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ComEd

June 1, 1995

TPJLTR 95-0061

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

Licensee Event Report 95-014, Docket 50-237 is being submitted as required by Technical Specification 6.6 and 10CFR50.73(a)(2)(vii).

Sincerely,

Thomas P. Joyce
Site Vice President

TPJ/BC:pt

Enclosure

cc: J. Martin, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

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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 2	05000237	1 OF 6

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
05	04	95	95	-- 014 --	00	05	19	95	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	089

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	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 May 04, 1995, at 1800 hours, with Unit 2 at 89% rated core thermal power, while performing Dresden Instrument Surveillance (DIS) 0500-03, Reactor Water Level ECCS Initiation Indicating Switch Calibration, level switch 2-263-72C contact 5-6 tripped outside of the Technical Specification (TS) limits. Level Indicating Switch (LIS) 2-263-72C is part of the High Pressure Coolant Injection (HPCI) [BJ] and Low Pressure Coolant Injection (LPCI) [BM] Loop 1, -59 inches Reactor Water Level initiation one-out-of-two twice logic. The TS limit is 159.375 inches water column (WC), however, the switch was actuated to close at 160.33 inches WC. The switch was adjusted to an acceptable value of 153.89 inches WC. The necessary redundant switches were available during the event allowing both 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 93-031/05000237 and 94-007/05000249. Input to the Operability Assessment included two years of calibration data for the Yarway instruments. Additionally LER 94-008/05000237 dated April 18, 1994, and LER 94-016/05000237 dated June 16, 1994, documents a similar event for the same instrument.

EVENT IDENTIFICATION:

Yarway Reactor Water Level Switch Failure

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: 05/04/95 Event Time: 1800 hrs

Reactor Mode: N Mode Name: Run Power Level: 89%

Reactor Coolant System Pressure: 977 psig

B. DESCRIPTION OF EVENT:

On May 04, 1995, at 1800 hours, with Unit 2 at 89% rated core thermal power, while performing Dresden Instrument Surveillance (DIS) 0500-03, Reactor Water Level ECCS Initiation Indicating Switch Calibration, level switch 2-263-72C contact 5-6 tripped outside of the Technical Specification (TS) limits. Level Indicating Switch (LIS) 2-263-72C is part of the High Pressure Coolant Injection (HPCI) and Low Pressure Coolant Injection (LPCI) Loop 1, -59 inches Reactor Water Level initiation one-out-of-two twice logic. The TS limit is 159.375 inches water column (WC), however, the switch was actuated closed at 160.33 inches WC. The switch was calibrated within its tolerance limits. The necessary redundant switches were available during the event, thereby allowing both systems to remain operable.

C. CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(vii)(D) 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 2 Yarway contacts have been found at or "out of tolerance" 64 times out of a possible 316 calibrations.

This particular instrument's contacts were found out of tolerance 9 of 12 times during 1993 (75%). For 1994/95 the instrument's contacts have been found out of tolerance 6 out of 19 calibrations (31.6%). 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 inches Reactor Water Level) documented in calculation NED-I-EIC-0100 Revision 2.

Performance of this Yarway has been evaluated and is summarized below.

2-263-72C (5-6)	Jan 18, 1994 thru May 4, 1995
Found Out of Tolerance/Calibrations	6/19 or 31.6%
Avg. Drift/Calibration (% Span)	2.36%

