



Commonwealth Edison

Dresden Nuclear Power Station

R.R. #1

Morris, Illinois 60450

Telephone 815/942-2920

June 17, 1992

CWS LTR #92-348

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

Licensee Event Report 92-17, Docket 050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(iv).

Charles W. Schroeder
Station Manager
Dresden Nuclear Power Station

CWS/jmt

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

ZDVR/642

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2						Docket Number (2) 0 5 0 0 0 2 3 7			Page (3) 1 of 0 5		
Title (4) Primary System Isolation Valve Closure Due To Reactor Water Cleanup System Isolation During Pump Change-over											

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)											
0	6	2	4	9	2	9	2	0	1	7	0	0	0	6	1	7	9	2	N/A		N/A	

OPERATING MODE (9) POWER LEVEL (10) 0 4 5		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)									
		20.402(b)		20.405(c)		<input checked="" type="checkbox"/> 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)			
		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 Kenneth H. Neal, Technical Staff System Engineer Ext. 2237							TELEPHONE NUMBER AREA CODE 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	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	
X	C E	P C V	C 6 0 0	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)

On May 24, 1992, at 0055 hours, with Unit 2 at 45% of rated core thermal power, a Reactor Water Cleanup (RWCU) System isolation occurred during an attempt to change-over the operating RWCU recirculation pump, 2A-1205, to the opposite RWCU recirculation pump, 2B-1205. During this evolution, the pressure increased to approximately 130 pounds per square inch gauge (psig), which resulted in Primary Containment Isolation motor operated valves (MOVs) 2-1201-2 and 2-1201-2 fully closing. The system trip occurred as designed to prevent overpressurization of the RWCU piping. Maintaining smooth control of RWCU pressures/flows is currently extremely difficult for the Operator due to cavitation-induced wear to pressure control valve (PCV) 2-1217. The RWCU system was restarted without any further problems on May 24, 1992 at 0115 hours. Nuclear Engineering Department (NED), the Site General Electric Company Engineer and the System Engineer are assisting in the design of a new pressure control valve. This valve is scheduled to be replaced during the next Unit 2 refuel outage. This event had minimal significance because there was insignificant impact on reactor water chemistry. There have been several previous occurrences, the last was LER 92-014/05000237, Primary Containment Valve Closure Due To Reactor Water Cleanup System Isolation.

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

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:

Reactor Water Cleanup [CE] System Primary Containment Isolation [JM] Valve Closure During Pump Change-over

A. CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: May 24, 1992 Event Time: 0055 Hours
 Reactor Mode: N Mode Name: Run Power Level: 45%
 Reactor Coolant System (RCS) Pressure: 942 psig

B. DESCRIPTION OF EVENT:

On May 24, 1992, at 0055 hours, with Unit 2 at 45% of rated core thermal power, a Reactor Water Cleanup (RWC) System isolation occurred during an attempt to change-over the operating RWC recirculation pump, 2A-1205, to the opposite RWC recirculation pump, 2B-1205. Because of current difficulty with RWC system pressure control, the Operator first aligned blowdown to the condenser by opening MO 2-1201-11. Next, the Operator started the second recirculation pump, 2B-1205, opened its discharge valve, 2-1201-9B, and noticed the pressure had decreased downstream of PCV 2-1217. In preparation for a possible RWC recirculation pump trip, subsequent system trip and ESF actuation, the Operator increased the demand open for PCV 2-1217 using PIC 2-1290-2 in manual control. When the Operator stopped 2A recirculation pump, 2A-1205, RWC pressure increased to approximately 130 pounds per square inch gauge (psig), as recorded on the RWC demineralizer flow and pressure recorder (2-1290-12), which resulted in Primary Containment Isolation (PCI) [JM] motor operated valves (MOVs) 2-1201-2 and 2-1201-2 fully closing before one could manually react to recover. It is not known if PCV 2-1217 was still opening when the trip occurred due to the dampening of PIC 2-1290-2. The RWC system was restarted without any further problems on May 24, at 0115 hours.

C. APPARENT CAUSE OF EVENT:

This report is submitted in accordance with Title 10 of the Code of Federal Regulations Part 50 Section 73 (a) (2) (iv), which states that any event that results in the manual unplanned or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS) [JE], must be reported.

