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 DENTON, H.R. Office of Nuclear Reactor Regulation

SUBJECT: Forwards response to 791030 ltr re requirements for  
 auxiliary feedwater sys identified during Bulletin & Orders  
 Task Force review of operating reactors. Valves locked or  
 sealed & mod to feedpump train to be completed.

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December 11, 1979  
AEP:NRC:00300

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2  
Docket Nos. 50-315 and 50-316  
License Nos. DPR-58 and DPR-74  
NRC REQUIREMENTS FOR AUXILIARY FEEDWATER SYSTEMS

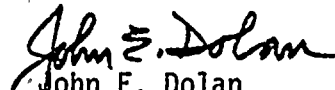
Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Denton:

This letter provides our response to Mr. D. G. Eisenhower's letter dated October 30, 1979 concerning requirements for auxiliary feedwater systems identified during the NRR Bulletins and Orders Task Force review of operating reactors. The attachment to this letter contains our responses to the recommendations in Enclosure 1 of Mr. Eisenhower's letter. The design modifications contained in FSAR Amendment No. 84, submitted to you on August 9, 1979 via our letter number AEP:NRC:00176, do not affect the degree of conformance to the recommendations in Enclosure 1 except for recommendations GS-5 and GL-3. Recommendations GS-5 and GL-3 refer to the modifications we are installing to eliminate the dependence of the turbine driven auxiliary feedpump train operation on AC power. This modification is described in Amendment No. 84, which is supplemented by our letter dated December 7, 1979 (AEP:NRC:00307).

The generic request for additional information in Enclosure 2 to Mr. Eisenhower's letter relates to the basis for auxiliary feedwater system flow requirements. We are working with Westinghouse on this matter and will provide by February 1, 1980 a schedule for when we can supply the requested information.

Very truly yours,

  
John E. Dolan  
Vice President

Attachment

cc: (Attached)

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Mr. H. R. Denton

-2-

AEP:NRC:00300

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

ATTACHMENT TO AEP:NRC:00300

RESPONSE TO LETTER ON NRC REQUIREMENTS FOR AUXILIARY FEEDWATER SYSTEMS

RESPONSE TO NRC RECOMMENDATION GS-2.

Each valve in the auxiliary feedwater flow path which is not automatic or power-operated is locked or sealed in its correct position.

Our present Technical Specification Surveillance Item 4.7.1.2 requires monthly verification that each manual, power operated or automatic valve in the auxiliary feedwater flow path that is not locked, sealed or otherwise secured in position, is in its correct position. We have already revised our procedures to include in the monthly verification inspection the positively controlled valves (that is, those which are locked, sealed or otherwise secured in position), as indicated in our letter dated October 11, 1979 (AEP:NRC:00280). Technical Specification Item 6.8.1c requires implementation of these procedures. Thus, this requirement is already incorporated in the Technical Specifications.

In accordance with the NRC recommendation, we will propose that the exemption from required inspection of the locked, sealed or otherwise secured valves in the auxiliary feedwater flow path be deleted from the Technical Specifications for Units 1 and 2. This Technical Specification change request will be submitted by February 1, 1980.

RESPONSE TO NRC RECOMMENDATION GS-4

Emergency procedures for transferring to alternate sources of auxiliary feedwater supply for the cases described in this recommendation will be provided by February 1, 1980.

RESPONSE TO NRC RECOMMENDATION GS-5

The modification to the turbine driven auxiliary feedpump train will be completed as indicated in the response to NRC Recommendation GL-3: Until the modifications are complete, emergency procedures have been provided for manual initiation and control of the auxiliary feedwater system in case of a complete loss of AC power. The turbine driven auxiliary feedpump rooms have been furnished with emergency lighting and hand held emergency radio communication, both powered by direct current sources.

The turbine driven auxiliary feedpump bearing cooling system is independent of both AC and DC power. The cooling water supply is available whenever the turbine driven auxiliary feedpump is running. Water is taken from the turbine driven auxiliary feedpump discharge through a pressure reducing orifice to the turbine driven auxiliary feedpump lube oil cooler.

RESPONSE TO NRC RECOMMENDATION GS-6

We believe that our present procedures to assure proper alignment of the auxiliary feedwater system valves are adequate, based on the following considerations. Verification that these valves are aligned for normal operation after periodic testing is required by test procedures. Verification of return of valves to normal operating alignment after maintenance is required by the plant clearance permit system procedure. In addition, Technical Specification Surveillance Requirement 4.7.1.2 requires the monthly verification of the proper alignment of the valves in the auxiliary feedwater flow path. As indicated in our response to Recommendation GS-2, this verification of valve alignment is done on all manual, power operated and automatic valves in the auxiliary feedwater flow path, including those which are locked or sealed in position.

