

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) PLANT HATCH, UNIT 1 DOCKET NUMBER (2) 05000321 PAGE (3) 1 OF 08

TITLE (4) PERSONNEL ERROR DURING BACKFILLING OF INSTRUMENT REFERENCE LEG CAUSES LOW LEVEL SCRAM

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)		
04	10	88	88	002	00	05	06	88		05000		

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)									
POWER LEVEL (10)	000	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
		<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 50.38(e)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(e)						
		<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.38(e)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)						
		<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
		<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)									

LICENSEE CONTACT FOR THIS LER (12)

NAME	J. D. Heidt, Nuclear Licensing Manager - Hatch	TELEPHONE NUMBER	404 526-4530
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 4/10/88 at approximately 1018 CDT, Unit 1 was in cold shutdown with an approximate power level of 0 Mwt (approximately 0 percent of rated thermal power). Non-licensed Instrumentation and Control (I&C) personnel were backfilling an instrument reference leg to correct the output of a Feedwater Control System (FCS EIIS Code SJ) reactor water level transmitter. Two other level transmitters, which share the reference leg, sensed low level due to the backfilling. A Reactor Protection System (RPS EIIS Code JC) actuation occurred, and the outboard valves of Primary Containment Isolation System (PCIS EIIS Code JM) valve Group 2 isolated. Since all the control rods were already fully inserted, no actual scram occurred.

The root cause of this event was personnel error by the I&C personnel who did not adequately prepare for the potential effects of backfilling the reference leg.

Corrective actions for this event included reviewing the event with involved personnel, selecting the event for review in continuing training for I&C personnel, and scheduling development of a Department Instruction on backfilling of instruments.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(iv), because unplanned actuations of the Reactor Protection System (RPS EIIS Code JC) and an Engineered Safety Feature (ESF) occurred. Specifically, RPS automatically actuated due to receipt of a low reactor water level signal. The ESF which actuated was the Primary Containment Isolation System (PCIS EIIS Code JM) Group 2 outboard valves.

B. UNIT(s) STATUS AT TIME OF EVENT

1. Power Level/Operating Mode

Unit 1 was in cold shutdown with an approximate power level of 0 Mwt (approximately 0 percent of rated thermal power). All of the control rods were inserted. Reactor water level was being maintained by Control Rod Drive (CRD EIIS Code AA) water injection and use of Reactor Water Cleanup (RWCU EIIS Code CE) to discharge water to the condenser.

2. Inoperable Equipment

There was no inoperable equipment that contributed to this event.

C. DESCRIPTION OF EVENT

1. Event

On 4/9/88 at approximately 2100 CDT, a deficiency card (1-88-1449) was written, per plant administrative controls, to document that reactor water level indicator 1C32-R606B was reading full scale (greater than 60 inches above instrument zero), while other comparable level indicators were reading approximately 45 inches above instrument zero. Level indicator 1C32-R606B is part of the Feedwater Control System (FCS EIIS Code SJ).

At the same time, a Maintenance Work Order (MWO 1-88-1531) was generated to investigate and repair the cause of the level indicator's apparently erroneous reading.

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During the morning of 4/10/88 non-licensed Instrumentation and Control (I&C) personnel were working MWO 1-88-1531. The I&C personnel performed procedure 57CP-CAL-019-1S (GE Type 555 and 556 Pressure Transmitters) to recalibrate reactor water level transmitter 1C32-N004B, the signal source for indicator 1C32-R606B. The transmitter was found to be out of calibration and was recalibrated to within procedure tolerance.

After calibrating the transmitter, the indicator still read higher than other indicators of the same parameter (54 inches versus 45 inches above instrument zero). The output of the transmitter was checked and found to be higher than expected for a reactor water level of 45 inches. From this information, the I&C personnel concluded that the reference leg for this transmitter needed backfilling.

The I&C personnel proceeded to backfill the instrument reference leg. They then verified that indicator 1C32-R606B agreed with others indicating the same parameter.

Reactor water level transmitters 1B21-N080C and 1B21-N080D share the same reference leg as transmitter 1C32-N004B. These level transmitters provide the low reactor water level input (Level 3) to RPS channels A2 and B2, respectively. These same transmitters also provide the Level 3 signal for the isolation logic for the outboard valves of PCIS valve Group 2. Therefore, a full RPS actuation and closure of PCIS Group 2 outboard valves would result if these transmitters sensed low reactor water level.

On 4/10/88 at approximately 1018 CDT, a false low reactor water level signal was sensed by transmitters 1B21-N080C and 1B21-N080D during the backfilling of the shared reference leg. A full RPS actuation occurred, and the PCIS Group 2 outboard valves closed, per design.

Since all the control rods were full in prior to the RPS actuation, an actual scram did not occur. The RPS logic was reset at 1034 CDT by Operations personnel.

At 1104 CDT, the NRC was notified of the actuation of the RPS and the PCIS Group 2 outboard valve isolation per the 10 CFR 50.72 reporting requirements.

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2. Dates/Times

Date	Time (CDT)	Description
4/9/88	2100	Deficiency card 1-88-1449 and MWO 1-88-1531 were written on FCS reactor water level indicator 1C32-R606B reading full scale (greater than 60 inches), while other instruments indicated reactor water level was approximately 45 inches above instrument zero.
4/10/88		I&C personnel worked MWO 1-88-1531 by calibrating 1C32-N004B and backfilling its reference leg.
	1018	During the backfilling of the reference leg, level transmitters 1B21-N080 C and D (which share the same reference leg) sensed a false low reactor water level signal. This caused a full RPS actuation and isolation of the PCIS Group 2 outboard valves. Since all the control rods were already inserted prior to the RPS actuation, there was no actual scram.
	1034	Operations personnel reset the scram signal.
	1104	The NRC was notified of the RPS actuation and the PCIS Group 2 outboard valve isolation per 10 CFR 50.72 reporting requirements.

