

# INDIANA & MICHIGAN ELECTRIC COMPANY

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

Donald C. Cook Nuclear Plant Units 1 and 2  
Docket Nos. 50-315 and 50-316  
License Nos. DPR-58 and DPR-72  
Re: IE Bulletin 80-06

June 20, 1980  
AEP:NRC:00387

Mr. James G. Keppler, Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Region III  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

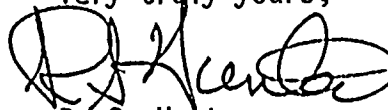
Dear Mr. Keppler:

This letter responds to your letter of March 13, 1980 which we received on March 18, 1980 and which transmitted to us IE Bulletin No. 80-06 entitled "Engineered Safety Feature (ESF) Reset Controls".

As required by Action Item 1 of the Bulletin, we have completed the review of drawings for the systems serving safety-related functions to determine the mode of operation following reset of an ESF actuation signal. The results of our findings, the type and schedule of proposed modifications are described in the Attachment to this letter.

In response to Action Item 2, to verify that the actual installed instrumentation and controls at the Donald C. Cook Nuclear Plant are consistent with the results of the drawing review described above, testing to demonstrate that all equipment remains in its emergency mode following ESF resets will be performed during the Units' refueling outages to take place in the Spring of 1981 (Unit 2) and in the Summer of 1981 (Unit 1).

Very truly yours,

  
R. S. Hunter  
Vice President

RSH:dfs

cc: NRC Office of Inspection and Enforcement  
Division of Reactor Operations Inspection, Washington, D.C. 20555  
R. C. Callen  
G. Charnoff  
John E. Dolan  
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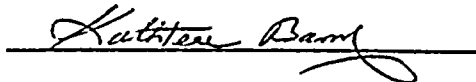
STATE OF NEW YORK  
COUNTY OF NEW YORK

R. S. Hunter, being duly sworn, deposes and says that he is a Vice President of the licensee Indiana & Michigan Electric Company, that he has read the foregoing response to IE Bulletin 80-06 and knows the contents thereof; and that said contents are true to the best of his knowledge and belief.



Vice President

Sworn and subscribed to before me this  
20<sup>th</sup> day of June, 1980.



Notary Public

KATHLEEN BARRY  
NOTARY PUBLIC, State of New York  
No. 41-1605792  
Qualified in Queens County  
Certificate filed in New York County  
Commission Expires March 30, 1981

ATTACHMENT  
TO  
AEP:NRC:00387  
( I.E. BULLETIN NO. 80-06 )

Action Item 1

The safety-related systems listed below have been reviewed to determine whether or not upon the reset of an ESF actuation signal at the system level, all associated safety-related equipment remains in its emergency mode:

1. Reactor Trip Function
2. Safety Injection
3. Steamline Isolation
4. Feedwater Isolation
5. Motor Driven Auxiliary Feed Pumps start from Lo-Lo Steam Generator Water Level
6. Turbine Driven Auxiliary Feed Pump Automatic Start
7. Emergency Diesel Generators Start
8. Containment Isolation Phase "A"
9. Containment Isolation Phase "B"
10. Containment Ventilation Isolation
11. Control Room Intake Duct Isolation
12. Containment Spray Actuation

The results of our review are as follows:

1. Reactor Trip Function:

Upon occurrence of a reactor trip signal the reactor trip breakers are actuated (tripped). Resetting of these signals will not succeed in reclosing the breakers since energization of the breaker's closing coils is strictly manual operation. Thus, this equipment does not change its emergency mode of operation because of reactor trip signal reset.

2. Safety Injection:

Safety Injection signal resetting is automatically blocked for two minutes after S.I. signal actuation occurrence by a S.I. "Reset Blocked" timer. After two minutes delay the operator can manually reset the S.I. signal; with one exception, no equipment will change its mode of operation because of the S.I. signal reset.

The one exception is the motor driven auxiliary feedwater pumps (MDAFWP) test valve. When the pump is being tested, i.e. the valve is open, and an ESF actuation signal occurs, the test valve will close. The valve will remain closed if the steam generator level is below Lo-Lo, even though the ESF reset would permit automatic reopening. When the steam generator level is above Lo-Lo level and the ESF signal is reset the test valve would reopen automatically. Since the steam generator level is then in the normal range AFW is not required.

