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

NOV 15 1976

DOCKETS NOS.: 50-313, 50-289, 50-312, 50-269, 50-270, and 50-287

LICENSEE/FACILITY: Arkansas Power & Light Co. (Arkansas Nuclear UniT One, Unit 1)
Metropolitan Edison Co. (Three Mile Island, Unit 1)
Sacramento Municipal Utility District (Rancho Seco)
Duke Power Company (Oconee, Units 1, 2 & 3)

SUMMARY OF MEETING HELD ON NOVEMBER 5, 1976, CONCERNING PROPOSED MEASURES TO PREVENT REACTOR VESSEL OVERPRESSURIZATION IN OPERATING BABCOCK & WILCOX (PWR) FACILITIES

On November 5, 1976, the staff met with representatives of PWR licensees with Babcock & Wilcox (B&W) designed plants to discuss measures being taken to prevent reactor vessel overpressurization.

A list of attendees is enclosed.

Significant discussions are summarized below.

We summarized the correspondence and discussions that had occurred with the B&W licensees since our generic letter on reactor vessel overpressurization was issued in August 1976. We acknowledged that three of the four licensees had responded with the submittals requested in the generic letter and that the submittals included a description of certain design features that provided some degree of protection against reactor vessel overpressurization. However, we indicated the need to discuss the details of these design features further and to determine if all potential pressure transients had been considered.

The staff indicated that the below listed design criteria should be included in that equipment intended to provide overpressurization protection:

1. Credit for Operator Action - No credit can be taken for operator action until 10 minutes after the operator is aware that a pressure transient is in progress.

2. Single Failure Criteria - The pressure protection system should be designed to protect the vessel given a single failure in addition to a failure that initiates the pressure transient. In this area, redundent or diverse pressure protection systems would be considered as meeting the single failure criteria.

3. Testability - The equipment design should include some provision for testing on a schedule consistent with the frequency that the system is used for pressure protection.

4. Seismic Design and IEEE 279 Criteria - Ideally, the pressure protective system should meet both seismic Cat 1 and IEEE 279 criteria. The basic objective however, is that the system should not be vulnerable to an event which both causes a pressure transient and causes a failure of equipment needed to terminate the transient.

The licensee emphasized the fact that none of the B&W plants ever go water-solid, even when shutdown, in that the pressurizer steam bubble is replaced with a low-pressure (35 to 50 psig) nitrogen gas bubble when the plant is cooled down. In addition, the B&W plant design already includes a dual setpoint feature on the pressurizer power operated relief valve. The lower setpoint of 500 psig is selected whenever the plant is shutdown and cooled down to provide overpressure protection for the Reactor Coolant System (RCS). Rancho Seco, however, indicated that its power operated relief valve is also used during normal plant operation as an aid in the control of reactor coolant boron concentration. As a result of this use, the licensee indicated that during plant shutdown the valve has required maintenance and would therefore not be available for overpressure protection. We requested that Rancho Seco provide further details on the maintenance program for this valve.

With reference to the single failure criteria, we discussed the possibility of an overpressurization event occurring in those situations where administrative measures would be used such as removal of power from the circuit breakers of valves or high pressure pumps. The licensee agreed to study this further and will provide a more detailed discussion of this type of control.

We requested that the licensees and B&W provide a transient analysis of the RCS response to a single High Pressure Injection Pump and a Core Flood Tank discharge.

The licensees agreed to study the possibility of limiting the volume of water in the RCS Makeup Tank such that the pressurizer would not go water-solid if the Makeup Control Valve should fail full open.

The licensees agreed to provide additional information regarding how they intend to meet the above described design criteria. In those instances where deviation from the criteria might be involved, the licensees are to provide detailed justification including the technical basis for not meeting the criteria and, where significant, the impact on the schedule for implementation.

Arkansas Power & Light Company representatives agreed to submit their analysis and proposed methods to provide pressure protection by December 3, 1976. They indicated that they now operate with a nitrogen bubble in the pressurizer when shutdown, as do the other B&W licensees. Regarding the additional information requested in the meeting, all B&W licensees are to provide responses upon receipt of the additional transient analyses from Babcock & Wilcox. These analyses are estimated to require approximately 30 days to prepare.

We agreed to send each licensee a letter describing the information requested.

