



November 26, 1984

POLICY ISSUE
(Information)

SECY-84-378B

FOR:

The Commissioners

FROM:

William J. Dircks
Executive Director for Operations

SUBJECT:

ADDITIONAL INFORMATION RELATING TO THE NOVEMBER 6, 1984
BRIEFING ON THE DIRECTOR'S 2.206 DECISION ON TMI-1
EMERGENCY FEEDWATER

DISCUSSION:

This memorandum provides the additional information requested of the staff during the subject briefing in accordance with the memorandum from the Secretary to W. J. Dircks dated November 9, 1984. Enclosure 1, entitled "Modifications for Restart", lists the TMI-1 emergency feedwater (EFW) system modifications that will be complete prior to any restart. Enclosure 2, entitled "EFW Long Term Upgrade Modifications", lists those system modifications which the licensee intends to complete by the first refueling outage after restart or by late 1985 if the plant remains shutdown during 1985. Those items annotated as "NRC Requirement" are long-term requirements resulting from the restart proceeding.

Enclosure 3 is a summary of EFW system seismic qualification status for the forty operating reactors which were reviewed by the staff for this issue. This information is excerpted from "Seismic Qualification of PWR Plant Auxiliary Feedwater Systems" (URCL-53050) which was prepared by Lawrence Livermore National Laboratory. Each reactor is ranked alphabetically in one of four

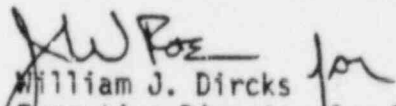
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categories ranging from fully qualified (Group 1) to major deficient (Group 4). Reviews have been completed on all of the Babcock and Wilcox plants except the Oconee Units 1, 2 and 3.

Based on licensee submittals, the 18 plants listed in Group 1 had seismically qualified EFW systems at the time of the accident at Three Mile Island, Unit 2.

Enclosure 4, "Comparison of Implementation of Selected TMI Action Plan Requirements on Operating Plants Designed by Babcock & Wilcox" (NUREG-1066), provides the results of a study the staff conducted to compare the degree to which the eight B&W plants have complied with NUREG-0737. NUREG-1066 was provided to the Commission at the time of its issuance (May 1984), but it is being provided again at this time because of its relevance to the issues discussed at the November 6 briefing. In particular, the Commission's attention is directed to Table 2 (pages 6 and 7) which summarizes the comparative status of the plants as of April 1984.


William J. Dircks
Executive Director for Operations

Enclosures:

1. Modifications for Restart
2. EFW Long Term Upgrade Modifications
3. Categories of PWR Plants in Accordance with Status of Seismic Qualification of EFW Systems
4. NUREG 1066 (Commissioners, SECY, OGC, OPE, EDO only)

MODIFICATIONS FOR RESTART

- o SAFETY GRADE EFW FLOW INDICATION IN THE CONTROL ROOM
- o SAFETY GRADE AUTO START OF ALL PUMPS
- o SAFETY GRADE OTSG LEVEL INDICATION IN THE CONTROL ROOM INDEPENDENT OF THE ICS
- o SAFETY GRADE TWO HOUR INSTRUMENT AIR SUPPLY FOR VALVES
- o BACKUP INSTRUMENT AIR COMPRESSOR SYSTEM FOR VALVES
- o CONTROL GRADE LOW-LOW LEVEL ALARMS FOR CONDENSATE STORAGE TANKS
- o FLOW CONTROL VALVES FAIL OPEN ON LOSS OF INSTRUMENT AIR
- o FLOW CONTROL INDEPENDENT OF ICS (VALVE MANUAL LOADER STATIONS)
- o DELETED ELECTRICAL POWER SUPPLY CROSS CONNECT TO MOTOR DRIVEN PUMPS
- o INSTALLED CAVITATING VENTURIS
- o PUMP RECIRCULATION VALVES LOCKED OPEN
- o CONDENSATE STORAGE TANK OUTLET VALVES LOCKED OPEN
- o MODIFIED STEAM LINE RUPTURE RESTRAINT
- o MODIFIED TURBINE STEAM SUPPLY CONTROL & RELIEF VALVES
- o SEISMIC SUPPORT OF PUMP RECIRCULATION LINES
- o SEISMIC SUPPORT OF VENT STACKS FOR SAFETY VALVES ON TURBINE STEAM SUPPLY
- o INCREASE INTERMEDIATE BUILDING FLOODABLE VOLUME (ALLIGATOR PIT & TENDON ACCESS GALLERY)
- o UPGRADE FLOW CONTROL VALVE CIRCUITRY WITH EQ COMPONENTS (I/P AND E/I CONVERTERS)
- o DELETED EFW PUMP SUCTION STRAINERS
- o DELETED MAIN STEAM LINE RUPTURE DETECTION SYSTEM LATCH SIGNAL TO FLOW CONTROL VALVES

