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AUTH.NAME AUTHOR AFFILIATION
DOLAN,J.E. Indiana & Michigan Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation

SUBJECT: Forwards addl info re mods to auxiliary feedwater sys,in response to NRC 800421 ltr.Requests approval of proposed mods prior to refueling outage.Drawings available in Central Files only.

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P. O. BOX 18
BOWLING GREEN STATION
NEW YORK, N. Y. 10004

May 23, 1980
AEP:NRC:00307B

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

Attachment 1 to this letter responds to Mr. A. Schwencer's letter of April 21, 1980 concerning our responses to the NRC requirements for Auxiliary Feedwater Systems (AFS) contained in Mr. Eisenhut's letter of October 30, 1979. Attachment 2 to this letter provides additional information and clarification on the modifications we are planning to make to the AFS at the Cook Nuclear Plant.

Our review of Mr. Schwencer's April 21, 1980 letter indicates that the NRC review of the generic Bulletins and Orders Task Force items is being done concurrently with the review of the AFS modifications that we proposed in Amendment No. 84 to the FSAR (our letter of August 9, 1979). As stated in our letter of December 11, 1979 (AEP:NRC:00300), our responses to these generic industry-wide requirements apply equally to the new AFS modifications. However, we firmly believe that open items pertaining to your review of the generic industry-wide requirements, should not interfere with your approval of our AFS modifications and the associated Technical Specification changes.

Our initial actions to modify the AFS were taken over two years ago with the ordering of mechanical equipment. Since then, additional actions have been taken to prepare for the final modifications. The design of the new system was given further intensive review following the March 28, 1979 accident at Three Mile Island. Even though an equally intensive review of the original and still existing AFS system resulted in the NRC finding of adequacy, we decided to go forward with the new AFS system which furthers system reliability.

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SEND Drawings to REG Files after filming.

We have, in the meantime, responded to every NRC question associated with both the present and the new system. We believe that our voluntary actions to improve the AFS are completely in tune with your personal request for industry initiative and our understanding of NRC policy to accommodate approval of proper initiatives by licensees. We neither seek nor expect any applause for our efforts. By the same token, we fail to understand why approval of those desirable modifications has been made contingent upon new commitments not even related to the improvements we intend to make. We point this out for your consideration to avoid any actions that might discourage any licensees from initiating improvements on their own and would hope that you accept these comments as constructive.

Our plans are to perform the remainder of work on the AFS which will accomplish the separation of the shared operation of the Motor Driven Auxiliary Feedwater Pumps (MDAFP) between Units 1 and 2, during the upcoming refueling outage of Unit 1. The refueling period will commence at the end of this month. We must start the necessary mechanical and electrical work as soon as the unit is shutdown. Therefore, we must have your approval of our proposed AFS modification prior to entering the outage or else we cannot undertake this effort.

Very truly yours,

John E. Dolan

John E. Dolan
Vice President

JED/emc
Attachments

cc: R. C. Callen
G. Charnoff
R. S. Hunter
R. W. Jurgensen
D. V. Shaller - Bridgman

ATTACHMENT 1

TO

AEP:NRC:00307B

ATTACHMENT 1

This attachment responds to the requests for additional information and positions enclosed with Mr. A. Schwencer's letter of April 21, 1980 concerning NRC requirements for AFS at Donald C. Cook Units 1 and 2 (Mr. Eisenhut's letter of October 30, 1979). Our responses to these items are in the same format as the enclosure. We are also responding to a request from your staff to document the information given to them by telephone concerning the ventilation system for the Train "N" battery rooms and item 2.1.7.a of NUREG-0578.

Recommendation GS-6:

In regard to this recommendation, backup verification for Auxiliary Feedwater System valve alignments will be performed by a second operator. Plant procedures will be revised and this backup verification begun no later than July 20, 1980.

