MISSISSIPPI POWER & LIGHT COMPANY
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November 10, 1982

JAMES P. McGAUGHY, JR.
ASSISTANT VICE PRESIDENT

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Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Region II
101 Marietta St., N.W., Suite 3100
Atlanta, Georgia 30303

Attention: Mr. J. P. O'Reilly, Regional Administrator

Dear Mr. O'Reilly:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-13
File 0260/L-835.0
ECCS Injection Special Reports
Reference: Injection Report
No. E12A/01, E22/01, and
E22/02
AECM-82/541

ECCS injections occurred on August 13, 1982 and August 14, 1982. T.S.3.5.1.h requires a Special Report be prepared and submitted pursuant to T.S.6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. Attached for your review are ECCS Injection Special Reports No. E12A/01, E22/01, and E22/02.

Yours truly,

FOR J. P. McGaughy JR.

JPM:sap
Attachments

cc: Mr. N. L. Stampley (w/a)
Mr. R. B. McGehee (w/o)
Mr. T. B. Conner (w/o)
Mr. G. B. Taylor (w/o)

Mr. Richard C. DeYoung, Director (w/a)
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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ECCS INJECTION SPECIAL REPORT

INJECTION NO. E12A/01 (SYS MPL & SUB/SEQ. NO.)

REPORT DATE 10/28/82 REPORT BY Dennis E. Cathey

SECTION I - GENERAL INFORMATION

INJECTION DATE/TIME: 8/13/82 21:04

INJECTION DURATION: Approx. 5 minutes

PLANT STATUS:

PARAMETER	BEFORE INJECTION	AFTER INJECTION
RX POWER	0 MWT	0 MWT
RX POWER	0 MWE	0 MWE
RX PRESSURE	0 PSIG	0 PSIG
RX TEMP	Approx. 75°F	Approx. 75°F
RX LEVEL (Vessel Zero)	Approx. 500 IN	670 IN
CST LEVEL	Approx. 19-0 FT-IN	Approx. 19-0 FT-IN
CST TEMP	80-90°F	80-90°F
SUP. POOL LEVEL	20-0 FT-IN	19-4 FT-IN
SUP. POOL TEMP	78°F	78°F
DRYWELL PRESS	0 PSIG	0 PSIG
RX MODE SW. POS.	Refuel	Refuel

INJECTION INITIATION

AUTO: LOW RX WATER LEVEL? No

HIGH DRYWELL PRESSURE? No

OTHER? (EXPLAIN - BRIEFLY) Yes, due to false low reactor water level signal.

MANUAL: (REASON - BRIEFLY) NA

ECCS INJECTION SPECIAL REPORT

INJECTION NO. E12A/01

INJECTION TERMINATION

AUTO: (REASON - BRIEFLY) NA

MANUAL: (REASON - BRIEFLY) Correct water level verified.

SECTION II - REPORTING OF INJECTION (NAME/TIME/DATE)

OPS SUPT: Gil Johnson/21:30/8-13-82

DUTY MANAGER: R. A. Ambrosino/21:35/8-13-82

NRC NOTIFIED BY: Charles Hicks/22:02/8-13-82

NRC CONTACT: Vern Hodgt

OTHERS:

SECTION III - NOZZLE USAGE FACTOR

PRIOR TO INJECTION 0

AFTER INJECTION 0

ACCUMULATED INJECTIONS TO DATE 1

COMMENTS: No increase in factor due to the reactor being at ambient conditions

ECCS INJECTION SPECIAL REPORT

SECTION IV - SEQUENCE OF EVENTS

Background

After the initial fuel loading of the reactor, the water level was maintained at just below the top core grid to facilitate the installation of in-vessel vibration strings on the fuel bundles. To allow the low level, the ECCS and Control Rod Drive pumps were tagged out of service and the RPV level instrumentation was valved out. This evolution is allowed per Operating License Condition 2.C.(42).e. This states that prior to going above Operating Condition 5, the provision of T.S.3.3.3 and 3.5.2 may be suspended for the purpose of instrumenting for the vibration monitoring program.

Event

On the morning of August 13, 1982, the in-vessel work was completed allowing the water level to be raised to normal levels for the Control Rod Drive friction testing. When the water level reached the normal range, the ECCS and CRD pumps were placed into service at 14:15. The above was completed prior to valving in the RPV level instrumentation which provides the low water level trip signal for ECCS initiation.

For ECCS Division I to initiate on low water level, low level signals must be received from reactor water level channels A and E. When the B21-N091A transmitter was valved in, the A channel tripped on a continuous low level signal. This was cause for half of the low level signal. Shortly thereafter, the N091E transmitter was being valved into service when a one second low level signal spike on channel E occurred. The low level signals occurred as a result of following incorrect sequence when valving the transmitters into service. These actions resulted in a false low water level trip signal to ECCS Division I, causing the auto initiation of LPCI A and LPCS.