The RWC system takes water from the reactor vessel through the Reactor Recirculation [AD] system suction line (see attachment 1). During power operation, normal reactor pressure provides the driving force for the water to the RWC system. The water then passes through heat exchangers and a pressure control valve (PCV 2-1217) which reduces the water temperature and pressure prior to entering the demineralizers. After the water exits the demineralizers, the water is returned to the Feedwater [SJ] system through a recirculation pump and a flow control valve (FCV 2-1219).

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C. APPARENT CAUSE OF EVENT (cont.):

The General Electric Company originally designed the RWCU system to normally run a nominal 1308 gallons per minute (gpm) of water at 1017 pounds per square inch gauge (psig) and 520 degrees Fahrenheit (°F) through two trains (654 gpm each) containing four heat exchangers, two regenerative and two non-regenerative heat exchangers for normal power operation. After the water exits the heat exchangers, the 120°F water would be reduced in pressure by PCV 2-1217 to 80 psig. With this reduced pressure, the water would be ready to flow through the three parallel deep bed demineralizers at the flow rate of 436 gpm each. The demineralized water would combine into a pipe header to the 2 RWCU recirculation pumps with 654 gpm output each at 1138 psig. The high pressure water would then travel through FCV 2-1219 and into the Feedwater system.

However, the RWCU system is not currently operated with the original complement of three demineralizers in service. For some period prior to 1987, the two trains of heat exchangers were operated with two demineralizers (654 gpm each) and into the both RWCU recirculation pumps. This practice continued until approximately 1987 when one demineralizer operation was examined in an effort to reduce the amount of radwaste and their associated shipping costs. One demineralizer operation included use of one train of heat exchangers, one RWCU recirculation pump and one demineralizer. The one demineralizer operation did not indicate any known disadvantages and it maintained quality reactor water conductivity. Consequently, the one demineralizer operation continued. When the one demineralizer configuration was implemented, it was not realized that the decreased flow rate of 600 gpm through PCV 2-1217 would cause higher rate of wear, cavitation and pressure control difficulty within the RWCU system.

The difficulty with RWCU pressure control at power has previously caused spurious trips of the RWCU system. The loss of pressure control at power has previously occurred due to oscillations in pressure downstream of PCV 2-1217. Since most of the oscillations occurred while PCV 2-1217 was in the automatic mode, the Instrument Maintenance Department dampened the pressure indicating controller, (PIC) 2-1290-2 which regulates PCV 2-1217. This dampening was accomplished to reduce the isolations due to system pressure oscillations, at the request of the Operations Department. However, the dampening of PIC 2-1290-2 has also increased the response time of the valve to other pressure perturbations of the system which include: change-overs of recirculation pumps, a change between either recirculation pump in conjunction with the auxiliary pump and other possible causes for pressure fluctuations. A Nuclear Engineering Department (NED) report, dated May 21, 1992, has confirmed that the system has been operating outside the normal design characteristics of PCV 2-1217. PCV 2-1217 has been identified as a problem in the RWCU system due to disc wear, which has made pressure control extremely difficult.

D. SAFETY ANALYSIS OF EVENT:

Although this event was not initiated by PCI sensors, it did result in the closure of PCI valves. This event had minimal operational significance because Unit 2 had no problems with reactor water chemistry. The RWCU system automatically isolated, as designed, upon receipt of high pressure signal. There was no effect on public health or safety. For these reasons, this event had minimal significance.

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E. CORRECTIVE ACTIONS:

Immediate corrective action were to reset and restart the RWCU system at 0115 hours on May 24,1992. The RWCU system then operated without further problems.

NED, the Site General Electric Company Engineer and the System Engineer assisted Control Components Inc. in the design of a new pressure control valve. This valve trim is scheduled to be replaced during the next Unit 2 refuel outage (237-200-92-07104).

The System Engineer will revise Dresden Operating Procedure (DOP) 1200-3, RWCU System Operation with Reactor at Pressure, to incorporate actions necessary during a RWCU recirculation pump change-over before August 1, 1992 (237-200-92-10201).

NED has recently evaluated the RWCU system. The System Engineer will submit work requests, procedure changes, as necessary, and system enhancements by August 17, 1992 to improve system performance (237-200-92-07103).

NED has suggested it should further study the RWCU controls issue to mitigate RWCU isolations (237-200-92-10202). The System Engineer will submit RWCU controls recommendations for technical review within two months after completion of the controls evaluation (237-200-92-10203).

F. PREVIOUS OCCURRENCES:

The most recent similar Unit 2 RWCU trip is listed below.