3. Other Systems Affected

No safety systems, other than the RPS and PCIS valve Group 2, were affected by this event. These systems have no secondary functions.

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4. Method of Discovery

Licensed Operations personnel discovered the actuation of the RPS and isolation of the PCIS Group 2 outboard valves, due to the backfilling of the level transmitter reference leg, by observation of control room indications.

5. Operator Actions

Operations personnel performed the following actions:

1. Responded to the automatic scram in accordance with emergency operating procedures.
2. Collected data for investigation of the event.

I&C personnel performed the following actions:

1. Worked MWO 1-88-1531, calibrating the transmitter and backfilling the reference leg, and reported to the control room.
2. Wrote personal statements for use in investigating the event.

6. Auto/Manual Safety System Response

An automatic RPS actuation occurred, and the PCIS Group 2 outboard valves automatically isolated in response to a sensed low reactor water level. Both RPS and PCIS responded properly to the sensed condition.

D. CAUSE OF EVENT

1. Immediate Cause

The immediate cause of this event was a false low reactor water level signal being generated by level transmitters 1B21-N080C and 1B21-N080D. This was caused by I&C personnel backfilling the reference leg for level transmitter 1C32-N004B, which is connected to the reference leg for transmitters 1B21-N080C and 1B21-N080D.

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2. Root/Intermediate Cause

The root cause of this event was cognitive personnel error by non-licensed I&C personnel who did not adequately investigate the possible effects of backfilling the instrument reference leg.

E. ANALYSIS OF EVENT

The RPS provides timely protection against the onset and consequences of conditions that could threaten the integrities of the fuel barriers and the nuclear system process barrier.

A low water level in the reactor vessel indicates that the reactor is potentially in danger of being inadequately cooled. Should reactor water level decrease too far, fuel damage could result. A reactor scram, initiated by a low water level condition, protects the fuel by reducing the fission heat generation within the core.

In this event, the low reactor water level that was sensed by the RPS was not reflective of actual vessel conditions. The level transmitters involved sensed a low level condition due to the backfilling of their instrument reference leg, which is shared with other instruments. However, the RPS conservatively functioned as designed upon receipt of the sensed low level signal. Since all the control rods were already fully inserted, no actual scram occurred.

The low reactor water level input to the PCIS initiates closure of isolation valves in major process lines except the main steam lines, the RWCU lines, the main steam line drain valves, and the reactor water sample lines. The closure of these lines is intended to isolate a possible breach in the nuclear system process barrier through which reactor coolant could be lost.

Again, although the low level signal received was not reflective of true vessel conditions, the PCIS logic responded conservatively as designed. The level transmitters affected by the backfilling of their reference leg provided input only to the portion of the PCIS logic controlling the Group 2 outboard valves; therefore, only these valves responded by isolating.

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Based on the above information, it is concluded that this event had no adverse impact on nuclear safety. While this event occurred when the reactor was in a cold shutdown condition, the above analysis is applicable to all power levels.

F. CORRECTIVE ACTIONS

The corrective actions for this event included:

1. Reviewing the implications of this event with the involved I&C personnel.
2. Selecting this event to be reviewed for lessons learned as a part of the continuing training program conducted for the I&C technicians in accordance with procedure 73TR-TRN-002-OS (Non-licensed Training Programs).
3. Scheduling development of a Department Instruction which will state that no backfilling of instrument legs will be done without specific work instructions which consider the potential for ESF actuations. The estimated completion date for the instruction is 7/1/88.

G. ADDITIONAL INFORMATION

1. FAILED COMPONENT(S) IDENTIFICATION

There was no component failure experienced in this event.

2. PREVIOUS SIMILAR EVENTS

There have been two similar events to the one described in this LER. They were reported in the following LERs: 50-321/1986-006 (dated 1/15/86) and 50-366/1986-022 (dated 8/29/86).

These LERs describe events where work being performed on reactor low water level instrumentation resulted in false low level signals which caused RPS and ESF actuations.

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These events were caused respectively by contract work activities (not associated with backfilling of instrument legs) in the vicinity of the level instrumentation and personnel error while performing surveillance testing on a Yarway instrument. Corrective actions included personnel reprimands and procedural revisions.

However, the corrective actions for these events would not have prevented the event described by LER 50-321/1988-002 because the causes of the events were different as noted above.

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the southern electric system

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X7GJ17-H310

May 6, 1988

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

PLANT HATCH - UNIT 1
NRC DOCKET 50-321
OPERATING LICENSE DPR-57
LICENSEE EVENT REPORT
PERSONNEL ERROR DURING BACKFILLING OF
INSTRUMENT REFERENCE LEG CAUSES LOW LEVEL SCRAM

Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(iv), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning the unanticipated actuation of some Engineered Safety Features (ESFs). The event occurred at Plant Hatch - Unit 1.

Sincerely,

R. P. McDonald
Executive Vice President,
Nuclear Operations

CLT/ct

Enclosure: LER 50-321/1988-002

c: (see next page)

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U. S. Nuclear Regulatory Commission
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c: Georgia Power Company
Mr. J. T. Beckham, Jr., Vice President - Plant Hatch
GO-NORMS

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U. S. Nuclear Regulatory Commission, Region II
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