



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

ARKANSAS POWER & LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 86
License No. DPR-51

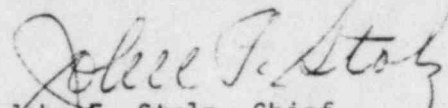
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Arkansas Power and Light Company (the licensee) dated August 13, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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. 86, 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 its date of 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: November 8, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 86

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.

<u>Remove</u>	<u>Insert</u>
v	v
-	vi
110j	110j
110k	110k
110l	110l
110m	110m
110n	110n
110o	110o
-	110o1
-	110o2

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 ± 10 EFPD-ANO-1, CYCLE 5	48c5
3.5.2-2G	ROD POSITION LIMITS FOR TWO-PUMP OPERATION FROM 200 ± 10 TO 400 ± 10 EFPD-ANO-1, CYCLE 5	48c6
3.5.2-2H	ROD POSITION LIMITS FOR TWO-PUMP OPERATION FROM 400 ± 10 TO 435 ± 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 ± 10 EFPD-ANO-1, CYCLE 5	48d1
3.5.2-3C	OPERATIONAL POWER IMBALANCE ENVELOPE FOR OPERATION FROM 200 ± 10 TO 400 ± 10 EFPD-ANO-1, CYCLE 5	48d2
3.5.2-3D	OPERATIONAL POWER IMBALANCE ENVELOPE FOR OPERATION FROM 400 ± 10 TO 435 ± 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 ± 10 EFPD-ANO-1, CYCLE 5	48g
3.5.2-4C	ASPR POSITION LIMITS FOR OPERATION FROM 200 ± 10 to 400 ± 10 EFPD-ANO-1, CYCLE 5	48h
3.5.2.4C	ASPR POSITION LIMITS FOR OPERATION FROM 400 ± 10 to 435 ± 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

4.18.1	UPPER TUBE SHEET VIEW OF SPECIAL GROUPS PER SPECIFICATION 4.18.3.a.3	110o2
6.2-1	MANAGEMENT ORGANIZATION CHART	119
6.2-2	FUNCTIONAL ORGANIZATION FOR PLANT OPERATION	120

4.18 STEAM GENERATOR TUBING SURVEILLANCE

Applicability

Applies to the surveillance of tubing of each steam generator.

Objective

To ensure integrity of the steam generator tubing through a defined inservice surveillance program, and to minimize exposure of personnel to radiation during performance of the surveillance program.

Specification

4.18.1 Baseline Inspection

The first steam generator tubing inspection performed according to Specifications 4.18.2 and 4.18.3.a shall be considered as constituting the baseline condition for subsequent inspections.

4.18.2 Examination Methods

Inservice inspection of steam generator tubing shall include nondestructive examination by eddy-current testing or other equivalent techniques. The inspection equipment shall provide a sensitivity that will detect defects with a penetration of 20 percent or more of the minimum allowable as-manufactured tube wall thickness.

4.18.3 Selection and Testing

The steam generator sample size is specified in Table 4.18.1. The steam generator tube minimum sample size, inspection result classification, and the corresponding action required shall be as specified in Table 4.18.2. The inservice inspection of steam generator tubes shall be performed at the frequencies specified in Specification 4.18.4 and the inspected tubes shall be verified acceptable per the acceptance criteria of Specification 4.18.5. The tubes selected for each inservice inspection shall include at least 3% of the total number of tubes in both steam generators; the tubes selected for these inspections shall be selected on a random basis except:

- a. The first sample inspection during each inservice inspection (subsequent to the baseline inspection) of each steam generator shall include:
 1. All nonplugged tubes that previously had detectable wall penetrations (>20%), and
 2. At least 50% of the tubes inspected shall be in those areas where experience has indicated potential problems, except where specific groups are inspected per Specification 4.18.3.a.3.

A tube inspection (pursuant to Specification 4.18.5.a.8) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection.

3. Tubes in the following groups may be excluded from the first random sample if all tubes in a group in both steam generators are inspected. The inspection may be concentrated on those portions of the tubes where imperfections were previously found. No credit will be taken for these tubes in meeting minimum sample size requirements. Where only a portion of the tube is inspected, the remainder of the tube will be subjected to the random inspection.

(1) Group A-1: Tubes within one, two or three rows of the open inspection lane.

(2) Group A-2: deleted

(3) Group A-3: Tubes in the wedge-shaped group on either side of the lane region (Group A-1) as defined by Figure 4.18.1.

b. The second and third sample inspections during each inservice inspection as required by Table 4.18.2 may be less than a full tube inspection by concentrating the inspection on those areas of the tube sheet array and on those portions of the tubes where tubes with imperfections were previously found.

The results of each sample inspection shall be classified into one of the following three categories:

<u>Category</u>	<u>Inspection Results</u>
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected, are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.
C-3	More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.

