies were identified during the ANO-1 eighth refueling outage (1R8) and reported per 10 CFR 50.73 on March 30, 1989. Analysis was performed during the 1R8 outage which supported full power operation for Lake Dardanell temperatures up to 70°F. Operation of ANO-1 with lake temperature in excess of 70°F was precluded at that time pending further evaluation of the discrepancies.

AP&L's analysis of the effects of the reduced service water flow and the other identified discrepancies was completed in early April 1989. AP&L evaluated the effects of the identified deficiencies with respect to the post LOCA containment temperature response and had determined that the plant could be operated at full power with lake temperature up to 95°F (maximum anticipated lake temperature) without invalidating the environmental qualification of the equipment contained in the Reactor Building.

The staff has had followup discussions with AP&L concerning the analysis and AP&L provided an additional submittal dated July 19, 1989. The staff has completed its review of AP&L's analysis and justification for full power operation with lake water temperatures up to 95°F and has found them to be acceptable. A safety evaluation is being prepared for issuance to reflect this.

The staff believes that the extension of the operating license does not affect the results of the JCO evaluations. Plant operation is based on an ongoing process of monitoring, inspection, evaluations, and maintenance to assure acceptable operability, and safety. Programs such as Technical Specification surveillance, inservice inspection, and equipment qualification provide this assurance regardless of the duration of the operating license.

3.6 Summary of Findings

The NRC staff concluded in the Environmental Assessment that the annual radiological effects during the additional years of operation that would be authorized by the proposed license amendments are not more than were previously estimated in the Final Environmental Statements, and are acceptable.

The staff concludes from its considerations of the design, operation, testing and monitoring of the mechanical equipment, structures, and the reactor vessels that an extension of the operating licenses for Arkansas Nuclear One, Units 1 and 2 to a 40-year service life is consistent with the FSARs, SERs, and submittals made by the AP&L, and that there is reasonable assurance that the units will be able to continue to operate safely for the additional periods authorized by the amendments. The plants are operated in compliance with the Commission's regulations, and issues associated with plant degradation have been adequately addressed.

In summary, we find that extension of the operating licenses for ANO-1&2 to allow 40-year service lives is consistent with the Final Environmental Statements and Safety Evaluation Reports for the units and that the Commission's previous findings are not changed.

4.0 Environmental Consideration

A Notice of Issuance of Environmental Assessment and Finding of No Significant Impact relating to the proposed extension of the Facility Operating License termination dates for Arkansas Nuclear One was published in the Federal Register on July 13, 1990 (55FR28850).

5.0 Conclusion

The staff has concluded, based on 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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