Commonwealth Edison
Dresden Nuclear Power Station
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July 1, 1991

EDE LTR: #91-408

U.S. Nuclear Regulatory Commission
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Licensee Event Report # 91-003, Docket # 0500249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73 (a)(2)(i)(B).

L. D. Eenigenburg for

E. D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE/dwh

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
File/DVR
File/Numerical
File/Misc.

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Dresden Nuclear Power Station, Unit 3	0 5 0 0 0 2 4 9	1 of 0 4

Title (4)

Inoperable Torus Wide Range Level Transmitters Due to Unknown Cause

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)
									N/A	
0 6	0 5	9 1	9 1	0 0 3	0 0	0 7	0 1	9 1		

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
	N	___ 20.402(b)	___ 20.405(c)	___ 50.73(a)(2)(iv)	___ 73.71(b)		
POWER LEVEL (10)	0 5 3	___ 20.405(a)(1)(i)	___ 50.36(c)(1)	___ 50.73(a)(2)(v)	___ 73.71(c)		
		___ 20.405(a)(1)(ii)	___ 50.36(c)(2)	___ 50.73(a)(2)(vii)	___ Other (Specify		
		___ 20.405(a)(1)(iii)	X 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	in Abstract		
		___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)	below and in		
		___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)	Text)		

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER AREA CODE
Ronald R. Skoglund, Technical Staff System Engineer Ext. 2543	8 1 5 9 4 2 - 2 9 2 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	A C	L I T	I 2 0 4	Y					

SUPPLEMENTAL REPORT EXPECTED (14)		Expected Submission Date (15)	Month	Day	Year
X Yes (If yes, complete EXPECTED SUBMISSION DATE)	___ NO		1 2	0 1	9 1

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

On June 5, 1991 at 2300 hours with Unit 3 at 53% core thermal power, a Nuclear Station Operator (NSO) discovered the Pressure Suppression Chamber (Torus) Wide Range Level Indicators 3-1640-10A and 3-1640-10B were reading approximately 13 feet. This conflicted with Torus Narrow Range Indicator 3-1602-3. The Torus Narrow Range Indicator has a scale from -20 to +20 inches and its reading on this band was approximately 0 inches, which corresponds to approximately 15 feet. The Torus Narrow Range local sightglass level was promptly verified at approximately 15 feet. The Instrument Maintenance Department (IMD) backflushed the sensing lines of the Torus Wide Range Level Transmitters 3-1641-5A and 3-1641-5B; no change in indication was noted. Dresden Instrument Surveillance (DIS) 1600-17, Torus Wide Range Level Transmitter Calibration and Maintenance Inspection, was then performed to calibrate the transmitters.

While subsequently investigating the event, the System Engineer learned that the transmitters had apparently drifted out of calibration prior to the NSO's discovery, meaning that the 7 day Technical Specification Table 3.2.6 Limiting Condition for Operation with inoperable Torus Wide Range Level instruments had been exceeded. The root cause of the instrument drift is unknown; a supplemental report will be provided. Safety significance was minimal due to availability of the Narrow Range instrumentation. Corrective actions will include transmitter replacement.

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

Inoperable Torus Wide Range Level Transmitters Due to Unknown Cause

A. CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: June 5, 1991 Event Time: 2300 Hours

Reactor Mode: N Mode Name: Run Power Level: 53%

Reactor Coolant System (RCS) Pressure: 986 psig

B. DESCRIPTION OF EVENT:

On June 5, 1991 at 2300 hours with Unit 3 at 53 percent rated core thermal power, a Unit 3 Nuclear Station Operator (NSO)(Control Room Reactor Operator) noticed that the Pressure Suppression Chamber (Torus) Wide Range Level Indicators were in disagreement with the Torus Narrow Range Level Indicator during a routine check of the Control Room instrument panels. The narrow range reading corresponded to approximately 15 feet while both the wide range level indicators were reading slightly above 13 feet. A Shift Supervisor was notified immediately to check Torus level indication on a local sightglass in the Reactor Building. The sightglass reading was 15 feet, which verified normal Torus water level. A 7 day Limiting Condition for Operation (LCO) was entered as required by Technical Specification Table 3.2.6 with both Torus Wide Range Level Indicators inoperable. The Instrument Maintenance Department (IMD) was notified to investigate the problem. The first plan of action was to check the possibility of air in the sensing lines. No change was noted when the sensing lines were backflushed, indicating that no air was present in the lines. The next action taken by the IMD was to calibrate Torus Wide Range Level Transmitters 3-1641-5A and 3-1641-5B. Dresden Instrument Surveillance (DIS) 1600-17, Torus Wide Range Level Transmitter Calibration and Maintenance Inspection was used to calibrate the transmitters under Work Request 01868. The transmitters were successfully calibrated and were returned to service at 2130 hours on June 7, 1991.

