



ARKANSAS POWER & LIGHT COMPANY

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September 30, 1985

2CAN098507

Director of Nuclear Reactor Regulation
ATTN: Mr. Edward J. Butcher, Acting Chief
Operating Reactors Branch #3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
ANO-2 Inservice Testing Program

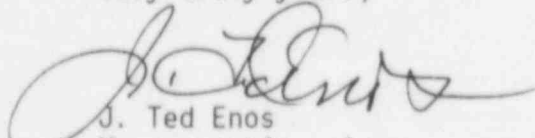
Gentlemen:

Your letter dated June 20, 1985 (2CNA068503) provided AP&L with a Safety Evaluation Report (SER) concerning the ANO-2 Inservice Testing (IST) Program. Based on the results of this SER, NRC determined that:

- (1) The scope of the ANO-2 IST Program should be expanded to include certain pumps and valves in the diesel generator auxiliary system; and
- (2) All the relief requests except that pertaining to stroke timing of the emergency feedwater (EFW) pump turbine governor valve should be granted.

You requested our response within 60 days of June 20, 1985. Our subsequent letter dated August 9, 1985 (2CAN088507) requested that our response date be extended to September 30, 1985. The purpose of this letter is to provide the NRC with the attached requested information and to provide additional comments and clarifications concerning certain difficulties/discrepancies noted during our review of the SER. We anticipate further discussions with the NRC Staff will be necessary. However, we are confident that we will be able to resolve the technical issues associated with our outstanding IST relief requests and are proceeding accordingly in anticipation of our receiving the relief requested.

Very truly yours,


J. Ted Enos
Manager, Licensing

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Attachment

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(Enclosure to 2CAN098507)

AP&L Response to 2CNA068503

AP&L Comments on NRC'S

SAFETY EVALUATION
BY THE OFFICE OF NUCLEAR REACTOR REGULATION
CONCERNING
INSERVICE TESTING PROGRAM
FOR
ARKANSAS NUCLEAR ONE, UNIT 2
DOCKET NO. 50-368
ARKANSAS POWER & LIGHT COMPANY

REFERENCES FOR 2CAN098507

1. AP&L letter dated June 15, 1978 (2CAN067817), Original ANO Unit 2 IST Program
2. AP&L letter dated October 29, 1980 (2CAN108018), Response to NRC Letter of February 21, 1980 (2CNA028029)
3. AP&L letter dated December 10, 1982 (2CAN128206), Response to NRC Letter of November 19, 1982 (2CNA118204)
4. NRC letter dated June 20, 1985 (2CNA068503), Safety Evaluation on Inservice Testing (IST) Program for ANO Unit 2
5. AP&L letter dated July 24, 1978 (2CAN07822), Additional Relief Request for IST Program

ITEM (1): NRC REQUEST TO EXPAND THE ANO-2 INSERVICE TESTING (IST) PROGRAM

The NRC proposed in Reference 4 that the ANO-2 IST Program be amended to include certain pumps and valves in the diesel generator auxiliary systems. The technical basis for this request was not provided in the Safety Evaluation, nor in any previous telephone conversations with the NRC Staff on this issue.

We have reviewed the five diesel generator auxiliary systems specified by the NRC in Section 4.0 of the Safety Evaluation in Reference 4 and we have confirmed that none of the systems are specified as ASME Code Class 1, 2 or 3. Our interpretation of ASME Section XI, Subarticle IWA-1300, paragraphs (a) and (b), and of Subarticle IWV-1100, is that only components falling into one of those classes are subject to Section XI. As a result, we do not believe that diesel generator auxiliary systems fall within the criteria in ASME Section XI for components to be included in inservice testing. Additionally, the diesel generators at ANO-2 are routinely tested in accordance with the Technical Specifications. All support systems, including the diesel generator auxiliary systems, are tested at the same time in accordance with ANO-2 Technical Specification 1.6 in the determination of diesel generator operability.

