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 HUNTER, R.S. Indiana & Michigan Electric Co.
 RECIP. NAME RECIPIENT AFFILIATION
 DENTON, H.P. Office of Nuclear Reactor Regulation, Director

SUBJECT: Provides addl info re automatic initiation & flow indication
 for auxiliary feedwater sys. Flow indicators fed from balance
 of plant inverter uninterruptable power source fed from
 C battery of Unit 1 & AB battery of Unit 2.

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Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
Auxiliary Feedwater System Automatic Initiation and Flow Indication

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

Dear Mr. Denton:

The attachment to this letter contains our responses to the request for additional information contained in Mr. S.A. Varga's letter of October 31, 1980 concerning the automatic initiation and flow indication for the auxiliary feedwater systems in the Cook Plant and are applicable to both Units 1 and 2.

Very truly yours,



R. S. Hunter
Vice President

cc: R. C. Callen
G. Charnoff
John E. Dolan
R. W. Jurgensen
D. V. Shaller - Bridgman
NRC Region III Resident Inspector at Cook Plant - Bridgman

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ATTACHMENT TO AEP:NRC:0307E

These responses are in the same format as the enclosure to Mr. S. A. Varga's October 31, 1980 letter.

Response To Item 1:

The operating bypasses associated with the automatic initiation logic are as follows:

A. Turbine Driven Auxiliary Feedwater Pump (TDAFP):

There are no bypasses in the TDAFP logic which prevent automatic initiation.

B. Motor Driven Auxiliary Feedwater Pumps (MDAFP):

The MDAFP's are automatically started by:

- i) low-low steam generator water level in any one of the four steam generators,
- ii) undervoltage of RCP bus (2/4 logic),
- iii) any safety injection actuation signal derived from:
 - a. pressurizer pressure - low,
 - b. differential pressure between steam lines - high,
 - c.i. steam flow in two steam lines - high coincident with either Tavg-low-low or coincident with steam line pressure-low (Unit 1 only),
 - c.ii. steam line pressure - low (Unit 2 only),
 - d. containment pressure - high, and
 - e. manual
- iv) blackout safeguards sequence (either Unit)
- v) loss of main feedwater pumps

There are two (2) bypasses in the MDAFP automatic initiation logic:

1. The P-11 interlock in the Reactor Protection System (RPS) logic is used to allow the manual block of the safety injection actuation signal generated from pressurizer pressure-low. This interlock is reset automatically when pressurizer pressure goes above 1915 psig for Unit 1 and 2010 psig for Unit 2.
2. The P-12 interlock in the RPS logic is used to allow the manual block of the safety injection actuation signal generated from; (a) steam flow in two steam lines-high coincident with steam line pressure-low, in Unit 1 and (b) steam line pressure-low, in Unit 2. This interlock (both Units) is reset automatically when primary system temperature is above the Tavg-low-low setpoints of 5410F.

The remaining signals which generate a safety injection actuation (which in turn automatically initiates the MDAFP starting) and the other automatic MDAFP start signals listed above do not have bypasses in the auxiliary feedwater initiation logic.

Response To Item 2:

The auxiliary feedwater flow indicators, FFI-210, FFI-220, FFI-230 and FFI-240 are fed from the balance-of-plant inverter in each unit (non-class IE). This is an uninterruptable power source which is fed from the CD battery of Unit 1 and the AB battery of Unit 2 (safety related station battery). One instrument channel per steam generator is provided. The flow indication instruments are located on Panel SG in the main control room and on the appropriate hot shutdown panel for each unit. Also, each pump has a discharge pressure indicator in the control room, FPI-244, FPI-253, FPI-254. The pressure indicators are powered from the same source as the flow indicators (FFI's). Operability of this power source (BCP inverter) is required by the Technical Specifications.

Response To Item 3:

The steam generator level measurement systems are all supplied from the vital instrument buses which are Class IE uninterruptable power sources. There are 4 independent vital instrument buses, Channels 1, 2, 3 and 4.

The level instrumentation for the Steam Generators is tabulated below:

A. Steam Generator No. 1

BLP-110, Channel 4 Indicator
BLP-111, Channel 2 Indicator-Recorder

BLP-112, Channel 3 Indicator
BLI-110*, Channel 4 Indicator-Recorder

B. Steam Generator No. 2

BLP-120, Channel 4 Indicator
BLP-121, Channel 1 Indicator-Recorder
BLP-122, Channel 3 Indicator
BLI-120*, Channel 4 Indicator-Recorder

C. Steam Generator No. 3

BLP-130, Channel 4 Indicator
BLP-131, Channel 1 Indicator-Recorder
BLP-132, Channel 3 Indicator
BLI-130* Channel 4 Indicator-Recorder

D. Steam Generator No. 4

BLP-140, Channel 4 Indicator
BLP-141, Channel 2 Indicator-Recorder
BLP-142, Channel 3 Indicator
BLI-140*, Channel 4 Indicator-Recorder

NOTE:

*Wide Range Level Indicator

All of the indicator and recorder elements have D'Arsonval movements which obtain their energy from the transducer system and require no further energy to drive the indicating devices. The chart motors of the recorders, which are not required for recorder pen indication, are fed from non-safety grade balance-of-plant control buses.

All of the BLP's have a narrow range of 144" and begin to indicate at 431" water (75.1% of wide range). All of the BLI's have a wide range of 575" water.