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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 Amendment No. 80 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 (TSs) in response to your application dated January 26, 1983, as supplemented March 11, 1983, and April 1, 1983.

The amendment revises the TSs relating to surveillance requirements of post-tensioned, prestressed concrete containment tendons.

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

Sincerely,

Original signed by

Guy S. Vissing, Project Manager
 Operating Reactors Branch #4
 Division of Licensing

Enclosures:

1. Amendment No. 80
2. Safety Evaluation
3. Notice

cc w/enclosures:

See next page

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

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May 5, 1983

Docket No. 50-313

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

Posted
Amndt. 80
to DPR-51

Dear Mr. Griffin:

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The amendment revises the TSs relating to surveillance requirements of post-tensioned, prestressed concrete containment tendons.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Guy S. Vissing".

Guy S. Vissing, Project Manager
Operating Reactors Branch #4
Division of Licensing

Enclosures:

1. Amendment No. 80
2. Safety Evaluation
3. Notice

cc w/enclosures:

See next page

Arkansas Power & Light Company

50-313, Arkansas Nuclear One, Unit 1

cc w/enclosure(s):

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

Mr. Frank Wilson
Director, Division of Environmental
Health Protection
Arkansas Department of Health
4815 West Markham Street
Little Rock, Arkansas 72201

Mr. James M. Levine
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



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. 80
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 (the licensee) dated January 26, 1983, as supplemented March 11, 1983, and April 1, 1983, 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 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.

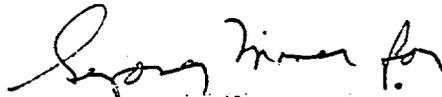
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.80, 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



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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 5, 1983

ATTACHMENT TO LICENSE AMENDMENT NO. 80

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

Remove

Insert

v

v

85

85

-

85a (new page)

-

85b (new page)

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85c (new page)

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85d (new page)

86

86

3.5.2-2E	ROD POSITION LIMITS FOR TWO-PUMP OPERATION FROM 0 TO 60 EFPD-ANO-1, CYCLE 5	48c4
3.5.2-2F	ROD POSITION LIMITS FOR TWO-PUMP OPERATION FROM 50 TO 200 \pm 10 EFPD-ANO-1, CYCLE 5	48c5
3.5.2-2G	ROD POSITION LIMITS FOR TWO-PUMP OPERATION FROM 200 \pm 10 TO 400 \pm 10 EFPD-ANO-1, CYCLE 5	48c6
3.5.2-2H	ROD POSITION LIMITS FOR TWO-PUMP OPERATION FROM 400 \pm 10 TO 435 \pm 10 EFPD-ANO-1, CYCLE 5	48c7
3.5.2-3A	OPERATIONAL POWER IMBALANCE ENVELOPE FOR OPERATION FROM 0 TO 60 EFPD-ANO-1, CYCLE 5	48d
3.5.2-3B	OPERATIONAL POWER IMBALANCE ENVELOPE FOR OPERATION FROM 50 TO 200 \pm 10 EFPD-ANO-1, CYCLE 5	48d1
3.5.2-3C	OPERATIONAL POWER IMBALANCE ENVELOPE FOR OPERATION FROM 200 \pm 10 TO 400 \pm 10 EFPD-ANO-1, CYCLE 5	48d2
3.5.2-3D	OPERATIONAL POWER IMBALANCE ENVELOPE FOR OPERATION FROM 400 \pm 10 TO 435 \pm 10 EFPD-ANO-1, CYCLE 5	48d3
3.5.2-4	LOCA LIMITED MAXIMUM ALLOWABLE LINEAR HEAT RATE	48e
3.5.2-4A	ASPR POSITION LIMITS FOR OPERATION FROM 0 TO 60 EFPD-ANO-1, CYCLE 5	48f
3.5.2-4B	ASPR POSITION LIMITS FOR OPERATION FROM 50 TO 200 \pm 10 EFPD-ANO-1, CYCLE 5	48g
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3.5.2-4D	ASPR POSITION LIMITS FOR OPERATION FROM 400 \pm 10 TO 435 \pm 10 EFPD-ANO-1, CYCLE 5	48i
3.5.4-1	INCORE INSTRUMENTATION SPECIFICATION AXIAL IMBALANCE INDICATION	53a
3.5.4-2	INCORE INSTRUMENTATION SPECIFICATION RADIAL FLUX TILT INDICATION	53b
3.5.4-3	INCORE INSTRUMENTATION SPECIFICATION	53c
4.4.2-1	NORMALIZED LIFTOFF FORCE - HOOP TENDONS	85b
4.4.2-2	NORMALIZED LIFTOFF FORCE - DOME TENDONS	85c
4.4.2-3	NORMALIZED LIFTOFF FORCE - VERTICAL TENDONS	85d
2-1	MANAGEMENT ORGANIZATION CHART	119
3.2-2	FUNCTIONAL ORGANIZATION FOR PLANT OPERATION	120

4.4.2 Structural Integrity

Applicability

Applies to the structural integrity of the reactor building.

