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. 23
License No. DPR-51

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

   A. The application for amendment by Arkansas Power & Light Company (the licensee) dated October 1, 1975, as supplemented by letters dated February 11, 1976, August 30, 1976, September 13, 1976, and February 15, 1977, 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;

   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. 23, 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

Don K Davis

Don K. Davis, Acting Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 6, 1977

ATTACHMENT TO LICENSE AMENDMENT NO. 23

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Change the Appendix A portion of the Technical Specifications as indicated below:

1. Change the page numbers of existing pages as follows:

OLD PAGE NUMBER	NEW PAGE NUMBER
110f	110h
110g	110i

2. Add the following new or revised pages. The changed areas on the revised pages are identified by marginal lines, with the exception of page 110e, which has been entirely revised.

i (revised)
ii (revised)
66i (new)
66j (new)
66k (new)
66l (new)
110e (revised)
110f (new)
110g (new)

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3.16 Shock Suppressors (Snubbers)

Applicability

Applies to all shock suppressors (snubbers) listed in Table 3.16-1.

Objective

To assure adequate shock suppression protection for primary coolant system piping and any other safety related system or component under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. This is done by assuring the operability of those shock suppressors installed for that purpose.

Specification

3.16.1 The reactor shall not be heated above 200F if a shock suppressor listed in Table 3.16-1 is known to be inoperable.

3.16.2 If a shock suppressor listed in Table 3.16-1 is determined to be inoperable during power operation, that shock suppressor shall be made operable or replaced within 72 hours or the reactor shall be placed in the cold shutdown condition within an additional 36 hours.

3.16.3 Shock suppressors may be added to safety related systems without prior License Amendment to Table 3.16-1 provided that a revision to Table 3.16-1 is included with the next License Amendment request.

Bases

Shock suppressors are designed to prevent unrestrained pipe motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable shock suppressor is an increase in the probability of structural damage to piping as a result of a seismic or other event initiating dynamic loads. It is therefore required that all shock suppressors required to protect the primary coolant system or any other safety system or component be operable during reactor operation.

Because the shock suppressor protection is required only during low probability events, a period of 72 hours is allowed for repairs or replacements. In case a shutdown is required, the allowance of 36 hours to reach a cold shutdown condition will permit an orderly shutdown consistent with standard operating procedures. Since plant startup should not commence with knowingly defective safety related equipment, Specification 3.16.1 prohibits startup with inoperable shock suppressors.

Table 3.16-1

SAFETY RELATED SHOCK SUPPRESSORS (SNUBBERS)

Snubber No.	Location	Elevation	Snubber in High Radiation Area During Shutdown*	Snubbers Especially Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Normal Operation
HS-1	Decay Heat Line B	329' 1"	X			X
HS-2	Decay Heat Line A	322' 11-3/8"	X			X
HS-49	Decay Heat Line A	329' 1"	X			X
HS-50	Decay Heat Line A	322' 11-3/8"	X			X
HS-8	Pressurizer Spray Line	408' 7-11/16"	X		X	
HS-9	Pressurizer Spray Line	408' 7-11/16"	X		X	
HS-51	Pressurizer Spray Line	373' 0"	X	X	X	
HS-52	Pressurizer Spray Line	373' 0"	X	X	X	
HS-53	Pressurizer Spray Line	382' 0"	X	X	X	
HS-54	Pressurizer Spray Line	381' 6"	X	X	X	
HS-55	Pressurizer Spray Line	398' 6"	X	X	X	
HS-56	Pressurizer Spray Line	398' 0"	X	X	X	
HS-57	Pressurizer Spray Line	406' 10"	X		X	
HS-58	Pressurizer Spray Line	408' 7-11/16"	X		X	
HS-59	Pressurizer Spray Line	408' 7-11/16"	X		X	
HS-60	Pressurizer Spray Line	408' 7-11/16"	X		X	
HS-61	Pressurizer Spray Line	408' 7-11/16"	X		X	
HS-62	Pressurizer Spray Line	408' 7-11/16"	X		X	
HS-63	Pressurizer Spray Line	408' 7-11/16"	X		X	

*Modifications to this Table due to changes in high radiation areas should be submitted to the NRC as part of the next license amendment.

