



Commonwealth Edison

Dresden Nuclear Power Station
R.R. #1
Morris, Illinois 60450
Telephone 815/942-2920

June 26, 1992

CWS LTR #92-361

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

Licensee Event Report #92-14, Docket #050249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR50.73(a)(2)(iv).

L. F. Merner for ^{6/30/92}
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/653

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 3	Docket Number (2) 0 5 0 0 0 2 4 9	Page (3) 1 of 0 5
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Title (4) Reactor Water Cleanup System Isolation During Fill
And Vent Due To Pressure Control Valve Problem

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	0 4	9 2	9 2	0 1 4	0 0	0 6	2 6	9 2	N/A		
OPERATING MODE (9) N THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)											

POWER LEVEL (10)	0 5 1	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
		<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
		<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
		<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
		<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
		<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 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 - 12 9 12 0
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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

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> Yes (If yes, complete EXPECTED SUBMISSION DATE)	X	NO	Expected Submission Date (15)
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ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single-space typewritten lines) (16)

On June 4, 1992, at 1735 hours, with Unit 3 at 51% of rated core thermal power, a Reactor Water Cleanup (RWCU) System isolation occurred during an attempt to fill and vent the RWCU system, using Dresden Operating Procedure (DOP) 1200-3, RWCU System Operation with the Reactor at Pressure. During this evolution, RWCU pressure increased to approximately 144 pounds per square inch gauge (psig), which resulted in Primary Containment Isolation motor operated valves (MOVs) 3-1201-1 and 3-1201-2 fully closing. The system trip occurred as designed to prevent overpressurization of the RWCU piping. The apparent cause of the event is a deficiency within the RWCU pressure control valve and/or its controls system. The RWCU system was restarted without any further problems on June 4, 1992 at 1939 hours. Nuclear Engineering Department (NED), the Site General Electric Company Engineer, and the System Engineer are assisting in evaluating potential RWCU improvements to correct the pressure control problem. The RWCU trip had minimal affect on plant operation and proper reactor water chemistry was maintained. The most current previous occurrence of this type was reported by LER 92-17/050237.

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

C. APPARENT CAUSE OF EVENT (cont.):

General Electric Company originally designed the RWCU system to normally run a nominal 1308 gallons per minute (gpm) of water at 1017 psig and 520 degrees 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 degrees F water would be reduced in pressure by PCV 3-1217 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 two RWCU recirculation pumps with 654 gpm output each at 1138 psig. The high pressure water would then travel through FCV 3-1219 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 of time 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 3-1217 would result in pressure control difficulty in maintaining within the RWCU system due to cavitation-induced wear.

The difficulty with pressure control has previously caused spurious trips of the RWCU system. The loss of pressure control has also been contributed to by PCV 3-1217 control response problems. This response problem indicates that the valve stem position probably does not change gradually as the Operator changes the signal to it, but moves in large steps, only after the signal has been changed significantly. This delay in change could be due to controller dampening. The dampening of controller PIC 3-1290-2 could also delay the response time of the valve. A Nuclear Engineering Department (NED) report, dated May 21, 1992, has confirmed that the system has been operating outside the normal expected characteristics of PCV 3-1217. PCV 1217 has been identified as a problem in the RWCU system due to disc wear, which has made pressure control difficult, particularly on Dresden Unit 2. However, even though Unit 2 and Unit 3 have similar RWCU configurations, Unit 2 PCV 2-1217 has exhibited more wear than Unit 3 PCV 3-1217.

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 3 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 1936 hours on June 4, 1992. The RWCU system then operated without further problems.

The System Engineer, IMD, and NED are continuing to pursue improvements to the RWCU PCV 3-1217 and controls system to correct the pressure control problem. The IMD will also review the tuning of the control logic for PCV 3-1217 under Work Request 10029 by August 7, 1992 (249-200-92-08201).

F. PREVIOUS OCCURRENCES:

There have been numerous RWCU trips. The most recent events on Unit 2 and Unit 3 are listed below.

<u>LER/Docket Numbers</u>	<u>Title</u>
92-017/05000237	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.
92-005/05000249	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 procedure deficiency.