Objective

To define the structural integrity of the reactor building.

Specification

4.4.2.1 Tendon Surveillance

For the tendon surveillance program, to be conducted over the life of the unit, twenty-one tendons shall be selected on a random but representative basis each surveillance for inspection for symptoms of material deterioration or force reduction. The surveillance tendons shall consist of ten hoop tendons, at least three in each of the three 240° sectors of the reactor building; five vertical tendons located at approximately equally spaced intervals; and six dome tendons, two in each of the three groups of dome tendons.

If the results of the tendon surveillances conducted at the 1, 3 and 5 year intervals are acceptable, then nine (9) surveillance tendons shall be selected on a random but representative basis. The nine surveillance tendons shall consist of three hoop tendons, at least one in each of the three 240° angular sectors of the reactor building; three vertical tendons located at approximately equally spaced intervals; and three dome tendons, one in each of the three groups of dome tendons.

4.4.2.1.1 Lift-Off

Lift-off readings shall be taken for all surveillance tendons. (See Applicable Acceptance Criteria in Section 4.4.2.1.3)

4.4.2.1.2 Wire Inspection and Testing

A minimum of three surveillance tendons, one from each of the hoop, vertical and dome families, shall be relaxed and one wire from each relaxed tendon shall be removed as a sample and visually inspected for corrosion or pitting. In addition, the applicable anchor assemblies shall be inspected for deleterious conditions, such as corrosion, cracks, missing wires and off size button heads. Tensile and elongation tests shall also be performed on a minimum of three specimens taken from the ends and middle of each of the wires. The specimens shall be the maximum length acceptable for the test apparatus to be used and shall include areas representative of significant corrosion or pitting.

After the wire removal, the tendons shall be retensioned to the stress level measured at the lift-off reading (and changes in shim thicknesses shall be recorded) and then checked by a final lift-off reading. The tendon elongation during retensioning shall be measured.

Should the inspection of one of the wires reveal any significant physical change (pitting or loss of area), additional wires shall be removed from the applicable surveillance tendons and inspected to determine the extent and cause change. The sheathing filler will be sampled and inspected for changes in physical appearance. (See Applicable Acceptance Criteria in Section 4.4.2.1.3)

4.4.2.1.3 Acceptance Criteria

The Reactor Building Post Tensioning System shall be considered acceptable if the following acceptance criteria are met.

1. Each surveillance tendon has a normalized lift-off force equaling or exceeding its expected prestress force for the time of the test. See Figures 4.4.2-1, -2, and -3. If the normalized lift-off force of any one tendon in a group lies between the expected prestress force and the lower bound prestress force, an adjacent tendon on each side shall be checked for lift-off force. If both of these tendons are found acceptable, the surveillance program may proceed considering the single deficiency as unique and acceptable. If either of the adjacent tendons is found unacceptable, it shall be considered evidence of possible abnormal degradation of the containment structure. (See TS 6.12.4)

If the normalized lift-off force of any single tendon lies below the lower bound prestress force, the occurrence should be considered evidence of possible abnormal degradation of the containment structure. (See TS 6.12.4)