Table 3.16-1

SAFETY RELATED SHOCK SUPPRESSORS (SNUBBERS)

Snubber No.	Location	Elevation	Snubber in High Radiation Area During Shutdown	Snubbers Especially *Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Normal Operation
HS-10	Pressurizer Relief Line	409' 2-3/4"	X		X	
HS-11	Pressurizer Relief Line	410' 2-3/4"			X	
HS-12	Pressurizer Relief Line	410' 2-3/4"			X	
HS-13	Pressurizer Relief Line	400' 0"		X	X	
HS-14	Pressurizer Relief Line	400' 0"		X	X	
HS-66	Pressurizer Relief Line	410' 2-3/4"			X	
HS-67	Pressurizer Relief Line	410' 2-3/4"			X	
HS-68	Pressurizer Relief Line	410' 2-3/4"	X		X	
HS-69	Pressurizer Relief Line	410' 2-3/4"			X	
HS-70	Pressurizer Relief Line	391' 0"	X	X	X	
HS-71	Pressurizer Relief Line	367' 6"	X	X	X	
HS-72	Pressurizer Relief Line	357' 0"	X	X	X	
HS-88	Pressurizer Relief Line	370' 0"	X	X	X	
H-A-1	Pressurizer Relief Line	400' 0"	X	X	X	
H-A-2	Pressurizer Relief Line	399' 0"	X	X	X	
H-B-1	Pressurizer Relief Line	400' 0"	X	X	X	
H-B-2	Pressurizer Relief Line	391' 0"	X	X	X	
H-C-1	Pressurizer Relief Line	410' 2-3/4"		X	X	
H-C-2	Pressurizer Relief Line	394' 0"		X	X	
HS-3	Main Steam Line A	425' 0"		X	X	
HS-4	Main Steam Line A	408' 6"			X	
HS-5	Main Steam Line A	428' 0"				X
HS-7	Main Steam Line B	420' 0"				X
HS-15	Main Steam Line A	408' 6"			X	
HS-16	Main Steam Line B	423' 2"		X	X	
HS-17	Main Steam Line B	423' 2"		X	X	
HS-18	Main Steam Line B	408' 6"			X	
HS-19	Main Steam Line B	396' 0"		X	X	
HS-20	Main Steam Line B	408' 6"			X	
HS-22	Main Feedwater Header B	376' 4-11/16"		X	X	
HS-23	Main Feedwater Header B	376' 4-11/16"		X	X	

* Modifications to this Table due to changes in high radiation areas should be submitted to the NRC as part of the next license amendment.

Table 3.16-1 (Cont.)

SAFETY RELATED SHOCK SUPPRESSORS (SNUBBERS)

Snubber No.	Location	Elevation	Snubber in High Radiation Area During Shutdown*	Snubbers Especially Difficult to Remove	Snubbers Inaccessible During Normal Operation	Snubbers Accessible During Normal Operation
HS-24	Main Feedwater Header B	376' 4-11/16"	X	X	X	
HS-25	Main Feedwater Header B	376' 4-11/16"	X	X	X	
HS-26	Main Feedwater Header B	376' 4-11/16"		X	X	
HS-27	Main Feedwater Header B	376' 4-11/16"		X	X	
HS-28	Main Feedwater Header B	376' 4-11/16"	X	X	X	
HS-29	Main Feedwater Header B	376' 4-11/16"	X	X	X	
HS-30	Main Feedwater Line A	361' 0"			X	
HS-31	Main Feedwater Header A	376' 4-11/16"		X	X	
HS-32	Main Feedwater Header A	376' 4-11/16"		X	X	
HS-33	Main Feedwater Header A	376' 4-11/16"		X	X	
HS-34	Main Feedwater Header A	376' 4-11/16"		X	X	
HS-35	Main Feedwater Header A	376' 4-11/16"		X	X	
HS-36	Main Feedwater Header A	376' 4-11/16"	X	X	X	
HS-37	Main Feedwater Header A	376' 4-11/16"		X	X	
HS-38	Main Feedwater Header A	376' 4-11/16"		X	X	
HS-21	Emergency Feedwater Line B	394' 0"	X	X	X	
1A	Reactor Coolant Pump A	390' 10"		X	X	
2A	Reactor Coolant Pump A	390' 10"		X	X	
1B	Reactor Coolant Pump B	390' 10"		X	X	
2B	Reactor Coolant Pump B	390' 10"		X	X	
1C	Reactor Coolant Pump C	390' 10"		X	X	
2C	Reactor Coolant Pump C	390' 10"		X	X	
1D	Reactor Coolant Pump D	390' 10"		X	X	
2D	Reactor Coolant Pump D	390' 10"		X	X	

* Modifications to this Table due to changes in high radiation areas should be submitted to the NRC as part of the next license amendment.

4.16 SHOCK SUPPRESSORS (Snubbers)

Applicability

Applies to all shock suppressors (snubbers) protecting the primary system and any other safety related system or component.

