



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

SEP 03 1982

DCD-016

Docket No. 50-313

SUBJECT: SUMMARY OF MEETING WITH ARKANSAS POWER AND LIGHT COMPANY (AP&L)
ON AUGUST 31, 1982 CONCERNING THE ALTERNATE SAFE SHUTDOWN
CAPABILITY IN THE EVENT OF A FIRE AT ARKANSAS NUCLEAR ONE,
UNITS NOS. 1 & 2 (ANCO-1 & 2)

Introduction

This meeting was held in Bethesda, Maryland on August 31, 1982 at the request of the NRC staff to discuss the subjects on the enclosed proposed list of information (Enclosure 1). The attendees of the meeting are identified in Enclosure 2.

Discussion

Highlights of the discussions concerning each item in Enclosure 2 follows in the order identified in Enclosure 2.

1. AP&L did not review the safe shutdown capability by a system approach. Their methodology included a review of each zone and the functions related to safe shutdown performed within the respective zones. They then investigated each component in the zone to determine the effect on the necessary function if that component was assumed to fail. If anything would fail the function, then methods were determined how to maintain the safe shutdown capability. The staff needs a written discussion of the AP&L methodology and some examples of its application.
2. AP&L provided a response in Enclosure 3. In addition to what was provided in Enclosure 3 the staff wanted to know how much time an operator has before there would be an unrecoverable situation. That staff also wanted to know if there would be enough people available to operate the plant in the event of a fire.
3. The staff wants a full description of all the operations required of the operators to bring the plant to hot and cold shutdown. The following summary of plant operations was provided:
 - a) The operator would assure that the reactor was tripped. If it was not tripped the operator would trip the RPS.
 - b) They would station one man at the steam driven emergency feed pump and valves and one man at the makeup pump.
 - c) These operators would then be instructed in the local operation of the EFW pump valves and makeup pump to bring the plant to hot and cold shutdown.

The licensee indicated that there would be 1 to 1 1/2 hours before there would be a need for makeup water.

AP&L does not have current procedures for bringing the plant to cold shutdown but modifications would be made to provide such procedures.

- 4. The loss of offsite power will not affect the capability of supplying diesel generator fuel oil, via the transfer pumps to both units. The diesel generator provides the necessary power.
- 5. a) The reactor trip system will be used for shutdown.
 b) Enclosure 4 provides the resolution of this question.
 c) The staff basically wants to know how the licensee provides pressure control in the alternate shutdown mode.
 d) The licensee indicated that they don't have indication for source range monitors or necessary tank levels at remote locations on the basis that they are not necessary.

The licensee will verify this and justify this condition.

6. The units can be brought to cold shutdown within 72 hrs. This will be verified in writing.

- 7. a) The review for associated circuits includes all areas of the plant containing shutdown equipment.
 b) The answer to this item is yes.
 c) AP&L approach to this concern was to review the function by zone required for safe shutdown. Then they look at each component or item of equipment in the zone which could impede the function if it were to fail. Then they treated that component as required for shutdown and determined another method of accomplishing the function. The staff wants the methodology of review documented.

8. Enclosure 5 provides a response to this concern. The licensee has requested an exemption on the basis that it would require four shorts to open the valves of concern. This is a low probability event. It was indicated that removing the power from one valve could possibly be a solution to the concern.

9. The staff wanted to be assured that the licensee has looked at this concern. The licensee has reviewed the concern in their methodology of review.

10. In the methodology of review of the safe shutdown capability, the licensee has looked at this concern.

Conclusion

A list of information which would need documentation was identified (Enclosure 6) and the list would be formally transmitted by letter. The licensee will respond to the list by September 15, 1982.

Original signed by

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

5/10
9/3/82

OFFICE	Enclosures & cc: See next page				
SURNAME					
DATE					

Enclosures:

1. Proposed List of Information to be Discussed
2. List of Attendees
3. AP&L Response
4. Resolution to Question on Reactor Trip System Being Used for Shutdown
5. Response to Concern
6. List of Information Needing Documentation

cc w/enclosures:
See below for list

ORB#4:DL

MEETING SUMMARY DISTRIBUTION

Licensee: Arkansas Power & Light Company

* Copies also sent to those people on service (cc) list for subject plant(s).