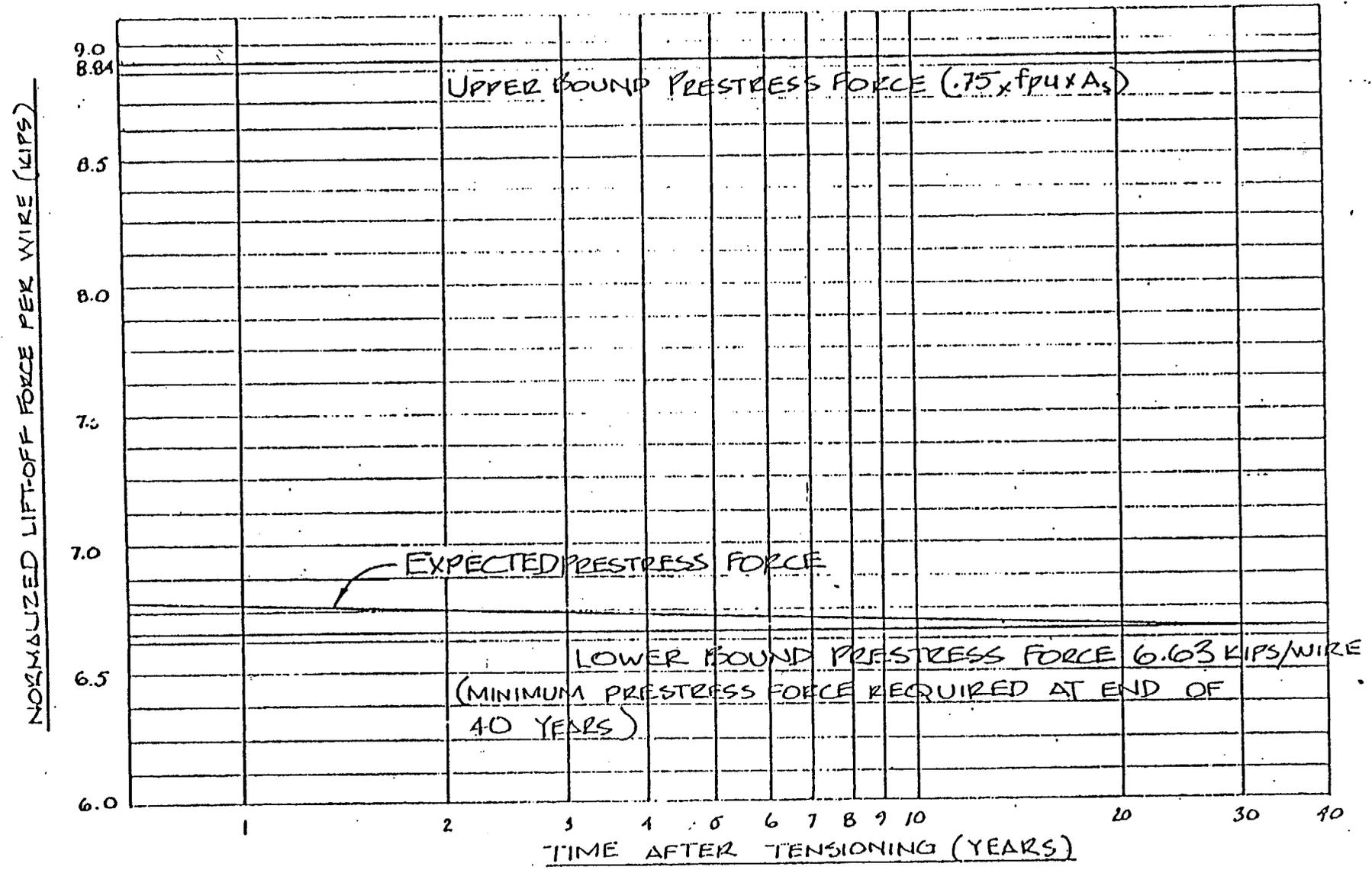
2. The wires removed from three detensioned surveillance tendons (one dome, one vertical and one hoop) shall be inspected for corrosion, cracks, or other damage over the entire length of the wire. The presence of abnormal corrosion, cracks, or other damage shall be considered evidence of possible abnormal degradation of the containment structure. (See TS 6.12.4)

A minimum of three (3) wire samples cut from each removed wire (one from each end and one at mid length) shall be subjected to a tensile test. Failure of any one of these wire samples to meet a minimum ultimate tensile strength of 240 ksi shall be considered evidence of possible abnormal degradation of the containment structure. (See TS 6.12.4)

3. Sheathing Filler material samples from each surveillance shall be considered acceptable provided the results of the tests performed on the samples fall within the following limits.