3. Steamline Isolation:

Upon receiving a steamline isolation signal the steam generator stop valves close. The isolation signal is reset automatically when the conditions causing it disappear, but this automatic reset will not cause the stop valves to re-open. Operator actuation of the hydraulic exerciser is necessary to reopen the stop valves.

4. Feedwater Isolation:

A feedwater isolation signal causes the feed pump discharge valves (motor operated and air operated in series) to close. Resetting of the initiating signal will cause the air operated valves to open. The motor operated valves, however, will stay close until the operator manually opens them by actuation of the control switch.

5. Motor Driven Auxiliary Feedwater Pump Start From a Lo-Lo Steam Generator Water Level:

All devices actuated by this signal will remain in its emergency operating mode after system reset except for the test valve mentioned in 2 above. If the pump was being tested and a Lo-Lo S.G. level signal occurred, the test valve will be closed; upon resetting of the signal the test valve will re-open. Resetting of the Lo-Lo level signal is automatic after the steam generator level is above the Lo-Lo level. Reopening of the test valve at this time will present no operational or safety problems.

6. Turbine Driven Auxiliary Feedwater Pump Automatic Start:

The initiating signals (steam generator Lo-Lo level or RCP bus undervoltage signals) reset automatically. With one exception, the reset has no effect on the mode of operation of the devices actuated by the initiating signals. The one exception to this situation is the TDAFWP test valve. If the valve was open during testing, a steam generator Lo-Lo level signal or a blackout signal will cause the valve to close; resetting of the Lo-Lo signal is, as said, automatic and will cause the valve to reopen. The discussion given above for the SI and the MDAFWP systems also applies in this case.

7.a. Emergency Diesel Generator Start:

Upon receiving a safety injection or a loss of voltage signal, the diesel generators will start and continue running after the initiating signal is reset. The loss of voltage reset is automatic; and, safety injection, can be manually reset after the 2-minute time delay described before. Manual actuation of the diesel generator stop switch is necessary for the diesel generators to stop running.

7.a. Emergency Diesel Generator Start:(Cont'd)

If a loss of voltage signal caused the diesel generator to start, the load shedding relays will be energized, loads will be shed, the diesel generators will be started and the blackout sequential loading begins. A loss of voltage signal will be automatically reset after the diesel generator has restored power to the buses but this will not cause any component to change its emergency mode of operation.

- 7.b. If the initiating signal was a loss of voltage coincident with a safety injection signal, the load conservation control circuit will also be activated. The automatic resetting of the loss of voltage signal will have no effect on the operation of the load conservation control circuit. The load conservation control circuit resets itself in 75 seconds (shorter than the 2 minutes that have to elapse before safety injection can be reset) and, with one exception, no change in the emergency mode of operation of any device occurs because of this resetting.

The one exception is the component cooling water pump fans (12-HV-ACCP-1, 12-HV-ACCP-2, and 12-HV-ACCP-3). When in "Auto" mode, a load conservation signal will start the fan. Resetting of the load conservation signal will cause the fan to trip. Our actions concerning this circuit are described under our response to Action Items 3 and 4 of the Bulletin.

8. Containment Isolation Phase "A" (CI-A):

All containment isolation valves affected by a CI-A will close and remain closed after the CI-A signal is reset.

The containment sump pumps (containment pipe tunnel sump, reactor cavity sump, lower containment sump) will trip on CI-A and will remain tripped after the CI-A initiating signal is reset.

9. Containment Isolation Phase "B" (CI-B):

Resetting of the containment isolation phase B signal will cause no change in the mode of operation of the devices affected except for the dampers and containment air recirculation fans listed below.

The dampers for the Auxiliary Building charcoal filters will be closed on initiation of a CI-B signal. However they will reopen automatically upon resetting of the CI-B signal. Our actions concerning the control circuit for these dampers are described in our response to Action Items 3 and 4 of the bulletin.

The containment recirculation fans are set to start 10 minutes (Unit 1) and 9.5 minutes (Unit 2) after the occurrence of a CI-B signal (when in "Auto" mode). Resetting of the CI-B signal after the fans have started will cause the fans to stop. Resetting of the CI-B signal before the delay time will prevent the fans from starting. Our actions concerning this circuit are given under our response to Action Items 3 and 4 of the Bulletin.