Docket File
NRC PDR
L PDR
ORB#4 Rdg
GLainas
JStolz
Project Manager-GVissing
Licensing Assistant-RIngram
OELD
Heltemes, AEOD
IE
SShowe (PWR) or CThayer (BWR), IE
Meeting Summary File-ORB#4
RFraley, ACRS-10
- Program Support Branch

ORAR, Rm. 542
BGrimes, DEP
SSchwartz, DEP
SRamos, EPDB
FPagano, EPLB

Meeting Participants Fm. NRC:

VPanciera
RPGoel
DBuca

POST FIRE SAFE SHUTDOWN CAPABILITYARKANSAS NUCLEAR ONE - UNITS 1 and 2

BNL Questions/Information Requests on Licensee's 7/1/82 Submittal

1. The licensee should define the systems required to bring the plant to both hot and cold shutdown conditions. This includes all required mechanical and electrical support systems. The equipment, instrumentation and cable in each fire area should be tabulated.
2. For the fourteen fire zones that the licensee indicates are in full compliance with Appendix R, but require some sort of manual or non-routine operation, the licensee should describe the safe shutdown equipment and cables that would be effected by a fire and the specific operator actions that would be required to obviate these effects.
3. The licensee should present additional detail in regards to the operator actions that would be required to provide alternate shutdown independent of the control room and cable spreading rooms. Is the licensee going to prepare emergency procedures to implement these operator actions?
4. Will the loss of offsite power affect the capability of supplying diesel generator fuel oil, via the transfer pumps, to both units.
5. Performance goals of Section III.L
 - a. Will the reactor trip system be used for shutdown?
 - b. What is the source of boration and makeup water?
 - c. Will the pressurizer heaters, or some means of pressure control, be used for shutdown? If so, please describe.
 - d. Will indications be available for source range monitoring and any necessary tank levels?
 - e. What are the ventilation and electrical distribution systems required for alternate shutdown.
 - f. What are the systems required to achieve cold shutdown?
6. Can the units be brought to cold shutdown within 72 hours?

7. Associated Circuits:

- a. Please detail the scope of the associated circuits reviewed. Was it for all areas containing safe shutdown cables, or for only process monitoring cables for alternate shutdown?
 - b. For the common power source situation, has the licensee addressed the 4kV systems? Is the circuit protection coordinated, and is this an ongoing program?
 - c. For the spurious signal and common enclosure concerns, the licensee should demonstrate compliance in these areas by providing a detailed zone by zone analysis, or by providing a description of design philosophy that obviates these concerns.
8. Has the licensee identified all cables or equipment whose failure due to the effects of a fire may cause spurious operation and violate a high/low pressure interface, thereby creating a LOCA? If so, please list and identify the resolution of any violations.
9. The licensee should clarify whether any cases of fires in shutdown logic trains or panels have been identified which could affect the operation or maloperation of safe shutdown equipment. If so, what has been done to correct the situations?
10. Has the licensee verified that at least one set of instruments and associated cables required for safe shutdown will be operable following a fire in any area of the plant?

MEETING WITH AP&L CONCERNING FIRE PROTECTION ON AUGUST 31, 1982

INRC

Guy S. Vissing
V. Panciera
R. P. Goel
Don Buca

TERA (AP&L Consultant)

Hank George

BNL

John H. Taylor

AP&L

John R. Marshall
Larry V. Parscale
Richard A. Barnes
Glenn Dobbs
Tom Ott
Bobby A. Terwilliger
Dan Williams

2. Zones 149E, 67U, 68P and 128E

Cables for all the Service Water Sluice Gates are in each of these zones. If hot shorts somehow selectively closed all the gates which permit the pump suction bays to be supplied with lake water and left all the gates closed which permit the pump suction bays to be supplied with emergency cooling pond water, then one gate would have to be manually opened to maintain suction supply for a service water pump.

Zone 170Z

The Atmospheric Dump Valves and Atmospheric Dump Block Valves are in this zone. They are required only for cold shutdown. To achieve cold shutdown, one of each in the same loop may have to be manually opened.

Zone 38Y

A cable for CV-1404 (Decay heat drop line from the Reactor Coolant System) is in this zone. To reach cold shutdown that valve may have to be manually opened.

Zones 79U and 112I

Cables for the "C" Makeup pump lube oil pump and the "B" Makeup pump cooler service water inlet valve are in each of these zones. If "A" Makeup pump should be out of service (as permitted for unlimited time periods by the technical specifications) and a fire caused hot short causes the "B" Makeup pump cooler service water inlet valve to close, the "C" Makeup pump can be used for inventory makeup and/or heat removal by overriding the pump lube oil start interlock with a manual Emergency Safeguards initiation or the "B" Makeup pump can be used by manually opening the pump cooler service water inlet valve.

Cables for valves CV-1050, CV-1404 and CV-1428 are in each of the zones and Zone 79U has a cable for CV-1401 and Zone 112I has a cable for CV-1410. Valves CV-1050, CV-1410 and CV-1404 are in the Decay Heat drop line from the Reactor Coolant System and CV-1401 and CV-1428 are in the Decay Heat cooler discharge line back to the Reactor Coolant System. To achieve cold shutdown CV-1050, CV-1404, CV-1401 and CV-1428 may have to be manually opened for a fire in Zone 79U and CV-1050, CV-1410, CV-1404 and CV-1428 may have to be manually opened for a fire in Zone 112I.