EFW LONG TERM UPGRADE MODIFICATIONS

- | | |
|--|---------------------|
| o ADD REDUNDANT SAFETY GRADE EFW CONTROL AND BLOCK VALVES | NRC Requirement |
| o PROVIDE SAFETY GRADE EFW INITIATION ON CONTAINMENT ISOLATION SIGNAL | Licensee Initiative |
| o PROVIDE SAFETY GRADE OTSG LEVEL INSTRUMENTATION AND SIGNALS FOR MFW OTSG HIGH WATER LEVEL ISOLATION AND OTSG LOW WATER LEVEL INITIATION OF THE EFW SYSTEM | NRC Requirement |
| o PROVIDE A SAFETY GRADE AUTOMATIC CONTROL SYSTEM INDEPENDENT OF THE ICS THAT PERMITS THE EFW SYSTEM TO CONTROL OTSG LEVEL WITHOUT INTERACTION WITH THE MFW SYSTEM | NRC Requirement |
| o PROVIDE SAFETY GRADE MAIN STEAM RUPTURE DETECTION AND MFW ISOLATION SYSTEMS | Licensee Initiative |
| o ADD SAFETY GRADE LEVEL INDICATION AND LOW-LOW LEVEL ALARM IN THE CONTROL ROOM FOR EACH CONDENSATE STORAGE TANK | NRC Requirement |
| o PROVIDE A SAFETY GRADE POWER SUPPLY TO VALVES CO-V111A/B AND UPGRADE THE CABLE ROUTING FOR POWER SUPPLY TO VALVES CO-V14A/B TO SEISMIC CLASS I. CRITERIA | Licensee Initiative |
| o PROVIDE AN OVERSPEED TRIP ALARM IN THE MAIN CONTROL ROOM FOR THE TURBINE DRIVEN EFW PUMP (EF-P-1) | Licensee Initiative |
| o PROVIDE INTERMEDIATE BUILDING ALLIGATOR PIT FLOODING ALARM | Licensee Initiative |

CATEGORIES OF PWR PLANTS IN ACCORDANCE WITH STATUS OF SEISMIC
QUALIFICATION OF EFW SYSTEMS

Group 1 Fully Qualified (18 plants)	Group 2 Conditionally Qualified (6 plants)	Group 3 Minor Deficient (10 plants)	Group 4 Major Deficient (6 plants)
Arkansas 2	Arkansas 1	Calvert Cliffs 1/2	Indian Pt. 3
Beaver Valley	Crystal River 3	D.C. Cook 1/2	Oconee 1/2/3*
Farley 1/2	Davis-Besse 1	Maine Yankee*	Pt. Beach 1/2*
Indian Pt. 2	Ft. Calhoun 1	Kewaunee	
McGuire 1/2	St. Lucie 1	Prairie Island 1/2	
Millstone 2	TMI-1	Turkey Pt. 3/4	
North Anna 1/2			
Rancho Seco 1			
H.B. Robinson 2			
Salem 1/2			
Surry 1/2			
Zion 1/2			

Based on our evaluation, the 40 operating PWR plants under review may be categorized into four groups in accordance with the status of overall seismic qualification of the EFW system:

1. Fully Qualified - Those plants with an EFW system that is presently fully qualified per the licensee's submittals. There are 18 (45%) plants in this category.
2. Conditionally Qualified - Those plants with an EFW system that presently has certain seismic-related deficiencies, but will be able to withstand an SSE upon completion of the upgrading/modification programs planned by the licensee. This includes six plants (15%).

*Plants for which review has not been completed.

3. Minor Deficient - Those plants with an EFW system that has, according to our engineering judgement, "minor" seismic deficiencies and for which no specific plans for upgrade/modification were provided by the licensees. There are ten plants (25%) in this category.
4. Major Deficient - Similar to Group 3 plants, but with "major" seismic deficiencies in the EFW system. The remaining six plants (15%) belong to this category.