Additional Short Term Recommendation 1:

Our response to this additional request is stated in Attachment 2 to our letter of March 28, 1980 (AEP:NRC:00307A), Question 2. We disagree with the NRC staff's position to make this short term recommendation, for which our present design is acceptable, into a long term requirement. With the present condensate storage tank (CST) level recorder and alarm system and the low suction pressure trip of the auxiliary feedwater pumps to be installed by January 1, 1981, we clearly meet the intent of this recommendation. There is no need for an additional recorder as it will not provide the operator with any information which either he doesn't already have or is in need of to properly operate the AFS. Also, as explained in our letter of December 11, 1979 (AEP:NRC:00300), the CST low level alarm setting was modified to meet the requirements of this recommendation. This modification has already been implemented. No further work, except as noted above, is planned with regard to this recommendation.

Additional Short Term Recommendation 2:

Endurance testing will be performed on the two new motor driven auxiliary feedwater pumps. It is not our intention to test the two existing Turbine Driven Auxiliary Feedwater Pumps (TDAFP) and the two existing MDAFP's as these pumps have been run extensively as indicated in our letter of December 11, 1979 (AEP:NRC:00300). The existing four pumps have been run extensively since 1975 (Unit 1) and 1978 (Unit 2) and never has any abnormal behavior been detected which could be associated with a lengthy, continuous pump running time. Nothing of

substance has been changed in the present configuration of the existing four pumps room. Furthermore, wear is, as you well know, a source of equipment failure. The requested test will, therefore, do nothing but to wear unnecessarily an already well proven piece of equipment. Our substantive knowledge of the system's reliability will not increase because of the performance of the test.

In summary, we would like to point out that the existing MDAFP's have been run for more than five (5) years now and that this 48 hour endurance testing is unnecessary, redundant and technically unwarranted. The fact that the pumps have been run successfully verifies the entire system adequacy.

The new motor driven auxiliary feedwater pumps will be tested within 60 days after return to power on each unit. Results of all the tests will be reported as outlined in Recommendation No. 2 within 60 days of completion.

Pre-operational testing of the Auxiliary Feedwater System following implementation of the proposed modifications (Amendment 84) and prior to returning the systems to service, will adequately demonstrate that all of the systems are operating as designed and will satisfy the requirement for testing in the new configuration.

Basis for AFS Flow Requirements:

We addressed this point in our letter of January 29, 1980 (AEP:NRC:00300B). Restated here, we will submit the information requested in Enclosure 2 to Mr. Eisenhut's October 30, 1979 letter by August 15, 1980.

Train "N" Battery Room Ventilation:

On April 8, 1980 we were requested to document our response to the NRC staff question on this system. The acronym AMCA stands for "Air Movement and Control Association" and the fans are spark proof. The Train "N" ventilation system design meets or exceeds the standards for the design of the existing station battery room ventilation systems.

NUREG-0578, Item 2.1.7.a:

On May 16, 1980 we were requested to document our response to the NRC staff question concerning this NUREG-0578 item. The automatic initiating signals for the auxiliary feedwater system which are generated by the Engineered Safety Features Actuation System (ESFAS) are designed as a minimum in accordance with IEEE-279, Safety Guide 1.75 as described in our response to FSAR Question 40.6 contained in Appendix Q, and IEEE-323. The "loss of main feedwater pumps" auto start signal is a balance of plant (BOP) protective function. For further information see our letter of December 20, 1979 (AEP:NRC:00300A) and FSAR Section 7 .

ATTACHMENT 2

TO

AEP:NRC:00307B

ATTACHMENT 2

During recent discussions with members of the NRC Staff concerning their review of the AFS modifications described in FSAR Amendment No. 84, certain additional information was requested. This attachment provides the requested information.

The existing motor driven auxiliary feedwater pump in each unit is powered by a 500 horsepower motor fed from the 4 kV auxiliary bus T11D (T21D - Unit 2). The motor is fed from the Train CD safety bus in each unit and is included in the corresponding diesel generator design load. The motor is started in sequence with other safety related loads in the event of a station blackout or a blackout coincident with safety injection following energization of the safety bus from the Train CD diesel generator. The diesel engine load resulting from automatic starting and loading of all safety loads including the pump motor does not exceed the continuous rating of the diesel generator.