Zones 2084DD and 2111T

Cables for the service water outlet valves from both Diesel Generator jacket coolers are in each of these zones. A fire in either zone along with a loss of offsite power might cause a need for one of those valves to be manually opened.

Zone 2084DD also has cable for all but one Emergency Feedwater pump discharge valves and several of the valves themselves are physically in this zone. A fire in this zone might cause a need to use feed and bleed cooling or to manually open 2CV-1039 or to manually open 2CV-1036 and 2CV-1075. None of those three valves are physically located within Zone 2084DD nor would a fire in that zone make them inaccessible.

Zone 2097X

Cables for the green and swing battery chargers are in this zone. If the red battery charger is out of service (as permitted for unlimited time periods by the technical specifications) and a fire in this zone disabled the green and swing battery chargers, the black battery charger would need to be connected to the red battery.

Zone 2155A

The atmospheric dump valves are both in this zone. To achieve cold shutdown one may need to be manually opened.

5.b

SOURCE OF BORATION AND MAKEUP WATER

ANO-1

SUPPLY

- BORATED WATER STORAGE TANK
- OR BORIC ACID ADDITION AND CONDENSATE TANKS VIA THE MAKEUP TANK
- OR BORIC ACID ADDITION TANK VIA THE MAKEUP TANK

MOTIVE

- ANY ONE OF THREE MAKEUP PUMPS

ANO-2

SUPPLY

- REFUELING WATER TANK
- OR BORIC ACID MAKEUP TANK A
- OR BORIC ACID MAKEUP TANK B
- OR BORIC ACID MAKEUP TANK VIA THE VOLUME CONTROL TANK

MOTIVE

- ANY ONE OF THREE CHARGING PUMPS

HIGH/LOW PRESSURE INTERFACES

ANO-1

CV-1050

CV-1410

ANO-2

2CV-5686

2CV-5684

REQUIRE PERMISSIVE AND MANUAL SIGNAL TO OPEN. PERMISSIVE CONTACT
AND HANDSWITCH FOR EACH VALVE IN SEPARATE CONTROL ROOM CABINETS.

REQUEST FOR ADDITIONAL INFORMATION CONCERNING SAFE SHUTDOWN CAPABILITY
FOR
FIRE PROTECTION
FOR

Enclosure 6

ARKANSAS NUCLEAR ONE, UNITS NOS. 1 & 2
DOCKETS NOS. 50-313 & 50-368

1. Provide a summary of the methodology used in reviewing ANO-1 & 2 capabilities for hot shutdown and cold shutdown in the event of a fire; and provide some typical examples of the application of your methodology.
2. For the 14 fire zones that you indicate are in full compliance with Appendix R, but require some sort of manual or non-routine operation, describe the safe shutdown equipment and cables that would be effected by a fire and the specific operator actions that would be required to obviate these effects. In your discussion of this issue discuss the times for required action that the operator has before the plant would get into an unrecoverable situation.
3. List all the actions required of the operator including the times in which the operator has to bring the plant to hot and cold shutdown by means of the alternate shutdown capability independent of the control room and cable spreading room. List manpower requirements for various tasks. Provide a commitment and schedule for implementing procedures for bringing the plants to hot and cold shutdown.
4. With respect to your Section III.L discuss the following:
 - a. What is the source of borated and makeup water?
 - b. Will the pressurizer heaters, or some means of pressure control, be used for shutdown? If so, please describe.
 - c. We understand that you do not currently have and you do not propose to have indication available for source range monitoring and necessary tank levels. It is the staff's position that source range monitoring indication should be available at the remote shutdown panel and the capability be provided to determine the necessary tank levels. We request you to commit to satisfying the staff position.
 - d. What are the ventilation and electrical distribution systems required for alternate shutdown.
5. Your submittal did not specifically respond to our May 10, 1982 letter with regard to your method of review for associated circuits. Please expand your discussion and address the specific issues of our May 10, 1982 letter. In addition address the following:
 - a. Discuss your methodology of associated circuit review. Was it for all areas containing safe shutdown cables, or for only process monitoring cables for alternate shutdown?
 - b. For the common power source situation, have you addressed the 4kV systems? Is the circuit protection coordinated, and is this an ongoing program?
 - c. For the spurious signal and common enclosure concerns, demonstrate compliance in these areas by providing a detailed zone by zone analysis, or by providing a description of design philosophy that obviates these concerns.
6. Have you identified all cables or equipment whose failure due to the effects of a fire may cause spurious operation and violate a high/low pressure interface, thereby creating a LOCA? If so, please list and identify the resolution of any violations.
7. Can the units be brought to cold shutdown within 72 hours?