Our present interpretation of the technical requirements is that no components in the diesel generator auxiliary systems meet the existing criteria for inclusion in the ANO-2 IST Program. Therefore, (1) because of a lack of technical basis and (2) because we believe our current program is adequate, i.e., it includes all required Code Class 1, 2, or 3 components which are safety-related, we have no current plans to add any pumps or valves in our diesel generator auxiliary systems to the ANO-2 IST Program.

ITEM (2): EFW PUMP TURBINE GOVERNOR VALVE, IST RELIEF REQUEST CLARIFICATION

In Reference 2, AP&L requested relief from Code requirements to stroke and time the emergency feedwater (EFW) pump turbine governor valve. We indicated that this valve was a modulating valve and that stroke time was not an appropriate reference parameter. The NRC denied this relief request in Reference 4 on the basis that the valve is an active component which must change position to perform its function in an accident. The following provides further information on this issue and clarifies our need for relief.

The governor valve is actuated closed by control oil pressure which is produced by the spinning turbine. It is spring opened. When the EFW pump turbine is not spinning, the governor valve is open and it closes to a regulating position as the turbine comes up to speed increasing the control oil pressure. The operation of the governor valve is tested monthly per Technical Specification 3/4.7.1.2. Should the valve move too slowly (i.e., fail to control the steam flow), the turbine would overspeed. The trip/throttle valve, acting independently, would trip to prevent excessive overspeed. In effect then, the timely operation of the governor valve is tested monthly with each turbine start.

Since the governor valve is actuated closed with control oil, which in turn is produced by spinning the turbine, there is no practical way to full stroke the valve. Depending on inlet steam pressure, pump load, oil temperature, etc., the valve may stroke to different positions with each start. Consequently, stroke times could vary over a fairly wide range.

Based on the above clarification, we request that NRC further consider our previous request for relief from stroke timing the EFW pump governor valve per ASME Code requirements. Alternative stroke testing and timing (indirectly) is provided by the monthly surveillance of the turbine as described above.

ITEM (3): OTHER ITEMS NOTED DURING OUR REVIEW

The NRC's Safety Evaluation in Reference 4, was reviewed and compared with previous relief requests made by AP&L in References 1, 2 and 3. The following difficulties/discrepancies were noted:

1. In Reference 1, AP&L requested relief from the requirement for correlating each measured valve stroke time with the previous stroke test time. The alternative testing proposed was a required comparison with a reference value established during initial testing of the valve or testing after maintenance. Reference 4 did not discuss this relief request, i.e., it was neither approved nor disapproved. We request NRC's decision on this relief request.
2. We agree with NRC's differentiation, for valve testing purposes, between the cold shutdown mode and the refueling mode. The differentiation is that for valves identified for testing during cold shutdown, the tests are to be performed both during cold shutdown and during refueling outages. However, when relief is granted to perform tests on a refueling outage frequency, testing will not be required during cold shutdown. In addition, for extended refueling outages, tests performed are to be maintained as closely as practicable to the Code specified frequencies. Given this differentiation, the following is a list of valves for which AP&L unnecessarily requested Code relief from stroking during power operation:

VALVE NUMBER	LISTED IN SECTION 3.2? (Y/N)	AP&L COMMENTS
2CV-1010-1	Y	
2CV-1024-1	Y	
2CV-1060-2	Y	
2CV-1074-1	Y	
2CV-1425-1	Y	
2CV-1427-2	Y	
2CV-1480-2	N	See Note (1)
2CV-1481-1	N	See Note (1)
2CV-1541-1	Y	
2CV-1542-2	Y	
2CV-1543-1	Y	
2CV-1560-2	Y	
2CV-3850-2	Y	
2CV-3851-1	Y	
2CV-3852-2	Y	
2CV-4823-2	Y	See Note (2)
2CV-4916-2	N	See Note (1)
2CV-4920-1	Y	
2CV-4921-1	Y	
2CV-4950-2	Y	
2CV-5084-1	Y	
2CV-5086-2	Y	
2CV-8284-2	Y	
2CV-8286-2	Y	
2CV-8289-1	Y	
2CV-8291-1	Y	
2CVC-28B	Y	
2CVC-28C	Y	
2CVC-49	N	See Note (1)
2CVC-58	Y	
2CVC-70	Y	

