



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

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APR 21 1982

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Docket Nos. 50-266
and 50-301

Handwritten notes:
45-day report
rigid by
plant 12.3.3 CE#76
(w. 13.13 NUREG-0737)

Mr. C. W. Fay
Assistant Vice President
Wisconsin Electric Power Company
231 West Michigan Street
Milwaukee, Wisconsin 53201

Dear Mr. Fay:

SUBJECT: NUREG-0737 ITEM II.E.1.1, AUXILIARY FEEDWATER SYSTEM EVALUATION FOR POINT BEACH NUCLEAR PLANT UNITS 1 AND 2.

On January 27, 1981 we forwarded to you our safety evaluation (SER) regarding the auxiliary feedwater system for Point Beach Nuclear Plant units 1 and 2. Our SER evaluated your responses to our letter of September 21, 1979 and contained seven items for which our review was not complete.

On April 9, 1981 and September 14, 1981 you provided responses to address the open items of our original SER. In addition, we contacted members of your staff by telephone to resolve short term recommendation GS-1. We have completed our review of your submittals and the verbal commitments made by members of your staff during the above mentioned telephone calls and our evaluation is contained in the attached SER. Open items 3 and 6 of our original SER dated January 27, 1981 will not be discussed in this evaluation but will be covered in our evaluation of NUREG-0737 Item II.E.1.2.

During telephone conversations to resolve short term recommendation GS-1, members of your staff verbally committed to submit proposed modifications to your facilities Technical Specifications to address our concerns. However, you requested that the effective date of Technical Specification changes be coordinated to allow you time to procure additional repair parts for the motor driven auxiliary feedwater pumps, which was estimated to be approximately four months. As stated during the telephone calls, this is acceptable to the staff.

You are therefore, requested to submit within 45 days receipt of this letter proposed modifications to your Technical Specifications, in accordance with your staff's verbal commitments, to resolve short term recommendation GS-1. Contingent upon your submittal of these proposed modifications we consider NUREG-0737 Item II.E.1.1 resolved for your facilities.

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Copies to McNeer, Bursch, Gorske/Finke, Porter, Reed, Charnoff

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The reporting and/or recordkeeping requirements contained in this letter affect fewer than 10 respondents, therefore, Ohio clearance is not required under P.L. 96-511.

Sincerely,

Charles M. Trimmell
Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Enclosure: SER

cc: See next page

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cc:

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SUPPLEMENT TO SAFETY EVALUATION REPORT
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2
IMPLEMENTATION OF RECOMMENDATIONS FOR
AUXILIARY FEEDWATER SYSTEMS
(NUREG-0737, ITEM II.E.1.1)

A. Short-Term Recommendations

Recommendation ES-1 - "The licensee should propose modifications to the Technical Specifications to limit the time that one AFW system pump and its associated flow train and essential instrumentation can be inoperable. The outage time limit and subsequent action time should be as required in current Standard Technical Specifications; i.e., 72 hours and 12 hours, respectively."

In our original SER, we indicated that we would require the licensee to revise the proposed plant technical specifications to state that, (1) for two unit operation, both units be shut-down with a single motor driven pump inoperable for more than 72 hours, and that (2) for one unit operation, shutdown of the operating unit is required with a single motor driven pump inoperable for more than 72 hours. By letter dated April 9, 1981, the licensee maintains its original position

that proposed technical specifications for two unit operation should require shutdown of one unit with one motor driven pump inoperable for more than 72 hours, and for one unit operation, should allow a motor driven pump to be inoperable indefinitely. The licensee points out that for both of the above conditions, AFWS redundancy and diversity is still maintained with one AFW pump inoperable, and cites this as justification for the proposed technical specification.

We have performed independent evaluations on the subject of AFW pump inoperability due to maintenance outages and its effect on system unavailability with respect to the risk of core melt. These studies do not show significant improvement in system unavailability or effect on core melt risk between a 72 hour and 7 day limiting condition for operation for assumed infrequent outages when applied to the motor driven AFW pumps. However, they do indicate that a major accident sequence contributor to the total plant risk of core melt, namely station blackout (loss of all ac power) is affected by the availability of the turbine driven AFW pump. The availability of the motor driven pumps is not as critical in this sequence as no credit can be given them in a total loss of ac power. Consequently, we believe the allowable outage time for a motor driven pump may be extended to seven days but turbine driven pump outage should remain at 72 hours before initiating hot shutdown.

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We need MOV X-control to provide greater flexibility

However, we can not accept the licensee's exception to our requirement that both units be shut down with a motor driven pump inoperable. In the April 9, 1981 letter, the licensee states that he understands the staff concern to be based on a steam line failure in the supply to the turbine driven AFW pump and concurrent single failure in the remaining motor driven pump. This is not the case assumed in reliability study as documented in NUREG-0611. The reliability study assumes the more probable condition where a pump is down for maintenance and a concurrent single failure occurs in one of the remaining pumps. Without some limit on the maintenance outage time, AFWS reliability and the consequential affect on core melt is significantly affected. NUREG-0611 indicates that the Point Beach AFWS has high reliability based on the ability to share the motor driven pump between units. This ability is lost with a motor driven pump inoperable. Consequently, in order to maintain maximum AFWS availability, the availability of this sharing aspect must be properly assured. This is done through the plant technical specifications.