10. Containment Ventilation Isolation:

Upon a containment ventilation isolation signal, all containment ventilation isolation valves close and remain closed after the system has been reset. Operation of each valve control switch is necessary to reopen the valve.

11. Control Room Intake Duct Isolation:

A safety injection signal actuation will cause the control room intake duct isolation dampers to close and the recirculation damper to open. Resetting of the safety injection signal will have no effect on damper position. Operation of the individual dampers control switches is necessary for the dampers to revert to the pre-accident signal position.

12. Containment Spray Actuation:

Resetting of the Containment spray actuation signal results in no change in the mode of operation of the devices affected by the initiating signal. Operator action on the individual devices is necessary.

Action Items 3 and 4

Summarized below are the safety-related devices that change their mode of operation upon an ESF actuation signal reset and the planned control circuit modifications. The notes give the reasons for not taking interim actions until the modifications are completed. The notes also give the reasons for not implementing other circuit modifications. The schedule to complete the planned modifications has been given in the cover letter.

<u>ESF Signal/System</u>	<u>Device</u>	<u>Modifications</u>		<u>Planned</u>	<u>Notes</u>
		<u>Yes</u>	<u>No</u>		
Safety Injection	-MDAFWP Test Valve		X	(1)	
Feedwater Isolation	-Air-operated isolation valves		X	(2)	
MDAFWP	-Test Valve		X	(1)	
TDAFWP	-Test Valve		X	(1)	
Emergency Diesel Generator Start	-Component Cooling water fans	X		(3)	
Containment Isolation Phase B	-Auxiliary Building charcoal filter dampers	X		(4)	
	-Containment Re-circulation fans	X		(5)	

NOTES:

- (1) See response under Action Item 1, Items 2., 5. and 6. Valve reopening, in the rather infrequent test mode, occurs only if the Steam Generator level is above Lo-Lo, in which case, there is no consequence to its reopening.
- (2) See response under Action Item 1, Item 4. Since the motor operated valves stay closed and require operator action to reopen following signal reset, no corrective action is required because the required isolation is achieved without the use of the air-operated isolation valve. In addition, these valves can be manually re-closed if required. Further, turbine trip and feedwater isolation occur upon a Steam Generator Hi-Hi Signal in 2 out of 3 channels.
- (3) The component cooling water fans control circuit will be modified to allow the fans to continue running after load conservation signal reset prior to the performance of the general test required by the bulletin. The planned schedule for the ESF circuitry test has been discussed elsewhere in our response. No interim actions are being taken since there is sufficient time for the operator to restart the fans after signal reset, if necessary, because temperatures in the auxiliary building will stabilize below equipment design limits.
- (4) The control circuit controlling the Auxiliary Building Charcoal Filter Dampers will be modified to prevent their reopening upon the reset of the CI-B signal. The proposed schedule for the modifications is similar to those given in Note (3) above.
- (5) The control circuit for the containment recirculation fans will be modified to prevent the fans either from not starting or from tripping when resetting the CI-B signal. The proposed schedule to implement the modifications is similar to those discussed in Note (3) above.

With regard to Notes (4) and (5) above, sufficient actions have already been taken to prevent the inadvertent or erroneous use of the CI-B signal reset switches in response to the NRC's generic review of containment purging and venting during normal plant operations and overriding of safety actuation signals set forth in Mr. A. Schwencer's letter of November 28, 1978. Our responses to Mr. Schwencer's letter submitted on January 4, 1979 (AEP:NRC:00114) and June 8, 1979 (AEP:NRC:00114A) describe the changes made to the Cook Plant which permanently address the matter of overriding of safety actuation signals. Basically we provided:

- a) sealed protective covers over the reset switches,

- b) a "reset-blocked" alarm which annunciates to alert the operator anytime the reset pushbutton is used, whether or not a safety actuation signal is blocked (conservative measure),
- c) strict administrative controls governing the use of the reset switches and de-energizing the "reset-blocked" alarm requiring a Senior Reactor Operator to review the need to use the reset feature, place and remove the seals and de-energize the alarm,
- d) the installation of a warning notice beneath each reset switch which reads "Do Not Reset Until the Cause for the Initiating Signal has been Evaluated", and
- e) a procedural and training review which assures that adequate precautions are included to evaluate and review multiple plant parameters before determining the need to reset and that operators are not instructed to reset safety actuation signals.