On June 25, 1991, during the root cause investigation of this event, a Technical Staff System Engineer carefully reviewed the Torus Wide Range Level data from Chart Recorders 3-1640-13A and 3-1640-13B, which are driven by Torus Wide Range Level Transmitters 3-1641-5A and 3-1641-5B, respectively. The data for the 3-1641-5B Transmitter showed a decline from 14.7 feet down to 13.5 feet in indicated Torus level between January 31, 1991 and February 2, 1991. A similar drop on the 3-1641-5A Transmitter occurred between April 6, 1991 and May 31, 1991. The gradual drop on both chart recorders was undetectable without looking at a larger portion of the chart than can be seen on the recorder itself. These drifts in level indicate that limits in Technical Specification Table 3.2.6 had been exceeded prior to the discovery of the problem by the NSO.

C. APPARENT CAUSE OF EVENT:

This report is submitted in accordance with 10CFR50.73(a)(2)(i)(B), which requires the reporting of any condition prohibited by the Technical Specifications.

The root cause of the instrument drift is unknown at this time. A review of previous maintenance history has shown that no similar drift problems of this magnitude have previously been encountered with these transmitters. Besides the yearly calibration of these transmitters, as well as routine maintenance such as replacing the transmitter o-rings, no other problems have been discovered. DIS 1600-17, which is performed yearly, has not identified any adverse setpoint drift trends. When drift has been encountered, it has been very minimal.

The fact that the 3-1641-5A and 3-1641-5B transmitters had drifted low prior to their discovery is partially due to inadequate attention to detail during Control Room inspections. The Unit NSOs are required to perform qualitative instrumentation checks properly once per day on midnight shift per Operations Procedure Appendix A Note S. It should be noted that the gradual drift that occurred with these transmitters would have been hard to notice from shift to shift; however, review of this event indicated that clarification of Operations policy in this area was needed.

D. SAFETY ANALYSIS OF EVENT:

Torus water level indication consists of two types; narrow range and wide range indication. Two indications are available for each type. Narrow range instrumentation consists of a local sightglass and a Narrow Range Level Transmitter 3-1626 which feeds Narrow Range Indicator 3-1602-3 in the Control Room and computer point C332. Wide range indication includes two Wide Range Level Transmitters 3-1641-5A and 3-1641-5B. Each wide range transmitter is part of an independent loop consisting of a level transmitter (3-1641-5A and 3-1641-5B), a Control Room indicator (3-1640-10A and 3-1640-10B), and a Control Room chart recorder (3-1640-13A and 3-1640-13B). Technical Specification Table 3.2.6 discusses operability requirements for these instruments. If one narrow range or one wide range indication is inoperable, operation is not permitted beyond 30 days. If both narrow range or both wide range are inoperable, seven days of operation are permissable. In the event that all Torus level indication is inoperable, an orderly shutdown must be initiated and cold shutdown must be achieved within 24 hours.

In this event, both wide range water level indications had drifted low. However, narrow range indication was operable, showing the actual water level was at normal level. If a Torus low water level condition had occurred and Operator action followed Dresden Emergency Operating Procedure (DEOP) 200-1, Primary Containment Control, emergency reactor vessel depressurization due to decreasing Torus level would have been initiated earlier (conservatively), since actual level would have been two feet higher than indicated. In the case of increasing Torus water level, the narrow range indication is used to initiate emergency Operator action. Since low Torus level Operator actions would have been more conservative and high Torus level Operator action is initiated by the narrow range instrumentation, the safety significance of this event was minimal.

E. CORRECTIVE ACTIONS:

Torus Wide Range Level transmitters 3-1641-5A and 3-1641-5B are scheduled to be replaced during the upcoming Unit 3 refueling outage (D3R12) which is currently scheduled to begin in September 1991 (237-200-89-06101). After the transmitters are replaced, the existing transmitters will be inspected to determine the root cause of this event (249-200-91-03601). A supplemental report will be issued by the

System Engineer concerning this event once the existing transmitters are replaced and the root cause assessment is complete (249-200-91-03602). In order to enhance Control Room Inspection policy, the Operations Staff will issue a memo reviewing this event to all Licensed personnel by July 30, 1991 (249-200-91-03603). In addition, Operations will revise Appendix A to provide a comparison between the Torus Level indicators and recorders (249-200-91-03604). This event will also be reviewed in an upcoming Continuing License Operating Training Cycle (249-200-91-03605).

F. PREVIOUS OCCURENCES:

Non-Reportable

Event Number	Title
12-2-89-61	Inoperable Wide Range Torus Level Instruments Due to Transistor Failure and Sensing Line Damage

During this event, Torus Wide Range Level Transmitter 2-1641-5B was declared inoperable on March 14, 1989 as a result of a kinked sensing line caused by physical damage from personnel working in the general area. A transistor was also replaced on Torus Wide Range Indicator 2-1640-10A at this time. As part of the long term corrective actions, all Dresden Unit 2 and Unit 3 Torus Wide Range Level transmitters were scheduled to be replaced; the replacement transmitters utilize water filled sensing lines that are more protected against physical damage. This replacement has been completed on one of the Dresden Unit 2 transmitters so far; the remaining Unit 2 transmitter is scheduled for replacement during an upcoming refuel outage.

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number	Mfg. Part Number
ITT-Barton Instrument	Transmitter, Level	764	N/A

An industry wide NPRDS data base search revealed 186 occurrences of ITT-Barton Instrument Model 764 drifting out of calibration. The majority of these failures were due to unknown causes. The only causes that were cited in the NPRDS report were normal aging and setpoint drift.