Note: (1) NRC Clarification is requested
(2) Relief not requested or needed

All of the above valves were listed in Section 3.2 of the Safety Evaluation in Reference 4 as "Valves Identified for Cold Shutdown Exercising" except 2CV-1480-2, 2CV-1481-1, 2CV-4916-2 and 2CVC-49. We suspect that these valves were inadvertently left off the list; however, a clarification from NRC is requested. All relief requests were made in Reference 2. Valve 2CV-4823-2 can be tested during power operation; no relief was ever requested. However, a clarification of the NRC staff position related to this valve is also requested.

3. In References 1, 2 and 3, AP&L requested relief from exercising 2CV-4873-1, the charging pump suction valve from the volume control tank.

NOTE: For completeness, we should have included the "-1" notation at the end of valve number 2CV-4873 in our References 2 and 3.

Reference 4 lists valve 2CV-4823-2 instead of 2CV-4873-1 as the "charging pump suction (from the volume control tank)." This appears to be a typographical error, but we request NRC's clarification to this effect. We stroke 2CV-4873-1 during cold shutdowns and refueling outages as allowed by the Code (i.e., no relief is necessary).

4. In Reference 2, AP&L requested relief from exercising 2CV-5038-1 during power operation. This valve is in series with 2CV-5084-1 and 2CV-5086-2 for which relief was granted from power operation testing. We request that NRC grant the relief as requested.

Valves 2CV-5084-1 and 2CV-5086-2 serve a pressure isolation function. Additionally, 2CV-5038-1 provides pressure isolation. As such, we propose categorizing these valves as Category A. However, we request relief from the Code-required leak testing based on the following design considerations.

The piping between 2CV-5084-1 and 2CV-5086-2 has a low pressure relief valve (2PSV-5085) installed to protect the piping from an overpressure condition. If 2CV-5084-1 (the valve closest to the RCS) leaks, the relief valve will lift and a check of RCS leak rate will identify the problem. If both 2CV-5084-1 and 2CV-5086-2 leak, a pressure instrument located between 2CV-5086-2 and 2CV-5038-1 will indicate the condition. This instrument alarms in the control room and can be monitored on a continual basis. If all of these protective features fail and all three control valves leak, the LPSI pump suction piping is protected by additional relief valves. We believe these features provide adequate protection from an overpressure condition.

5. The following is a list of Category A/E valves from Reference 2 which required relief from exercising except during refueling outages:

2C/-5432
2FP-34
2FP-35
2FP-36
2IA-14
2PH-22
2PH-45
2SA-68

The NRC staff in Reference 4 listed 2SA-69 instead of 2SA-68. This appears to be a typographical error as Reference 2 even states that 2SA-69 was not part of the IST Program. The NRC's clarification of this discrepancy is requested.

All of the valves in the list were required, in Reference 4, to have their position checked at least quarterly and each time the valve was cycled. However, two of the valves, 2FP-35 and 2FP-36, are inside containment. For ALARA reasons, it is undesirable to check these valve positions on a quarterly basis. Alternatively, we propose to check their positions during refueling outages and after the valves are cycled. Therefore, we request relief from the NRC Staff position listed in Reference 4.

As part of a recent design change, manual valve 2IA-14 was relabeled 2BA-217. It follows that valve number 2BA-217 was added to our program and valve number 2IA-14 was deleted accordingly.

6. In Reference 1, AP&L requested relief from Code-required measurement of service water flow due to system design and the impracticality of installing flow transmitters. Alternative testing was proposed consisting of measuring pump differential pressure (dP) and relating it to manufacturer-supplied pump curves to determine [adequate] flow rate. In Reference 4, the NRC staff granted this relief request and indicated that AP&L had proposed to measure pump dP "when the pumps are tested to shutoff head."

