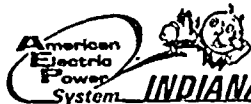


Central File



INDIANA & MICHIGAN POWER COMPANY

DONALD C. COOK NUCLEAR PLANT
P.O. Box 458, Bridgman, Michigan 49106

November 7, 1978

Mr. J.G. Keppler, Regional Director
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Operating License DPR-74
Docket No. 50-316
Special Reports SI-01/SI-02

Dear Mr. Keppler:

The purpose of this letter is to forward to you the attached Special Reports required by Appendix A Technical Specification 3.5.2, Emergency Core Cooling Subsystems.

Special Report SI-01 should have been submitted prior to May 29, 1978.
Special Report SI-02 should have been reported prior to November 2, 1978.
These reports are late because the tickler system for reports established in the Operations Department tracked the reporting of Licensee Event Reports and Abnormal Environmental Occurrence Reports but failed to include Special Reports. The tickler system has been modified to include Special Reports.

Sincerely,

D.V. Shaller
Plant Manager

/bab

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INDIANA & MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

Operating License DPR-74
Docket No. 50-316
Special Report SI-01

SAFETY INJECTION ACTUATION - MARCH 1, 1978

CONDITIONS PRIOR TO OCCURRENCE

The reactor plant was in Mode 3, Hot Standby, with the Reactor Coolant System average temperature 547°F and 2235 psig pressure. All 4 Reactor Coolant Pumps were in operation. Pre-operational test 2-PO-050-543 Steam Dump System was being conducted.

DESCRIPTION OF OCCURRENCE

Pre-operational test 2-PO-050-543 was being conducted to determine the capacity of the Steam Generator Atmospheric Steam Dump Valves. The portion of the test being conducted called for closing the Steam Generator Stop Valve on one steam generator and then opening the Steam Generator Atmospheric Steam Dump Valve and monitoring the level decrease to determine the valve's capacity. With the Steam Generator Stop Valve shut and the Atmospheric Steam Dump Valve open, the Steam Generator pressure decreased until the differential pressure between that and the other Steam Generators reached 100 psid and caused the initiation of safety injection.

DESIGNATION OF CAUSE OF OCCURRENCE

The safety injection was caused by opening the Steam Generator Atmospheric Dump Valve with the Steam Generator Stop Valve shut causing the Steam Generator pressure to drop in that Steam Generator. This allowed the 100 psi ΔP on 2 out of 3 pressure channels and on 1 out of 4 Steam Generator logic to complete the safety injection actuation as designed.

ANALYSIS OF OCCURRENCE

The following is a list of major items that were reviewed for their safety implications:

a) Reactor Coolant Pumps Cooldown Rate.

There was approximately a 10° change in Reactor Coolant System temperature from 547°F to 537°F over approximately a minute and a half. The cooldown was terminated by shutting the Steam Generator Atmospheric Steam Dump Valve. The overall cooldown rate was less severe than that experienced during a reactor trip without safety injection.

b) Thermal Affects of Safety Injection.

It is estimated that during this occurrence the centrifugal charging pumps ran approximately one minute and injected 300 gallons of borated water initially at 1650F into the Reactor Coolant System. A complete safety injection cycle would deliver over 350,000 gallons of borated water at a temperature significantly lower than the 300 gallons delivered during this inadvertant safety injection. This is the first inadvertant safety injection in which water was injected into the Reactor Coolant System and would conservatively constitute less than 1.5/10,000 of allowable cycles.

c) Effects on the Emergency Core Cooling System Piping (ECCS)

The piping and supports in the ECCS were given a thorough visual inspection to determine if any mechanical damage was experienced during the safety injection. There was no evidence of any mechanical damage or abnormal movements of the piping.

INDIANA & MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT

Operating License DPR-74
Docket No. 50-316
Special Report SI-02

SAFETY INJECTION ACTUATION - AUGUST 4, 1978

CONDITIONS PRIOR TO OCCURRENCE

The reactor was in Mode 3, Hot Standby, with the Reactor Coolant System average temperature at approximately 530°F and the system pressure at approximately 2200 psig. Reactor Coolant Pump number 3 and 4 were running to provide flow. All four Main Steam Stop Valves were closed. The unit was in a scheduled shutdown for repairs to the Moisture Separator Reheaters and was being cooled down to repair RC-123 (bypass around Pressurizer Spray Valve NRV-164).

DESCRIPTION OF OCCURRENCE

The leak in RC-123 had been found while conducting a leak rate check of the reactor coolant system. RC-123 is unisolable from the reactor coolant system. A cooldown was in progress to take the unit down to less than 210°F and 50 psig. The cooldown was being made using the number 2 and 3 steam generator atmospheric steam dump valves to reduce temperature. Number 2 and 3 steam generator steam pressure was reduced to the point where the differential pressure between these steam generators and number 1 and 4 steam generators reached 100 psid and caused initiation of safety injection.

DESIGNATION OF CAUSE OF OCCURRENCE

The safety injection was caused opening the steam generator atmospheric dump valves on number 2 and 3 steam generators too far and causing the steam generators to depressurize faster than number 1 and 4 steam generators. This allowed the 100 psi ΔP on 2/3 pressure channels on 1/4 steam generators logic to complete and safety injection actuated as designed.

ANALYSIS OF OCCURRENCE

The following is a list of major items that were reviewed for their safety implications:

a) Reactor Coolant System Cooldown Rate

There was approximately a 100°F change from 539°F to 529°F over approximately two minutes. The cooldown was terminated by shutting number 2 and 3 steam generator atmospheric steam dump valves. The overall cooldown rate was

less severe than that experienced during a reactor trip without safety injection.

b) Thermal Effects of Safety Injection

It is estimated that during this occurrence the Centrifugal Charging Pumps ran approximately 1.5 minutes and injected 450 gallons of borated water initially at 165°F into the Reactor Coolant System. A complete safety injection cycle would deliver over 350,000 gallons of borated water at a temperature significantly lower than the 450 gallons delivered during the inadvertant safety injection. This is the second inadvertant safety injection in which water was injected into the Reactor Coolant System and conservatively would constitute less than 1.8/10,000 of allowable cycles.

c) Effects on the Emergency Core Cooling System Piping (ECCS)

The piping and supports in the ECCS were given a thorough usual inspection to determine if any mechanical damage was experienced during the safety injection. There was no evidence of any mechanical damage or abnormal movements of the piping.