Instrument 2-263-72C (5-6) performance has improved from 1993 thru April 1995. In 1993, switch 72C (5-6) was found to be out of tolerance during 9 of 12 surveillances (i.e. 75%). Since July 25, 1994, the switch was found within tolerance for the seven consecutive months before the February 6 surveillance which identified another out of tolerance of .6 inches 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 25% out of tolerance occurrence rate for a rolling 12-month period. This represents an improvement over the 75% 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. The ECCS system contains four level instruments with two switches each to sense low-low reactor water level and initiate ECCS equipment when one-out-of two-twice logic was satisfied. 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 the 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 to be taken 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 presently scheduled to be replaced during D2R14 and D3R14. Modification P12-3-94-224 is complete. This mod implemented preliminary actions for the replacement of the Yarways.
237-180-93-03101	Develop an action plan for the chronic failures of Yarway switches (action in progress, Yarway Administrative Action Plan has been approved and will accomplish this task.)
237-180-93-03102	Provide a feasibility assessment for Yarway replacement (action completed, Yarways are committed to be replaced during D2R14 and D3R14). Modification P12-3-94-224 is complete. This mod implemented preliminary action for the replacement of the Yarways.
237-180-93-03103	Evaluate and provide appropriate revision to DIS 0500-03 (action complete, Yarway Administrative Action Plan has been approved and accomplished this task).
237-201-94-30600	Provide a Yarway operability assessment due to a high degree of drift (action completed February 17, 1994 Chron 0124505).
249-180-94-00301	Perform QE 40.1 Operability Assessment for Yarways in response to LER 94-003/05000249 corrective action (action completed February 17, 1994, Chron 0124505).
237-225-94-R12-94018A	Develop drift optimization actions and incorporate in DIS 0500-03 (action completed).
237-225-94-R12-94018B	Trend as-found calibration data per Dresden Yarway Administrative Action Plan and perform corrective actions as identified in the 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	Develop a characterization program for Yarways. Perform characterization and input to the Administrative Action Plan (action completed).

237-225-94-R12-94019B	Develop a Yarway Administrative Action Plan with the objective of achieving Yarway contact failure rates of 1x10E-5 per operating hour or better (action in progress, Yarway Administrative Action Plan has been approved and will accomplish this task.)
249-225-94-R12-94019C	Develop and implement an inspection plan and preventative maintenance program for the Unit 3 Yarways during D3R13 (action in progress).
237-225-94-R12-94019D	Update 3/29/93 NFS assessment for non-conservative instrument setpoint drift to support the Administrative Action Plan. (Action completed)
237-225-94-R12-94019E	Evaluate the feasibility of installing switch contact arc suppressor (action completed).
237-225-94-R12-94019F	Implement the requirements of the Inspection Plan on Unit 2 switches (actions ongoing).
237-225-94-R12-94019G	Inspect and correct condition of Unit 2 Level indicating switch 2-263-72C during the next surveillance (action complete).
237-225-94-R12-94019H	Review the available 1994 Surveillance data for additional information to identify any additional follow-up actions (action completed).
237-225-94-R12-94019I	Communicate the need for the Operating Department to maintain a heightened awareness regarding the excessive non-conservative drift and failure history (action completed).

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. A partial listing of out of tolerances and switch failures follows:

UNIT 2/0500237	LER 2-93-031-00	CDE 2-201-93-M337	LER 2-94-008
	CDE 2-201-93-M175	CDE 2-201-93-M62	LER 2-94-015
	LER 2-93-019	CDE 2-202-93-046	LER 2-94-016
	CDE 2-201-93-827	CDE 2-201-93-803	
	CDE 2-202-93-039	CDE 2-202-93-023	
	DVR 12-2-92-103	DVR 12-2-92-97	
	DVR 12-2-92-73	DVR 12-2-91-234	
	DVR 12-2-91-202	DVR 12-2-91-176	
	DVR 12-2-91-139	DVR 12-2-91-119	
	DVR 12-2-91-103	DVR 12-2-91-83	
	DVR 12-2-91-62	DVR 12-2-91-34	
	DVR 12-2-91-19	DVR 12-2-90-119	

DVR 12-2-90-100 DVR 12-2-90-46
DVR 12-2-90-35 DVR 12-2-89-102
DVR 12-2-89-76 DVR 12-2-88-123
DVR 12-2-88-114 DVR 12-2-88-91

UNIT 3/0500249 LER 3-94-007 LER 3-94-002
CDE 3-202-93-018 LER 3-93-018
CDE 3-202-93-015 CDE 3-202-93-013
CDE 3-202-93-07 LER 3-93-001
CDE 2-3-92-186 CDE 12-3-92-164
PIR 3-92-116 DVR 12-3-92-98
DVR 12-3-92-87 DVR 12-3-92-86
DVR 12-3-92-80 DVR 12-3-92-46
DVR 12-3-91-88 DVR 12-3-86-64
DVR 12-3-86-55 DVR 12-3-86-54
DVR 12-3-86-46

G. COMPONENT FAILURE DATA:

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