1. Water Soluble Chlorides	less than	10 ppm
2. Water Soluble Nitrates	less than	10 ppm
3. Water Soluble Sulfides	less than	10 ppm
4. Water Content	less than	10% Dry Weight

Figure 4.4.2-1



NORMALIZED LIFTOFF FORCE - HOOP TENDONS

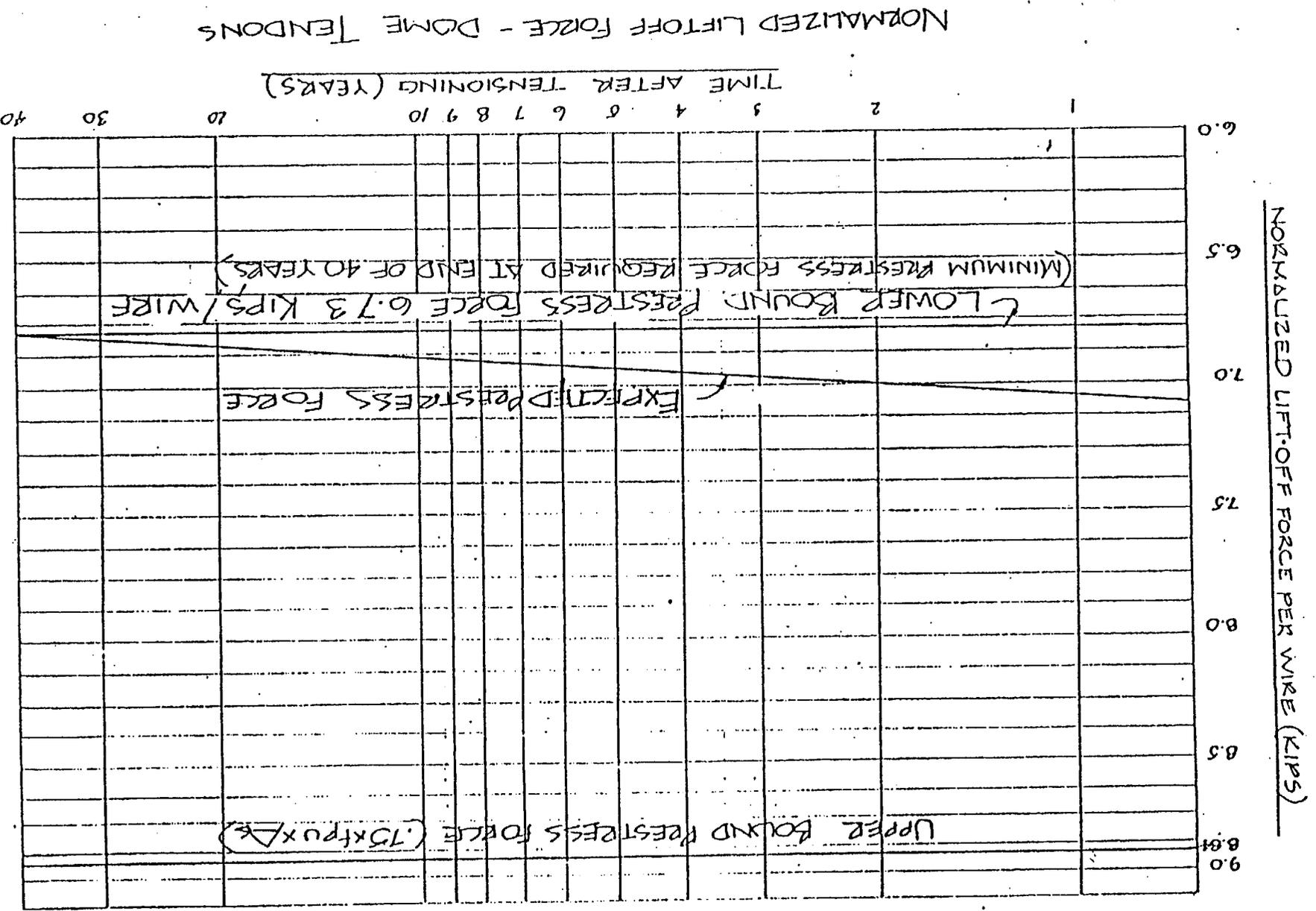


Figure A.4.2-2

NORMALIZED LIFTOFF FORCE - DOME TENDONS

NORMALIZED LIFT-OFF FORCE PER WIRE (KIPS)

