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Dresden Generating Station
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ComEd

December 5, 1995

PGHLTR 95-0035

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

Licensee Event Report 95-021, Docket 50-249, is being submitted pursuant to 10CFR50.73(a)(2)(vii), any operation or condition prohibited by the plant's Technical Specifications.

This report provides clarification to corrective actions for previous events and does not include any new commitments specifically related to LER 95-021.

Sincerely,

Peter D. Holland

Peter G. Holland
Regulatory Assurance Supervisor

PGH/BC:pt

Enclosure

cc: H. Miller, Regional Administrator, Region III
NRC Resident Inspector's Office

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 3	05000249	1 OF 5

TITLE (4)
Yarway Reactor Water Level Switch Failure

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 NAME	DOCKET NUMBER
11	09	95	95	-- 021 --	00	12	05	95	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	089	20.2201(b)	20.2203(a)(3)(i)	50.73(a)(2)(iii)	73.71(b)
		20.2203(a)(1)	20.2203(a)(3)(ii)	50.73(a)(2)(iv)	73.71(c)
		20.2203(a)(2)(i)	20.2203(a)(4)	50.73(a)(2)(v)	OTHER
		20.2203(a)(2)(ii)	50.36(c)(1)	X 50.73(a)(2)(vii)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.2203(a)(2)(iii)	50.36(c)(2)	50.73(a)(2)(viii)(A)	
		20.2203(a)(2)(iv)	50.73(a)(2)(i)	50.73(a)(2)(viii)(B)	
		20.2203(a)(2)(v)	50.73(a)(2)(ii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Bob Carroll, Site Engineering Ext. 2335	(815) 942-2920

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
B	JE	LS	Y005	Yes						

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On November 9, 1995, at 1330 hours, with Unit 3 at 83% rated core thermal power, while performing Dresden Instrument Surveillance (DIS) 0500-03, Reactor Water Level ECCS Initiation Indicating Switch Calibration, level switch 3-263-72B contact 7-8 tripped outside of the Technical Specification (TS) limit. Level Indicating Switch (LIS) 3-263-72B is part of the Core Spray II and Auto Blowdown, -59" Reactor Water Level initiation one-out-of-two twice logic. The TS limit is 159.395" water column (WC), however, the switch was actuated to close at 170.0" WC. The switch was adjusted to an acceptable value of 155.1" WC. The necessary redundant switches were available during the event allowing both the Core spray and Auto Blowdown systems to remain operable. Previous events involving the failure of similar Yarway configurations are documented in the Operability Assessment dated February 17, 1994, (Chron 0124505) that was written in response to LERS 93-031/050237 and 94-007/050249. Input to the Operability Assessment included two years of calibration data for the Yarway instruments. Additionally LER 3-94-002 documents a similar event for the same instrument.

EVENT IDENTIFICATION:

Yarway Reactor Water Level Switch Failure

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: 11/09/95 Event Time: 1330 hrs

Reactor Mode: N Mode Name: Run Power Level: 83%

Reactor Coolant System Pressure: 982 psig

B. DESCRIPTION OF EVENT:

On November 9, 1995, at 1330 hours, with Unit 3 at 83% rated core thermal power, while performing Dresden Instrument Surveillance (DIS) 0500-03, Reactor Water Level ECCS Initiation Indicating Switch Calibration, level switch 3-263-72B contact 7-8 tripped outside of the Technical Specification (TS) limit. Level Indicating Switch (LIS) 3-263-72B is part of the Core Spray II and Auto Blowdown, -59" Reactor Water Level initiation one-out-of-two twice logic. The TS limit is 159.395" water column (WC), however, the switch was actuated to close at 170.0" WC which correlates to -74.04" Reactor Water Level. The switch was adjusted to an acceptable value of 155.1" WC. The necessary redundant switches were available during the event allowing both the Core Spray and Auto Blowdown systems to remain operable.

C. CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(vii) which requires the reporting of any event or condition that caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to mitigate the consequences of an accident. It has been determined that this failure is one point of an unfavorable trend history that has developed on these switches. A thorough review of the past two years of Yarway performance has been performed. Unit 3 Yarway contacts have been found at or out of tolerance 15 times out of a possible 220 calibrations. The 15 out of tolerances resulted in 3 Tech Spec violations.

Contacts for the 3-263-72B instrument were found out of tolerance 5 of 14 times during 1993 (36%). For 1994/95 the instrument's contacts have been found out of tolerance 4 out of 22 calibrations (18%). The continued out of tolerance events of Yarway setpoints have received heightened station attention.