- NOTES:
- (1) In all inspections, previously degraded tubes must exhibit significant (>10%) further wall penetrations to be included in the above percentage calculations.
 - (2) Where special inspections are performed pursuant to 4.18.3.a.3, defective or degraded tubes found as a result of the inspection shall be included in determining the Inspection Results Category for that special inspection but need not be included in determining the Inspection Results Category for the general steam generator inspection.

4.18.4 Inspection Intervals

The above-required inservice inspections of steam generator tubes shall be performed at the following frequencies:

- a. The baseline inspection shall be performed during the first refueling shutdown. Subsequent inservice inspections shall be performed at intervals of not less than 10 nor more than 24 calendar months after the previous inspection. If the results of two consecutive inspections for a given group* of tubes following service under all volatile treatment (AVT) conditions fall into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval for that group may be extended to a maximum of 40 months.
- b. If the results of the inservice inspection of a steam generator performed in accordance with Table 4.18.2 at 40-month intervals for a given group* of tubes fall in Category C-3, subsequent inservice inspections shall be performed at intervals of not less than 10 nor more than 20 calendar months after the previous inspection. The increase in inspection frequency shall apply until a subsequent inspection meets the conditions specified in 4.18.4.a and the interval can be extended to 40 months.
- c. Additional unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 4.18.2 during the shutdown subsequent to any of the following conditions:
 1. Primary-to-secondary leakage in excess of the limits of Specification 3.10 (inservice inspection not required if leaks originate from tube-to-tubesheet welds),
 2. A seismic occurrence greater than the Operating Basis Earthquake,

*A group of tubes means: (a) All tubes inspected pursuant to 4.18.3.a.3, or
(b) All tubes in a steam generator less those inspected pursuant to 4.18.3.a.3.

3. A loss-of-coolant accident requiring actuation of the engineered safeguards, or
4. A main steam line or feedwater line break.

4.18.5 Acceptance Criteria

a. As used in this specification:

1. Imperfection means an exception to the dimensions, finish or contour of a tube from that required by fabrication drawings or specifications. Eddy current testing indications below 20% of the nominal tube wall thickness, if detectable, may be considered as imperfections.
2. Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either the inside or outside of a tube.
3. Degraded Tube means a tube containing imperfections $\geq 20\%$ of the nominal wall thickness caused by degradation.
4. % Degradation means the percentage of the tube wall thickness affected or removed by degradation.
5. Defect means an imperfection of such severity that it exceeds the plugging limit. A tube containing a defect is defective.
6. Plugging Limit means the imperfection depth at or beyond which the tube shall be removed from service because it may become unserviceable prior to the next inspection; it is equal to 40% of the nominal tube wall thickness.
7. Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in Specification 4.18.4.c.
8. Tube Inspection means an inspection of the steam generator tube from the point of entry completely to the point of exit.

- b. The steam generator shall be determined operable after completing the corresponding actions (plug all tubes exceeding the plugging limit and all tubes containing through-wall cracks) required by Table 4.18.2.

4.18.6 Reports

Following each inservice inspection of steam generator tubes, the complete results of the inspection shall be reported to the NRC. This report, to be submitted within 45 days of inspection completion, shall include:

- a. Number and extent of tubes inspected;
- b. Location and percent of wall-thickness penetration for each indication of an imperfection; and
- c. Identification of tubes plugged.

This report shall be in addition to the report of results of steam generator tube inspections which fall into Category C-3 and which require prompt notification of the NRC per Specification 6.12.3.

Bases

The surveillance requirements for inspection of the steam generator tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

TABLE 4.18-1

MINIMUM NUMBER OF STEAM GENERATORS TO BE
INSPECTED DURING INSERVICE INSPECTION

Preservice Inspection	No
No. of Steam Generators per Unit	Two
First Inservice Inspection	Two
Second & Subsequent Inservice Inspections	One ¹

Table Notation:

- ¹ The inservice inspection may be limited to one steam generator on alternating schedule encompassing 3 N % of the tubes (where N is the number of steam generators in the plant) if the results of the first or previous inspections indicate that all steam generators are performing in a like manner. Note that under some circumstances, the operating conditions in one or more steam generators may be found to be more severe than those in other steam generators. Under such circumstances the sample sequence shall be modified to inspect the most severe conditions.

TABLE 4.18-2
STEAM GENERATOR TUBE INSPECTION^{2, 3}

1ST SAMPLE INSPECTION			2ND SAMPLE INSPECTION		3RD SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G. ¹	C-1	None	N/A	N/A	N/A	N/A
	C-2	Plug defective tubes and inspect additional 2S tubes in this S.G.	C-1	None	N/A	N/A
			C-2	Plug defective tubes and inspect additional 4S tubes in this SG	C-1	None
			C-3	Perform action for C-3 result of first sample	C-2	Plug defective tubes
	C-3	Inspect all tubes in this S.G plug defective tubes and inspect 2S tubes in other S.G. Prompt notification to NRC pursuant to specification 6.12.3.	Other S.G. is C-1	None	C-3	Perform action for C-3 result of first sample
			Other S.G. is C-2	Perform action for C-2 results of second sample	N/A	N/A
			Other S.G. is C-3	Inspect all tubes in each S.G. and plug defective tubes. Prompt notification to NRC pursuant to specification 6.12.3, and request NRC approval of remedial action	N/A	N/A