LPCS did not start due to a loose connection in the pump motor breaker control circuit. This was subsequently corrected. Although LPCS would have started had it not been for the above problem, the system was officially inoperative at the time due to problems with pressure instrumentation.

The LPCI A pump was manually stopped after verifying the reactor water level was above the low level trip point.

The causes of this injection were:

1. Failure to sequentially follow the procedure used to control reactor water level during this time period, and

2. The absence of a procedure to prevent the improper valving in of the transmitters.

ECCS INJECTION SPECIAL REPORT

INJECTION NO. E12A/01

SECTION IV - SEQUENCE OF EVENTS (cont.)

Corrective Action

Corrective actions taken were:

1. Training of appropriate personnel as to the requirements for following a procedure in sequence, and

2. The issuance of a procedure for placing the level instrumentation into service.

ECCS INJECTION SPECIAL REPORT

INJECTION NO. E22/01 (SYS MPL & SUB/SEQ. NO.)

REPORT DATE: 10/28/82 REPORT BY: Dennis E. Cathey

SECTION I - GENERAL INFORMATION

INJECTION DATE/TIME: 8/14/82 / 13:00

INJECTION DURATION: Approx. 2 minutes

PLANT STATUS:

PARAMETER	BEFORE INJECTION	AFTER INJECTION
RX POWER	0 MWT	0 MWT
RX POWER	0 MWE	0 MWE
RX PRESSURE	0 PSIG	0 PSIG
RX TEMP	Approx. 75°F	Approx. 75°F
RX LEVEL (Wide Range)	Above -40 IN	Above -40 IN
CST LEVEL	Approx. 29-0 FT-IN	Less Than 29-0 FT-IN
CST TEMP	80-90°F	80-90°F
SUP. POOL LEVEL	19-4 FT-IN	19-4 FT-IN
SUP. POOL TEMP	78°F	78°F
DRYWELL PRESS	0 PSIG	0 PSIG
RX MODE SW. POS.	Refuel	Refuel

INJECTION INITIATION

AUTO: LOW RX WATER LEVEL? No

HIGH DRYWELL PRESSURE? No

OTHER? (EXPLAIN - BRIEFLY) Due to a false low reactor water level signal

MANUAL: (REASON - BRIEFLY) NA

ECCS INJECTION SPECIAL REPORT

INJECTION NO. E22/01

INJECTION TERMINATION

AUTO: (REASON - BRIEFLY) NA

MANUAL: (REASON - BRIEFLY) Correct water level verified.

SECTION II - REPORTING OF INJECTION (NAME/TIME/DATE)

OPS SUPT: Roy Keeton/13:40/8-14-82

DUTY MANAGER: Ken McCoy/13:10/8-14-82

NRC NOTIFIED BY: Gary Lhamon/13:55/8-14-82

NRC CONTACT: Charles Cambell

OTHERS:

SECTION III - NOZZLE USAGE FACTOR

PRIOR TO INJECTION 0

AFTER INJECTION 0

ACCUMULATED INJECTIONS TO DATE 1

COMMENTS: No increase in factor due to the reactor being at ambient conditions.

ECCS INJECTION SPECIAL REPORT

INJECTION NO. E22-01

SECTION IV - SEQUENCE OF EVENTS

Background

Previously on August 13, 1982, the reactor water level was raised from just below the upper core grid to a few feet above the main steam nozzles. The level instrumentation for the ECCS and RPS low level trips were valved out during the time the water level was below normal for vibration instrumentation installation on the fuel bundles. This evolution is allowed per Operating License Condition 2.C.(42).e. This states that prior to going above Operating Condition 5, the provision of T.S.3.3.3 and 3.5.2 may be suspended for the purpose of instrumenting for the vibration monitoring program.

While valving the transmitters into service after the water level was returned to normal, difficulty was experienced in obtaining correct level readings. The plant Instrument and Control Organization (I&C) began to troubleshoot the level instruments to correct the level reading problems. In the early morning hours of August 14, 1982, the B21-N080A, B, C, & D level transmitters were placed into service. The A, B, & C channel readings agreed, however, the D channel read zero. It was concluded that channel D was in-correct and channels A, B, & C indicated the actual reactor water level.

The reference leg for channel D is shared by B21-N073 L&R. B21-N073 L&R provides the low level trip signal for ECCS Division 3 (i.e., the HPCS System).

Event

At 13:00, HPCS initiated due to a false low level signal from B21-N073 L&R. This was determined to be caused by B21-N073 L&R being driven low due to pressure to B21-N080D being raised and lowered during calibration. (B21-N080D and B21-N073 L&R share a common reference leg).

HPCS injection was stopped after verification of reactor water level on the other instruments.

It was later determined channels D, L, and R were in fact reading correctly and channels A, B, and C were reading high due to less than full reference legs. Although water level may have been close to the low level trip at this time, it is believed the calibration activities on Channel D caused the L&R channels to trip due to the initiation occurring at the instant channel D was being calibrated.