In Reference 1, AP&L did not propose to measure pump dP at shutoff head. We currently measure dP with normal steam plant heat exchangers on-line (e.g., lube oil coolers, hydrogen coolers) and compare that dP with the dP required to achieve the design ES service water flow on the manufacturer's pump curves. This provides reasonable assurance that the pumps can supply design ES flow rate in an accident condition. In actuality, the normal steam plant loads exceed those loads which must be supplied during an ES condition, thus the operability of the pumps is being demonstrated on a continuous basis when the plant is at power. In addition, we measure individual ES cooler flow rates with portable flow instruments each refueling outage as another check of pump operability.

We believe that these measures provide reasonable assurance that the service water pumps can deliver adequate flow. Consequently, we request clarification as to NRC's position relative to our proposed alternative testing of service water pump flow.

7. There were several differences in the Reference 4 list of valve categories as compared with AP&L listings. These are as follows:

VALVE NUMBER	VALVE CATEGORY		AP&L COMMENTS
	REF. 4	AP&L	
2CV-4823-2	B	A	This appears to be a typographical error in Reference 4. See Item (3), #3 above. Category A is correct.
2CV-5038-1 2CV-5084-1 2CV-5086-2	A	B	AP&L will change this to Category A. See Item (3), #4 above.
2EFW-2A 2EFW-2B	B/C	C	Relief granted in Section 3.7.2 of Reference 4 eliminates stroking requirements except during refueling outages. Category C is correct.
2SI-7A 2SI-7B	B	C	These are HPSI pump suction check valves. Category C is correct.
2SI-14A 2SI-14B 2SI-14C 2SI-14D	A/C	C	These valves are listed in Reference 4 as "pressure boundary isolation" valves. Category A/C is correct.
2MS-39A 2MS-39B	B/C	C	These are check valves. No stroke timing is required. Category C is correct.
2SI-16A 2SI-16B 2SI-16C 2SI-16D	A/C	B/C	Category A/C is correct per Reference 4. See Item (3), #8 below for relief request from leak testing.
2SI-27A 2SI-27B 2SI-28A 2SI-28B	A/C	C	Category A/C is correct per Reference 4. See Item (3), #9 below for relief request from leak testing.

8. In Reference 4, valves 2SI-16A, 2SI-16B, 2SI-16C and 2SI-16D were declared "pressure boundary isolation" valves. As such, Category A/C is appropriate, and leak testing is required. (See Section 3.13.4 of Reference 4.) These valves are not leak tested per Code requirements, but leakage from the RCS through these valves is continuously monitored during power operation by observing SIT pressure and level as well as RCS leak rate. A relief from Code-required leak testing is hereby requested with the alternative monitoring described above.

9. In Reference 4, valves 2SI-27A, 2SI-27B, 2SI-28A and 2SI-28B were declared "pressure boundary isolation" valves. Using the rationale of Section 3.13.4 of Reference 4 these valves are Category A/C and leak testing is appropriate. These valves are not leak tested per Code requirements, but the pressure monitoring described in Section 3.13.2 of Reference 4 provides adequate indication of leakage. A relief from Code-required leak testing is hereby requested with the alternative monitoring described in Section 3.13.2 of Reference 4.
10. In Reference 5, AP&L requested relief from establishing Code required ranges for 2P-36A, 2P-36B and 2P-36C charging pumps. These are positive displacement pumps with discharge pressures ranging from 50 to 2700 psig depending on RCS pressure. The pump differential pressure also varies over a wide range when the pumps are operated between cold shutdown and power operation. Alternative measures were proposed involving establishing required flow ranges only since this is a better indication of pump performance for a positive displacement pump. Reference 4 does not comment on this relief request. AP&L requests a decision from NRC on this relief request.