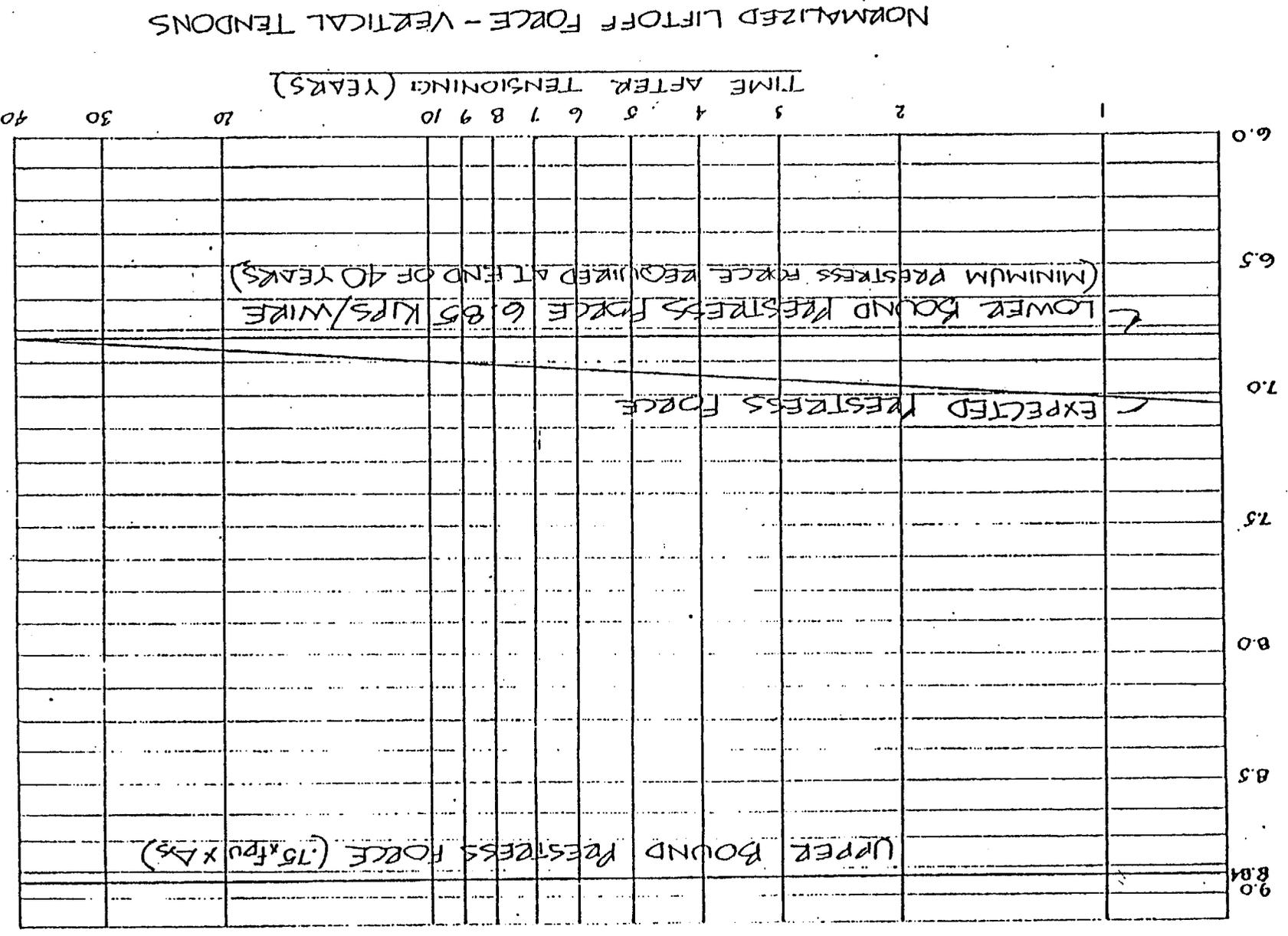


Figure 4.4.2-3

NORMALIZED LIFT-OFF FORCE - VERTICAL TENDONS

4.4.2.2 Inspection Intervals and Reports

The inspection intervals, measured from the date of the initial structural test, shall be one year, three years, five years, and every five years thereafter. Tendon surveillance may be conducted during reactor operation provided design conditions regarding loss of adjacent tendons are satisfied at all times.

A quantitative analytical report covering results of each inspection shall be submitted (required by Technical Specification 6.12.4) and shall especially address the following conditions, should they develop:

- (1) Broken wires.
- (2) The force-time trend line for any tendon, when extrapolated, that extends beyond either the upper or lower bounds of the predicted design band.
- (3) Unexpected changes in tendon conditions or sheathing filler properties.

4.4.2.3 End Anchorage Concrete Surveillance

- A. The end anchorages of the surveillance tendons and adjacent concrete surface will be inspected.
- B. The inspection interval will be one-half year and one year after the structural integrity test.
- C. The selected inspection location shall include:
 - (1) Four (4) locations on one buttress (hoop tendon anchorage).
 - (2) Two (2) locations on the top of the ring girder (vertical tendon anchorage).
 - (3) One (1) location on the ring girder (dome tendon anchorage).