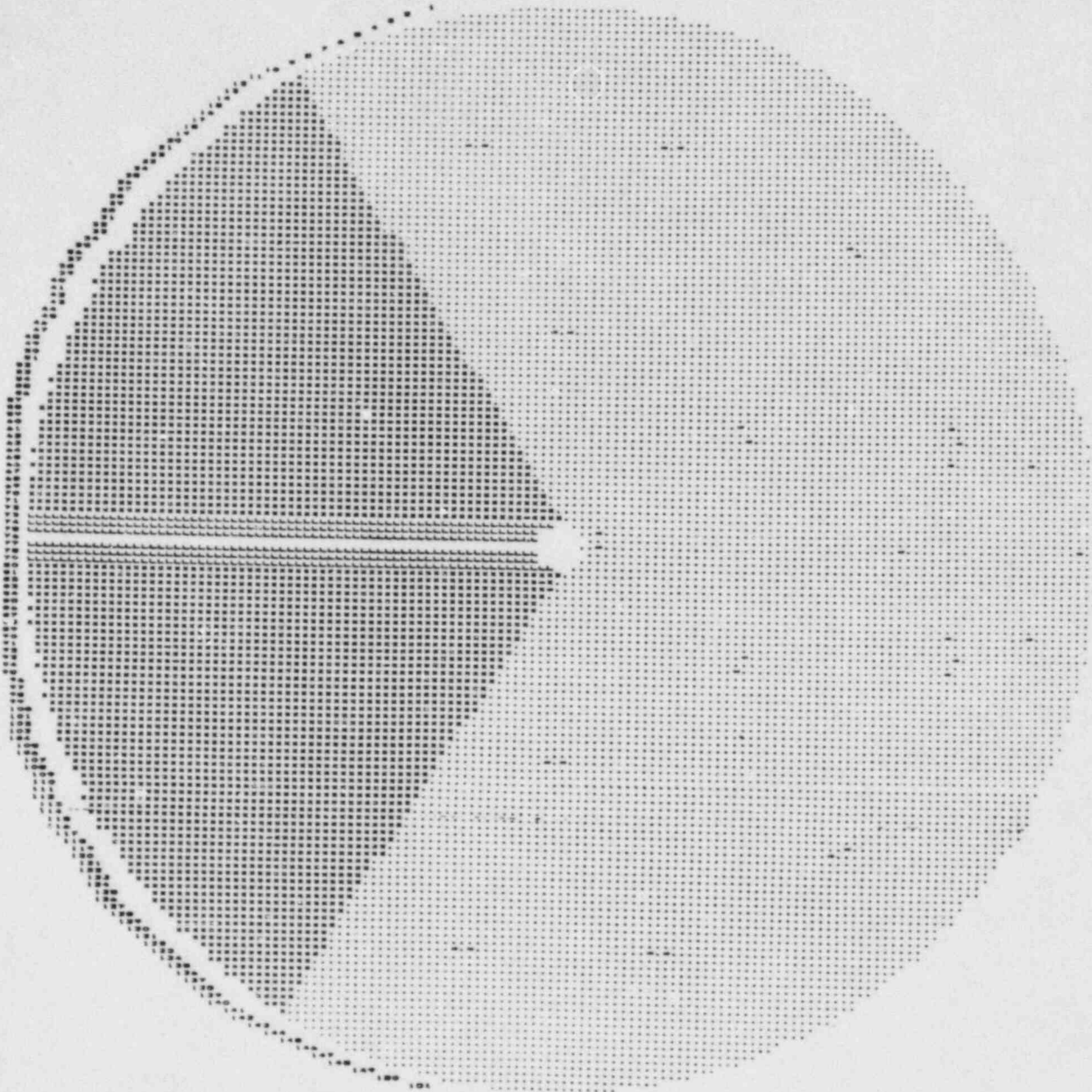
NOTES: ¹ $S=3\frac{N}{n}\%$ Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection.

²For tubes inspected pursuant to 4.18.3.a.3: No action is required for C-1 results. For C-2 results in one or both steam generators plug defective tubes. For C-3 results in one or both steam generators, plug defective tubes and provide prompt notification of NRC pursuant to specification 6.12.3.

³As part of a steam generator sleeving qualification program up to 10 demonstration sleeves may be installed in defective tubes in lieu of plugging during the sixth ANO-1 refueling.

FIGURE 4.18.1

Upper Tube Sheet View of Special Groups per Specification 4.18.3.a.3



<u>Plot Character</u>	<u>Description</u>	<u>Tube Count</u>
L	Group A-1: Lane region tube	382
X	Group A-3: Wedge adjacent to lane	4831
-	Support rod location	NA