The new additional motor driven auxiliary feedwater pump (MDAFP) in each unit is identical to the existing pump and will be fed from the 4 kV auxiliary bus T11A (T21A - Unit 2). The motor will be fed from the Train AB safety bus in each unit. The addition of the new MDAFP in each unit will make the Train AB and Train CD safety bus loads identical to each other. The additional motor was included in the original design base for the Train AB safety buses and the diesel engine load resulting from automatic starting and loading of all safety loads does not exceed the continuous rating of the diesel generator (see response to Question 40.11 of Appendix Q to the FSAR). The present Unit 2 MDAFP was temporarily connected to the Train AB safety bus of Unit 1 during the initial operation of Unit 1 prior to startup of Unit 2 (see Questions 40.9 and 40.12 - (1) of Appendix Q to the FSAR). The new MDAFP will be connected in the same manner.

The diesel engine starting circuitry has not been changed as a result of adding a new MDAFP. The starting circuit of the new feed pumps has included the provisions for sequencing the pump motor loads in the event of station blackout or station blackout coincident with safety injection. The two diesel generators in each unit are all identical to each other.

By eliminating the cross unit dependence on the auxiliary feedwater systems, the electrical train orientation of the discharge valving of the pumps has been arranged such that one MDAFP supplies water to two steam generators in the same unit as the pump. No automatic connection between units is provided. As a result of this rearrangement, the power feeds to some of the motor operated valves have been changed. The

following AEPSC diagrams are included for your review in support of the information contained in this attachment:

1-1200A-20	2-1200A-16
1-98214-17	2-98214-15
1-98217-6	2-98219-5
1-98218-1	2-98220-1

The final configuration of the power feeds to all of these valves are listed below (refer to diagrams listed above):

UNIT 1

FMO 212 - West (Train AB) feedpump discharge valve to steam generator No. 1. Valve power is supplied through VCC-AZV-A from 600 volt bus 11A.

FMO 222 - East (Train CD) feedpump discharge valve to steam generator No. 2. Valve power is supplied through MCC-1-EZC-D from 600 volt bus 11D.

FMO 232 - East (Train CD) feedpump discharge valve to steam generator No. 3. Valve power is supplied through MCC-1-EZC-D from 600 volt bus 11D.

FMO 242 - West (Train AB) feedpump discharge valve to steam generator No. 4. Valve power is supplied through VCC-AZV-A from 600 volt bus 11A.

UNIT 2

FMO 212 - West (Train AB) feedpump discharge valve to steam generator No. 1. Valve power is supplied through VCC-AZV-A from 600 volt bus 21A.

FMO 222 - East (Train CD) feedpump discharge valve to steam generator No. 2. Valve power is supplied through MCC-2-EZC-D from 600 volt bus 21D.

FMO 232 - East (Train CD) feedpump discharge valve to steam generator No. 3. Valve power is supplied through MCC-2-EZC-D from 600 volt bus 21D.

FMO 242 - West (Train AB) feedpump discharge valve to steam generator No. 4. Valve power is supplied through VCC-AZV-A from 600 volt bus 21A.

The ventilation fan motors for the enclosures for the existing MDAFP have not been changed and are powered from 600 volt bus 11D in Unit 1 and bus 21D in Unit 2. The ventilation fan motors for the new feedpump enclosures are powered from 600 volt bus 11A in Unit 1 and bus 21A in Unit 2.

The electrical cables installed as a result of the addition of the MDAFP and accessory equipment and revisions to existing equipment have been installed to meet the separation requirements of Safety Guide 1.75 in accordance with our response to Question 40.6 in Appendix Q to the FSAR.

The MDAFP's are started automatically by the following signals:

1. Low-Low water level in any steam generator.

2. Trip of main feedpumps.

3. Any safety injection signal derived from the Reactor Protection System and/or containment pressure-high at 1.2 psi.

4. Loss of offsite power.

   a. Safety bus blackout. The motor will start in sequence with the remainder of the blackout loads.

   b. Safety injection coincident with safety bus blackout. The motor will start in sequence with the remainder of the safety injection loads.