We have determined that it is not necessary for Technical Specifications to require a flow test to verify the normal flow path from the primary auxiliary feedwater supply to the steam generators prior to Unit startup following a cold shutdown, based on the following considerations. The operating procedure for Unit heatup from cold shutdown to hot standby calls for operation of both the motor driven auxiliary feedpumps and the turbine driven auxiliary feedpump. The pumps take suction from their primary water source and deliver flow to the steam generators in order to control steam generator water levels. At the conclusion of this operation, the procedure requires verification that the auxiliary feedwater system valves be left in their normal operating alignment. In addition, Technical Specification 3.7.1.2 requires that two motor driven auxiliary feedpumps, one turbine driven auxiliary feedpump and their corresponding flow paths be operable whenever the Unit is in operational modes 1, 2 and 3. Operability is demonstrated monthly by a test involving a flow check. At the conclusion of the test, the procedure requires that the auxiliary feedwater system valves be left in their normal operating alignment and verified as such.

RESPONSE TO NRC RECOMMENDATION GS-7

The starting of the auxiliary feedwater system is automatic. The starting and control systems for the auxiliary feedwater system are safety grade.

RESPONSE TO NRC ADDITIONAL SHORT-TERM RECOMMENDATION 1

The present condensate storage tank which provides the normal water supply for the auxiliary feedwater system is equipped with redundant sensors which provide signals for a continuous recorder located in the control room. The level sensors are provided with a low level alarm annunciating in the control room. The setpoint for this low level alarm will be modified to meet the requirements of this recommendation. The modification will be made by February 1, 1980.

RESPONSE TO NRC ADDITIONAL SHORT-TERM RECOMMENDATION 2

The auxiliary feedwater pumps at the D. C. Cook Nuclear Plant have been run extensively both during hot functional testing and during startup. Some typical runs are listed below for general reference:

- a. Units 1 and 2 motor driven auxiliary feedpumps -  
These pumps were run for approximately 90 hours during hot functional testing. They have been run numerous times since then, both for ISI testing which includes appropriate acceptance criteria and for normal startup and cooldown.
- b. Unit 1 turbine driven auxiliary feedpump -  
This pump has had several runs of eight hours duration and has been routinely used during normal startup.
- c. Unit 2 turbine driven auxiliary feedpump -  
This pump has been run for approximately 120 hours during initial startup and has been routinely used for normal plant startup.

The above runs demonstrate that the auxiliary feedwater pumps installed in the Cook Nuclear Plant are capable of sustained operation without difficulty and meet the intent of this recommendation. Therefore no special additional endurance testing is necessary.

RESPONSE TO NRC ADDITIONAL SHORT-TERM RECOMMENDATION 3

Item 2.1.7.b of NUREG-0578 was addressed in our response dated October 24, 1979 (AEP:NRC:00253) to Mr. D. G. Eisenhower's letter of September 13, 1979 concerning the implementation of the recommendations contained in NUREG-0578.

RESPONSE TO NRC ADDITIONAL SHORT-TERM RECOMMENDATION 4

This recommendation is not applicable to the D. C. Cook Nuclear Plant.

RESPONSE TO NRC RECOMMENDATION GL-3

The turbine driven auxiliary feedwater pump train is being modified to eliminate its dependence on AC power for automatic initiation of flow and operation. This modification will be completed on Unit 2 in accordance with license condition (3)(K). This modification will be completed on Unit 1 during the next refueling outage (expected in the Spring, 1980) as indicated in our letter of December 7, 1979 (AEP:NRC:00307). Further information pertaining to the AC to DC changeover can be found in our two letters dated August 9, 1979 (AEP:NRC:00168 and AEP:NRC:00176).

RESPONSE TO NRC RECOMMENDATION GL-4

The condensate storage tanks, which provide the normal auxiliary feedwater supply, are designated as Seismic Class II. However, the tank design has been analyzed to show that the tanks are capable of withstanding both the operating and design basis earthquakes. This analysis was submitted in our letter dated November 17, 1977 as part of the Cook Plant seismic qualification review.

We have decided to install an automatic pump trip on low suction pressure as we have determined that this additional trip will enhance the long term capability of the AFW system. The pump trips will be alarmed in the control room. The operator will then follow emergency procedures for transferring to alternate sources of auxiliary feedwater supply, as necessary. This modification will be made by January 1, 1981.

RESPONSE TO NRC RECOMMENDATION GL-5

As stated previously in our response dated October 24, 1979 (AEP:NRC:00253) to Mr. D. G. Eisenhower's letter of September 13, 1979 concerning the implementation of the recommendations contained in NUREG-0578, the auxiliary feedwater system automatic initiation signals and circuits already meet safety-grade requirements.