Based on the above, we require that plant technical specifications be revised to require shutdown of both units (two units operating) with one motor driven AFW pump inoperable

for more than seven days, and shutdown of the operating unit (one unit operating) with one motor driven pump inoperable for more than seven days. With a turbine driven pump inoperable more more than 72 hours, shutdown of the associated unit is required. The above technical specification changes are comparable to those that have already been made in other operating plants with three AFU pumps per unit in order to incorporate current Standard Technical Specification requirements and assure maximum system availability.

B. Additional Short Term Recommendations

Recommendation - "The licensee should provide redundant level indications and low level alarms in the control room for the AFW system primary water supply to allow the operator to anticipate the need to make up water or transfer to an alternate water supply and prevent a low suction pressure condition from occurring. The low level alarm setpoint should allow at least 20 minutes for operator actions, assuming that the largest capacity AFW pump is operating."

in our original SER, we indicated that the licensee should provide additional information concerning the condensate storage tank level indication and alarm design in order to verify that no inadvertent means exists for defeating the redundancy in the instrumentation other than a single failure within the indication system itself. By letter dated April 9,

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1981, the licensee indicated that because the capability exists to operate the two condensate storage tanks split by closing suction line valves, rather than cross connected (combined) as is normally done, a second, redundant level detection and alarm system will be installed on each condensate storage tank. This system will be independent of the existing level indicators up to the common control board alarm annunciator. Thus, separate and redundant level instrumentation will be provided for both condensate storage tanks. We conclude that the licensee's response to this recommendation is acceptable and therefore, the licensee is in compliance with this recommendation.

C. Long Term Recommendations

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Recommendation 6L-3 - "At least one AFW system pump and its associated flow path and essential instrumentation should automatically initiate AFW system flow and be capable of being operated independently of any alternating current power source for at least two hours. Conversion of direct current power to alternating current is acceptable."

In our original SER, we indicated that the licensee had not provided sufficient information to demonstrate why bearing lube oil cooling for the turbine driven AFW pump can not be automatically provided by a design involving no other external plant systems such as the firewater system in the event of a total loss of AC power for a two hour period. By letter dated April 9, 1981, the licensee provided additional information to justify the

use of the diesel driven firewater pump to provide bearing cooling for the turbine driven AFW pump. The licensee indicates that periodic warming of the water stored in the condensate storage tank results in an unacceptable cooling water temperature thus precluding use of primary auxiliary feedwater supply for bearing cooling. Further, modifications would be required to return the condensate flow to the tank if it were used for bearing cooling in order to prevent unacceptable depletion in the water inventory available to the steam generators. The licensee also points out that monthly technical specification testing and surveillance assure availability of the diesel driven firewater to the extent practical. We conclude that the licensee's response satisfactorily resolves our concern and thus, use of the diesel driven firewater pump to automatically provide bearing cooling for the turbine driven AFW pump in a total loss of AC power is acceptable. The licensee is therefore in compliance with this recommendation.

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Note!

2. Recommendation GL-4 - "Licensees having plants with unprotected normal AFW system water supplies should evaluate the design of their AFW systems to determine if automatic protection of the pumps is necessary following a seismic event or a tornado. The time available before pump damage, the alarms and indications available to the control room operator,

and the time necessary for assessing the problem and taking action should be considered in determining whether operator action can be relied on to prevent pump damage. Consideration should be given to providing pump protection by means such as automatic switchover of the pump suction to the alternate safety-grade source of water, automatic pump trips on low suction pressure or upgrading the normal source of water to meet seismic Category I and tornado protection requirements."

In our original SER, we indicated that the licensee had not provided automatic protection of the AFW pumps following failure of the condensate storage tanks due to a seismic event or a tornado. By letter dated September 14, 1981, the licensee committed to install a safety grade automatic AFW pump trip on low suction pressure as would occur in the event of failure of the condensate storage tank. We conclude that the licensee's response to this concern is acceptable, and the licensee is in compliance with this recommendation.

D. Basis for Auxiliary Feedwater System Flow Requirement

In our original SER, we indicated that the licensee was required to formally address the request for information contained in Enclosure 2 to our September 21, 1979 letter concerning the bases for the AFWS flow requirements. By letter dated April 9, 1981, the licensee again referred us to

previous analyses which have been performed to verify that the auxiliary feedwater flow design basis is adequate for postulated transients and accidents. We have verified that the flow rate assumed in the transient and accident analyses described in Chapter 14 of the Point Beach FFDSAR is equivalent to the design capacity of the AFW pumps. We therefore conclude that the licensee's response is acceptable.

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