G. COMPONENT FAILURE DATA:

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

An industry wide NPRDS data base search was performed on the disc stack assembly of the PCV valve and it revealed no adverse trend of this type.

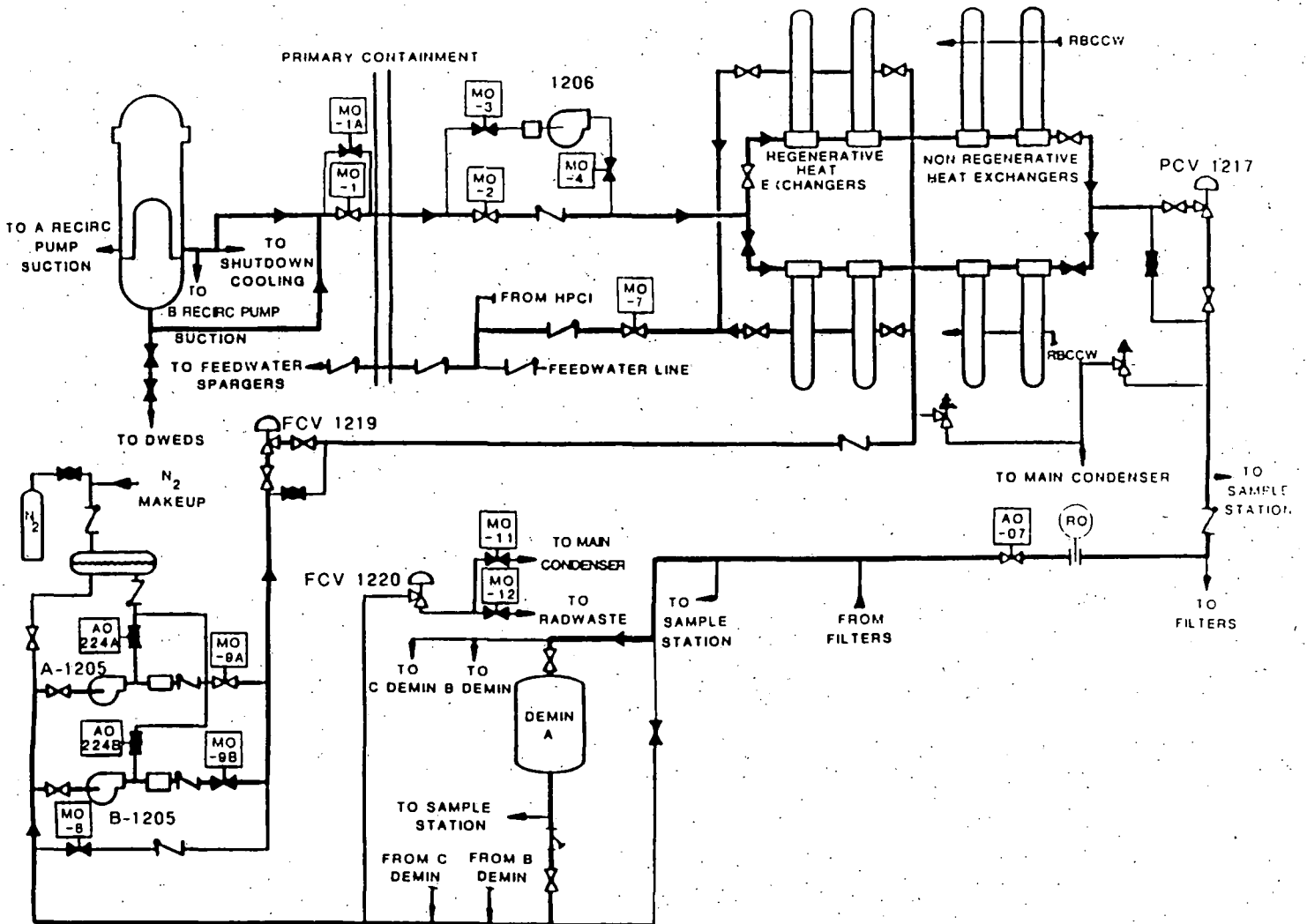
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ATTACHMENT 1



Normal RWCU System Flow