Objective

Verify an acceptable level of operability of the shock suppressors protecting the primary system and any other safety related system or component.

Specification

4.16.1 The following surveillance requirements apply to all hydraulic shock suppressors listed in Table 3.16-1.

4.16.1.1 All hydraulic shock suppressors whose seal material has been demonstrated by operating experience, lab testing or analysis to be compatible with the operating environment shall be visually inspected. This inspection shall include, but not necessarily be limited to, inspection of the hydraulic fluid reservoir, fluid connections and linkage connection to the piping and anchor to verify shock suppressor operability in accordance with the following schedule:

Number of Hydraulic Shock Suppressors Found Inoperable During Inspection or During Inspection Interval	Next Required Inspection Interval
0	18 months ± 25%
1	12 months ± 25%
2	6 months ± 25%
3,4	124 days ± 25%
5,6,7	62 days ± 25%
≥8	31 days ± 25%

The required inspection interval shall not be lengthened more than one step at a time.

Shock suppressors may be categorized in two groups, "accessible" or "inaccessible", based on their accessibility for inspection during reactor operation. These two groups may be inspected independently according to the above schedule.

4.16.1.2 All hydraulic shock suppressors whose seal materials are other than ethylene propylene or other material that has been demonstrated to be compatible with the operating environment shall be visually inspected for operability every 31 days.

4.16.1.3 The initial inspection of accessible snubbers shall be performed within 6 months (±25%) from February 23, 1977. For the purpose of entering the schedule in Specification 4.16.1.1, it shall be assumed that the facility had been on a 6 month inspection interval for accessible snubbers. Based on results of an inspection completed February 23, 1977 during which no inoperable inaccessible snubbers were found, inaccessible snubbers are assumed to be on a 12 month inspection interval. The first inspection of inaccessible snubbers shall be performed at 12 months (±25%) from February 23, 1977.

4.16.1.4 Once each refueling shutdown, a representative sample of 10 hydraulic shock suppressors or approximately 10% of the hydraulic shock suppressors, whichever is less, shall be functionally tested for operability including verification of proper piston movement, lock up and bleed. For each unit and subsequent unit found inoperable, an additional 10% or ten hydraulic shock suppressors shall be tested until no more failures are found or all units have been tested. Shock suppressors of rated capacity greater than 50,000 lb need not be functionally tested. Shock suppressors in high radiation areas during shutdown or those especially difficult to remove need not be selected for functional testing provided their operability was previously verified.

Bases

All safety related hydraulic shock suppressors are visually inspected for overall integrity and operability. The inspection will include verification of proper orientation, adequate hydraulic fluid level and proper attachment of suppressor to piping and structures.

The inspection frequency is based upon maintaining a constant level of shock suppressor protection. Thus the required inspection interval varies inversely with the observed hydraulic shock suppressor failures. The number of inoperable shock suppressors found during a required inspection determines the time interval for the next required inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25%) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

Experience at operating facilities has shown that the required surveillance program should assure an acceptable level of hydraulic shock suppressor performance provided that the seal materials are compatible with the operating environment.

Hydraulic shock suppressors containing seal material which has not been demonstrated by operating experience, lab tests or analysis to be compatible with the operating environment should be inspected more frequently (every month) until material compatibility is confirmed or an appropriate changeout is completed.

Bases (Contd)

Examination of defective hydraulic shock suppressors at reactor facilities and material tests performed at several laboratories (Reference 1) has shown that millable gum polyurethane deteriorates rapidly under the temperature and moisture conditions present in many shock suppressor locations. Although molded polyurethane exhibits greater resistance to these conditions, it also may be unsuitable for application in the higher temperature environments. Data are not currently available to precisely define an upper temperature limit for the molded polyurethane. Lab tests and in-plant experience indicate that seal materials are available, primarily ethylene propylene compounds, which should give satisfactory performance under the most severe conditions expected in reactor installations.

To further increase the assurance of hydraulic shock suppressor reliability, functional tests should be performed once each refueling cycle. These tests will include stroking of the shock suppressors to verify proper piston movement, lock-up and bleed. Ten percent or ten shock suppressors, whichever is less, represents an adequate sample for such test. Observed failures on these samples should require testing of additional units. Those shock suppressors designated in Table 3.16-1 as being in high radiation areas or especially difficult to remove need not be selected for functional tests provided operability was previously verified. Shock suppressors of rated capacity greater than 50,000 lb are exempt from the functional testing requirements because of the impracticality of testing such large units.

(1) Report H. R. Erickson, Bergen Paterson to K. R. Goller, NRC, October 7, 1974, Subject: Hydraulic Shock Sway Arrestors