NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 2	0 5 0 0 0 2 3 7	1 OF 0 3

TITLE (4)

Reactor Scram - Spurious SDV Hi Hi Water Level Instruments

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 5 0 0 0
0 7	2 7	8 5	8 5	0 3 1	0 0	0 8	2 3	8 5	N/A	0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 5 7	20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		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 in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Ronald Jackson (X-549)	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	C E	R V	X 9 9 9	N							
X	C D	7 1	F 1 3 2	N							

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 fifteen single-space typewritten lines) (16)

During normal unit operation, on 7/27/85 at 1753 hours, Unit 2 received an east bank scram discharge volume (SDV) high high water level scram. The scram occurred several hours after the "A" reactor water cleanup (RWCU) system heat exchanger string had been valved back into service. A 3/4 inch relief valve on the "A" RWCU non-regenerative heat exchanger had lifted discharging system water (420°F and 1000 psig) into the Reactor Building drain header. The east and west SDV instrument volume drain lines are routed to the same drain header system. As the high temperature and pressure water entered the header, it flashed to steam and started flowing through the drain header back into the SDV instrument volumes.

Two of the four high high water level scram instruments installed on each of the SDV instrument volumes are temperature sensing devices manufactured by Fluid Component Incorporated (FCI). Discussions with FCI representatives have revealed that a steam environment will cause the millivolt output of the instrument to drop below the trip point and that it is most likely that the SDV high high water level scram was spuriously caused by the steam environment. At the recommendation of FCI, the trip setpoint of the instruments has been lowered to a value below which steam will not spuriously trip the instrument. An engineering analysis was performed to ensure that the response time of the instrument is still within the required system response time. Additionally, two functional tests were performed on the FCI instruments after the setpoint change. After the unit had scrammed, the "A" RWCU heat exchanger string was isolated and the relief valve replaced.

The safety significance of this event was minimal since the RPS circuitry functioned as designed placing the unit into a safe shutdown condition. All ECCS systems were operable at the time but not required. Last occurrence of this type was reported under DVR 12-2-85-75.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Dresden Nuclear Power Station, Unit 2	0 5 0 0 0 2 3 7	8 5	— 0 3 1	— 0 0	0 2 OF 0 3

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

During normal unit operation, on 7/27/85 at 1753 hours, Unit 2 received an east bank scram discharge volume (SDV) high high water level scram. The scram occurred several hours after the A reactor water cleanup (RWCU) system heat exchanger string had been valved back into service. The heat exchanger string had previously been valved out of service in an effort to depressurize that portion of piping and reseat a lifted relief valve on the shell side of the non-regenerative heat exchanger. Water that discharges from the relief valve is routed to a common Reactor Building drain header that drains all water to the Reactor Building equipment drain tank (RBEDT). The RBEDT is vented to atmosphere and eventually pumps the water collected to radwaste when a high level setpoint is reached. The east and west SDV instrument volume drain lines are routed to the same drain header system.

After the heat exchanger string had been placed back into service, Operating personnel monitored the water level of the RBEDT. Any abnormal input into the RBEDT observed over a period of time would have indicated whether the relief valve had lifted once again. The relief valve had not reseated and water from the RWCU system (approximately 420°F and 1000 psig) discharged through the 3/4 inch relief line into the drain header. As the high temperature-pressure water entered the header, it flashed to steam and started flowing through the drain header back into the SDV instrument volumes. It is believed that the steam was the cause of the east SDV high high water level scram.

Two of the four high high water level scram instruments installed on each of the SDV instrument volumes are temperature sensing devices manufactured by Fluid Component Incorporated (FCI). The FCI instruments sense the presence of water by measuring the temperature of the fluid as it surrounds the sensor. The instrument utilizes two resistance temperature detectors (RTD's) whose millivolt output is electrically hooked up to a balanced bridge circuit. The millivolt output of an RTD is temperature sensitive. One of the RTD's is hooked up to a heater and is used as a reference point. The second RTD senses the temperature of the water surrounding the detector. As the millivolt output of the second RTD approaches that of the reference RTD, the millivolt output of the instrument decreases eventually reaching the trip point.

Discussions with FCI representatives have revealed that a steam environment will cause the millivolt output of the instrument to drop below the trip point and that it is likely that the SDV high high water level scram was spuriously caused by the steam environment. At the recommendations of FCI, the trip setpoint of the instrument has been lowered to a value below which steam will not spuriously trip the instrument. An engineering analysis was performed to ensure that the response time of the new instruments setpoints was still within the required system response time.

After the instrument setpoints were changed, two functional tests were performed. During the first functional test, the SDV instrument volumes were filled with water by scramming one control rod on each bank while the unit was shutdown. All alarms were verified to come in and clear in the proper order. During the second functional test, the millivolt output of one FCI scram instrument was monitored during half core control rod drive scram testing. The reactor was at operating temperature and pressure (540°F, 950 psig) during the test and the water discharged by the individually scrammed control rods would have (continued)

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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Dresden Nuclear Power Station, Unit 2	0 5 0 0 0 2 3 7	8 5	— 0 3 1	— 0 0	0 3 OF 0 3

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

increased the temperature of the SDV instrument volume. The output of the instrument never decreased more than 70 millivolts. A decrease of more than 700 millivolts is necessary to trip the instrument. As a result of the tests performed, Dresden Station believes that the installed FCI instruments are reliable and that the setpoint changes will eliminate the possibility of future spurious trips. After the unit had scrammed, the "A" RWCU system heat exchanger string was isolated and the relief valve replaced.

The safety significance of this event was minimal since the RPS circuitry functioned as designed placing the unit into a safe shutdown condition. All ECCS systems were operable at the time but not required. Last occurrence of this type was reported under DVR 12-2-85-75.

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Telephone 815/942-2920

August 23, 1985

DJS Ltr #85-835

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

Licensee Event Report #85-031-0, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73 (a)(2)(iv).

D.J. Scott
Station Manager
Dresden Nuclear Power Station

DJS/kjl

Enclosure

cc: J.G. Keppler, Regional Administrator, Region III
File/NRC
File/Numerical

IE22
1/1