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 80 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 January 26, 1983, as supplemented by letters dated March 11, 1983, and April 1, 1983, Arkansas Power and Light Company (the licensee or AP&L) requested amendment to the Technical Specifications (TSs) appended to Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1 (ANO-1).

The amendment would allow for a reduction in the number of post-tensioned, prestressed concrete containment tendons from 21 to 9 for inspections beginning with the second 5-year inspection (provided the previous inspections show acceptable results). The amendment would also include the tendon surveillance acceptance criteria in the TSs.

Background

Currently, the ANO-1 TSs require reactor building tendon surveillance to be performed following the Structural Integrity Test (SIT) at intervals of 1, 3, and 5-years after SIT and every 5 years thereafter. In addition, the current specification requires for each surveillance a total sample population of 21 tendons (10 hoop, 5 vertical, 6 dome). The 1, 3, and first 5-year surveillances have been completed. These surveillance reports indicate that there has been no abnormal degradation of the ANO-1 containment post-tensioning system. The licensee's request for a TS change proposes reducing the total sample population from 21 to 9 tendons (3 hoop, 3 dome, 3 vertical) for the second 5-year surveillance and all remaining surveillances.

Discussion

NRC Regulatory Guide 1.35, Revision 2, "Inservice Inspection of UngROUTED Tendons in Prestressed Concrete Containment Structures," allows for the reduction of the tendon sample population from 21 tendons to 9 tendons following the third surveillance provided that previous surveillances have not revealed any abnormal degradation of the post-tensioning system. The first 3 surveillances at ANO-1 have been completed. These surveillances have indicated that there has been no abnormal degradation of the ANO-1 containment post-tensioning system. Considering the acceptable performance of the ANO-1 containment post-tensioning system to date, and the NRC staff position reflected in R.G. 1.35, Revision 2, the licensee's proposal to

reduce the tendon sample population from 21 to 9 tendons for future surveillances is acceptable.

In reviewing the licensee's proposed TS change and the existing TS on tendon surveillance, we noted that neither contained acceptance criteria for the surveillance program. The licensee explained that the acceptance criteria were recorded in the ANO-1 operating procedures. We have reviewed these acceptance criteria and determined them to be in compliance with the positions of R.G. 1.35, Revision 2, in terms of: tendon lift-off testing; wire examination and testing and sampling; and visual examination and chemical analysis of sheathing filler grease. These acceptance criteria are consistent with original design criteria and have remained consistent throughout the three previous tendon surveillances. We requested and the licensee agreed to include the tendon surveillance acceptance criteria in the TSs.

Evaluation

The licensee's proposal to reduce the tendon sample population from 21 to 9 tendons for the second 5-year surveillance is consistent with R.G. 1.35, Revision 2, and is therefore acceptable to the staff.

The remainder of the licensee's proposed tendon surveillance TS complies with R.G. 1.35, Revision 2, in terms of surveillance interval; tendon lift-off testing and acceptance criteria; wire and grease testing and acceptance criteria; and reporting requirements. Agreement with R.G. 1.35, Revision 2, is acceptable to us; therefore, the proposed TS change is acceptable.

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 an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, 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: May 5, 1983

The following NRC personnel have contributed to this Safety Evaluation:
Norman Romney, and Guy Vissing.

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. 80 to Facility Operating License No. DPR-51, issued to Arkansas Power and Light Company (the licensee), which revised the Technical Specifications for operation of Arkansas Nuclear One, Unit No. 1 (ANO-1) located in Pope County, Arkansas. The amendment is effective as of the date of issuance.

The amendment revises the Technical Specifications relating to the surveillance requirements of the post-tensioned, prestressed concrete containment tendons.

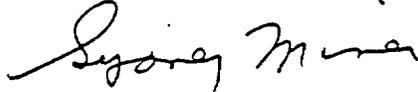
The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter 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.

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), and 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 application for amendment dated January 26, 1983 as supplemented March 11, 1983, and April 1, 1983, (2) Amendment No. 80 to License No. DPR-5i, 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 Tech University, 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 Licensing.

Dated at Bethesda, Maryland, this 5th day of May 1983.

FOR THE NUCLEAR REGULATORY COMMISSION --



Sydney Miner, Acting Chief
Operating Reactors Branch #4
Division of Licensing