LER/Docket Numbers Title

92-014/05000237 Primary Containment Valve Closure Due To Reactor Water Cleanup System Isolation

This event involved unplanned automatic closure of two Primary Containment Group III Isolation valves due to valve disc wear.

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
Control Components Inc.	Disc Stack Assembly		723701005

An industry wide NPRDS data base search was performed on the disc stack assembly of the PCV valve and it revealed no previous occurrences.

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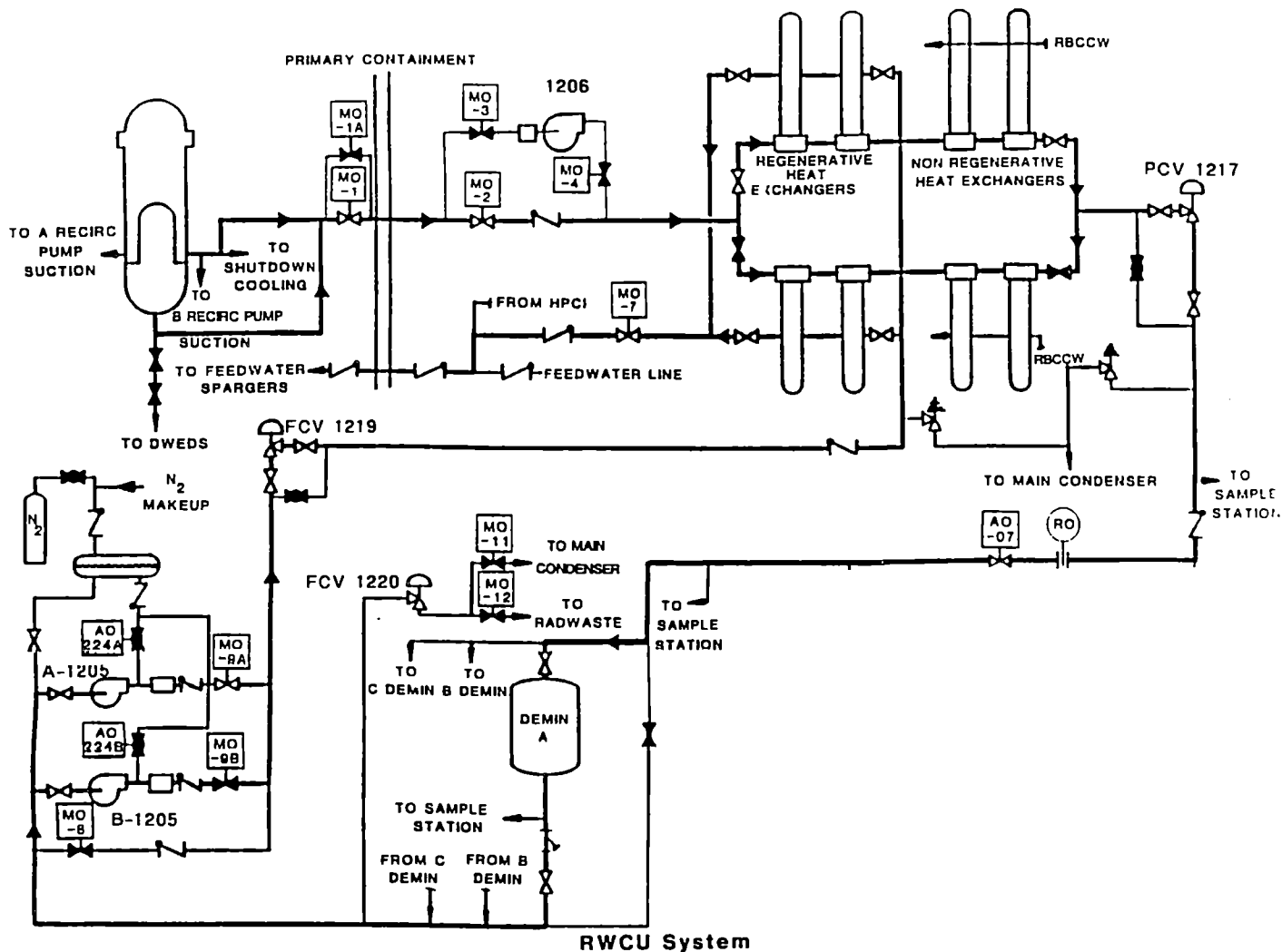
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ATTACHMENT 1



RWCU System