The Yarway reactor water level instruments have not been able to maintain setpoints within the Technical Specifications and administrative limits as documented in DIS 0500-3. A root cause analysis was performed which identified the following i) Technical Specifications and procedural limits were more restrictive than instrument capabilities, ii) sub-component failures (Mercoid switch), and iii) excessive drift. Probable causal factors attributed to excessive drift include Mercoid switch aging (spring force degradation), mounting of the Mercoid switch, alignment of switch to actuating magnets, and/or defective jewelled bearings. However, the average "drifts" experienced during the past two years have been within the statistical 2 sigma failure values

(+/- 6.42" Reactor Water Level) documented in calculation NED-I-EIC-0100 Revision 2.

Performance of the 3-263-72B switch has been evaluated and is summarized below.

3-263-72B (7-8)	Jan 3, 1995 thru Nov. 9, 1995
Found Out of Tolerance/Calibrations	2/12 or 16.6%
Avg. Drift/Calibration (% Span)	1.82%

Instrument 3-263-72B (7-8) performance has improved from 1993 thru November 1995. In 1993, switch 72B (7-8) was found to be out of tolerance during 5 of 14 surveillances (i.e. 36%). Since January 3, 1995, the switch was found within tolerance for the ten consecutive months before the November 9 surveillance which identified another out of tolerance of 10.6" WC with respect to the surveillance procedure tolerance. The presence of the consecutive acceptable "as founds" represent an improvement in instrument operation. This improvement occurred after changing the setpoint to implement a technical specification change. The present calculated out-of-tolerance occurrences yield a 16% out of tolerance occurrence rate for a rolling 12-month period. This represents an improvement over the 36% for the year 1993.

D. SAFETY ANALYSIS:

The safety significance of this event is minimal even though the failure occurred in the non-conservative direction. ECCS is initiated on low low reactor water level by 4 level switches. These switches are arranged in one-out-of-two-twice logic format such that failure of one instrument will not prevent the function of Core Spray and Auto Blowdown. The actuation logic was operable because only one switch was affected.

A review of the safety significance of non-conservative drifts was performed as part of an Operability Assessment dated February 17, 1994, (Chron 0124505). A bounding PRA analysis, assuming one complete logic system failure with a duration of 10 days during the two year period resulted in a change to core damage frequency of only 1%.

E. CORRECTIVE ACTIONS:

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

There was no discernible reason for the instrument setpoint drift beyond the 2 sigma range. The immediate corrective action was to recalibrate the switch within its tolerance limits and to return the instrument to service. Also, several long term corrective actions have been previously proposed and are in progress at this time. The following NTS items (partial listing) identify actions which have been taken or are in progress by the station to eliminate the continued performance deficiencies with the Yarway instruments:

Proposed "Corrective Actions" have been previously documented in the LERs and Operability Assessment referenced in the abstract and are being tracked by NTS as the following items:

237-200-91-11901	Yarways are scheduled to be replaced during D2R14 and D3R14. Unit 2 modification is installed and testing is in progress. Unit 3 design is approved and awaiting installation.
237-180-93-03101	Develop an action plan for the chronic failures of Yarway switches (action plan developed, increased engineering assistance and data tracking in progress.)
237-180-93-03103	DIS 500-03 has been revised. The tolerances have been expanded and setpoint moved conservatively away from the TS limit.
249-180-94-00301	An Operability assessment for Yarways has been performed in accordance with QE 40.1 in response to LER 94-003/0500249 corrective action (action completed February 17, 1994, Chron 0124505).
237-225-94-R12-94018A	DIS 500-03 has been revised to incorporate drift optimization actions.
237-225-94-R12-94018B	As-found calibration data is being trended per Dresden Yarway Administrative Action Plan (actions on going until replacement).
237-225-94-R12-94018C	Obtain setpoint tolerance Technical Specification change approval from NRC (action completed).
249-225-94-R12-94018D	Implement a setpoint change on Unit 3 Yarways and revise Administrative Action Plan (action completed).
237-225-94-R12-94018E	Implement setpoint change on Unit 2 Yarways (action completed).
237-225-94-R12-94019A	A characterization program has been developed for Yarways. Information from this program was used to develop a wider tolerance band. (action completed).
237-225-94-R12-94019B	A Yarway Administrative Action Plan has been developed with the objective of achieving Yarway contact failure rates of 1x10E-5 per operating hour or better (action complete)
237-225-94-R12-94019I	The Operating Department has been informed of the necessity to maintain a heightened awareness regarding the excessive non-conservative drift and failure history.

F. PREVIOUS OCCURRENCES:

Numerous occurrences of similar events have been documented. A detailed calibration history is contained in the Operability Assessment dated February 17, 1994, which provides a chronology of all calibrations during the past two years with as-found and as-left setpoints. Reportable Occurrences since 1993 are as follows:

UNIT 2/0500237	LER 2-93-019	LER 2-93-031
	LER 2-94-008	LER 2-94-015
	LER 2-94-016	
UNIT 3/0500249	LER 3-93-001	LER 3-93-018
	LER 3-94-002	LER 3-94-007

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number	Mfg. Part Number
Yarway	Level Switch	4418C	DS551