Corrective Action

The corrective action taken to prevent reoccurrence was to issue a procedure for placing the level instrumentation into service and to revise existing procedures.

ECCS INJECTION SPECIAL REPORT

INJECTION NO. E22/02 (SYS MPL & SUB/SEQ. NO.)

REPORT DATE: 10/28/82 REPORT BY: Dennis E. Cathey

SECTION I - GENERAL INFORMATION

INJECTION DATE/TIME: 8/14/82 / 20:37

INJECTION DURATION: Approx 1 minute

PLANT STATUS:

PARAMETER	BEFORE INJECTION	AFTER INJECTION
RX POWER	0 MWT	0 MWT
RX POWER	0 MWE	0 MWE
RX PRESSURE	0 PSIG	0 PSIG
RX TEMP	Approx. 75°F	Approx. 75°F
RX LEVEL (Wide Range)	Approx. -42 IN	Approx. -25 IN
CST LEVEL	29-0 FT-IN	Less Than 29-0 FT-IN
CST TEMP	80-90°F	80-90°F
SUP. POOL LEVEL	19-4 FT-IN	19-4 FT-IN
SUP. POOL TEMP	78°F	78°F
DRYWELL PRESS	0 PSIG	0 PSIG
RX MODE SW. POS.	Refuel	Refuel

INJECTION INITIATION

AUTO: LOW RX WATER LEVEL? Yes

HIGH DRYWELL PRESSURE? No

OTHER? (EXPLAIN - BRIEFLY)

MANUAL: (REASON - BRIEFLY) NA

ECCS INJECTION SPECIAL REPORT

INJECTION NO. E22-02

INJECTION TERMINATION

AUTO: (REASON - BRIEFLY) NA

MANUAL: (REASON - BRIEFLY) Rx. level was visually verified (Rx. head removed)

SECTION II - REPORTING OF INJECTION (NAME/TIME/DATE)

OPS SUPT: Roy Keeton/21:50/8-14-82

DUTY MANAGER: Ken McCoy/22:25/8-14-82

NRC NOTIFIED BY: Larry Moulder/22:15/8-14-82

NRC CONTACT: Charles Cambell

OTHERS:

SECTION III - NOZZLE USAGE FACTOR

PRIOR TO INJECTION 0

AFTER INJECTION 0

ACCUMULATED INJECTIONS TO DATE 2

COMMENTS: No increase in factor due to the reactor being at ambient conditions.

ECCS INJECTION SPECIAL REPORT

SECTION IV - SEQUENCE OF EVENTS

Background

Previously on August 13, 1982, the reactor water level was raised from just below the upper core grid to a few feet above the main steam nozzles. The level instrumentation for the ECCS and RPS low level trips were valved out during the time the water level was below normal for vibration instrumentation installation on the fuel bundles. This evolution is allowed per Operating License Condition 2.C.(42).e. This states that prior to going above Operating Condition 5, the provision of T.S.3.3.3 and 3.5.2 may be suspended for the purpose of instrumenting for the vibration monitoring program.

While valving the transmitters into service after the water level was returned to normal, difficulty was experienced in obtaining correct level readings. The plant Instrument and Control Organization (I&C) began to troubleshoot the level instruments to correct the problems.

With the water level in the RPV above the upper instrument taps, it was decided to back fill the instrument reference legs through the taps. In order to back fill the reference legs, draining of the reference lines from the instrument drain connection was initiated to avoid air being trapped in the reference lines. (A level transmitter with its reference leg less than filled will indicate higher than actual level). Shortly before this, the Reactor Water Cleanup System was aligned to reject water from the vessel causing the vessel water level to drop below the instrument taps.

In the early morning hours of August 14, 1982, the B21-N080A, B, C, & D level transmitters were placed into service. The A, B, & C channels read near normal, however, the D channel read zero. It was incorrectly concluded that channel D was in error and channels A, B, & C indicated the actual reactor water level.

The reference leg for channel D is shared by B21-N073 L&R. B21-N073 L&R provides the low level trip signal for ECCS Division 3, i.e., the HPCS system. It was later determined channel D and B21-N073 L&R were actually indicating the correct water level. Channels A, B, & C were being used for level indication but were reading high due to unfilled reference legs.

Event

At 20:20 the HPCS system was initiated by a true low reactor water level signal from B21-N073 L&R. It was unknown at this time that reactor water level had actually dropped below the ECCS low level trip. This was due to the high reading channels A, B, & C being used to determine reactor water level.

The HPCS pump was manually stopped after the water level was visually verified to be well above the low level trip.

ECCS INJECTION SPECIAL REPORT

SECTION IV - SEQUENCE OF EVENTS (cont.)

Corrective Action

To prevent this problem in the future, a procedure was developed and issued for properly filling and venting the reference legs on level instruments.