Gary G. Zech, Project Manager
Operating Reactors Branch #1
Division of Operating Reactors

Enclosure:
List of Attendees

cc w/encl:
See next page

NRC STAFF MEETING WITH
BABCOCK & WILCOX PWR LICENSEES
NOVEMBER 5, 1976
ATTENDANCE LIST

NRC

G. G. Zech
R. L. Baer
C. H. Berlinger
G. Lanik
L. B. Marsh
J. D. Neighbors
J. A. Dyer
R. E. Martin
D. M. Verrelli
R. P. Snaider
W. E. Converse
J. E. Ouzts
F. Clemenson
R. M. Gamble
G. R. Mazetis
G. B. Swetzig
V. Rooney
F. Orr
R. Wright (ACRS)

Bechtel

E. J. Ray

Babcock & Wilcox

J. Merchant
W. J. Keyworth
D. G. Newton

Arkansas Power & Light Co.

R. Cook
G. R. Young

Sacramento Municipal Utility Dist.

P. Oubre'
R. A. Dieterich

Duke Power Company

D. C. Holt
T. E. Crawford
E. D. Blakeman

Metropolitan Edison Com.

D. Huffman
J. J. Moran

Florida Power Corp.

B. Simpson

Docket Nos.: 50-259/260
50-296/297
50-313/368
50-382/383

OCT 29 1976

MEMORANDUM FOR: Robert W. Reid, Chief, Operating Reactors Branch #4, DOR

FROM: G. Zwetzig, Project Manager for ORB#4, DOR

SUBJECT: MEETING WITH BABCOCK & WILCOX ON PROPOSED INTEGRATED REACTOR VESSEL SURVEILLANCE PROGRAM

TIME & DATE: 1 p.m., Wednesday
November 3, 1976

LOCATION: NRCB, Rm. 6507
Bethesda, MD

PURPOSE:
1. Discussion of technical basis in support of the proposed integrated surveillance program.
2. Discussion of problems associated with installation of surveillance specimen holder tubes in reactors that have operated.

PARTICIPANTS:

NRC (OT)
M. Hazelton, V. Noonan

NRC (OR)
G. Zwetzig, D. Converse, T. Mooney

B&W
N. Keyworth

UTILITY
Several utilities representatives expected.

Original Signed by

G. Zwetzig, Project Manager
Operating Reactors Branch #4
Division of Operating Reactors

memo w

OFFICE ➤	ORB#4:DOR					
SURNAME ➤	GZwetzig:rm					
DATE ➤	10/ /76					

Form AEC-318 (Rev. 9-53) AECM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

MEETING NOTICE DISTRIBUTION

ORB#4

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GLear
RReid
TJCarter
LShao
RBaer
WButler
BGrimes
Project Manager
Attorney, OELD
OI&E (5)
OSD (3)
BFaulkenberry, I&E
RIngram
Receptionist, Bethesda
Pricipal Staff Participants (W. Hazelton, V. Noonan, W. Converse, V. Rooney)
RFraley, ACRS (16) L. Engle, D. Neighbors, J. Stolz)
DThompson, E/W 359

NOV 12 1976

MEMORANDUM FOR: Karl R. Goller, Assistant Director for Operating Reactors, DOR

THRU: A. Schwencer, Chief, Operating Reactors Branch #1, DOR

FROM: Don Neighbors, Project Manager, Operating Reactors Branch #1, DOR

SUBJECT: POSITIVE FLOW INDICATION IN OCONEE HOT LEG DRAIN FOR BORON DILUTION FLOW

You requested information as to whether or not Duke Power Company had been informed either by letter or orally of the basis for requiring positive flow indication on the reactor hot leg drain.

On numerous occasions, Duke Power Company (DPC) was informed of the need for and the reasons for the positive flow indication on the reactor hot leg drain. Specifically on February 10, 1976, DPC was orally informed by G. Mazetis, RSB, that flow indication was needed to allow the operator to get flow by an alternate method if flow were to stop in the hot leg drain. On February 27, 1976, Mr. Parker of DPC was orally informed by Mr. Rusche that the flow indication was required.

By letters dated February 17 and October 4, 1976, we informed DPC that positive flow indication was necessary if we were to find the DPC boron dilution proposals acceptable. In safety evaluations dated March 25 and June 30, 1976, we stated that DPC had committed to provide positive indication of flow. This committment provided part of the bases for our acceptance of the long-term boron concentration analysis.

Don Neighbors, Project Manager
Operating Reactors Branch #1
Division of Operating Reactors

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Docket Files(50-269/270/287)
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memo 4

OFFICE ➤	DOR:ORB#1	DOR:ORB#1				
SURNAME ➤	DNeighbors:lb	ASchwencer				
DATE ➤	11/12/76	11/12/76				

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