ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8903210249 DOC.DATE: 89/03/13 NOTARIZED: NO DOCKET #
FACIL:50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
AUTH.NAME AUTHOR AFFILIATION
CRIST,M.L. Pennsylvania Power & Light Co.
BYRAM,R.G. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-002-00:on 881215,inadvertent reactor core isolation cooling sys automatically initiated & injected.
W/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 6
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:LPDR 1 cy Transcripts. 05000388

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD1-2 LA	1	1	PD1-2 PD	1	1
	THADANI,M	1	1			
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	ACRS WYLIE	1	1	AEOD/DOA	1	1
	AEOD/DSP/TPAB	1	1	AEOD/ROAB/DSP	2	2
	ARM/DCTS/DAB	1	1	DEDRO	1	1
	NRR/DEST/ADE 8H	1	1	NRR/DEST/ADS 7E	1	0
	NRR/DEST/CEB 8H	1	1	NRR/DEST/ESB 8D	1	1
	NRR/DEST/ICSB 7	1	1	NRR/DEST/MEB 9H	1	1
	NRR/DEST/MTB 9H	1	1	NRR/DEST/PSB 8D	1	1
	NRR/DEST/RSB 8E	1	1	NRR/DEST/SGB 8D	1	1
	NRR/DLPQ/HFB 10	1	1	NRR/DLPQ/QAB 10	1	1
	NRR/DOEA/EAB 11	1	1	NRR/DREP/RAB 10	1	1
	NRR/DREP/RPB 10	2	2	NRR/DRIS/SIB 9A	1	1
	NUDOCS-ABSTRACT	1	1	~~REG FILE~~ 02	1	1
	RES/DSIR/EIB	1	1	RES/DSR/PRAB	1	1
	RGN1 FILE 01	1	1			
EXTERNAL:	EG&G WILLIAMS,S	4	4	FORD BLDG HOY,A	1	1
	H ST LOBBY WARD	1	1	LPDR	1	1
	NRC PDR	1	1	NSIC MAYS,G	1	1
	NSIC MURPHY,G.A	1	1			
NOTES:		2	2			

R I D S / A D D S

R I D S / A D D S

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 47 ENCL 46

A19 4

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Susquehanna Steam Electric Station - Unit 2	0 5 0 0 0 3 8 8	1 OF 0 5

TITLE (4)
Indavertent Reactor Core Isolation Cooling Initiation and Injection

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)
1 2	1 5	8 8	8 9	— 0 0 2	— 0 0	0 3	1 3	8 9		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 1

POWER LEVEL (10): 1 0 0

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

20.402(b)	20.405(c)	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)	X 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)	Voluntary
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)
Michael L. Crist - Compliance Evaluator	7 1 7 5 4 2 - 3 2 8 9

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

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 December 15, 1988 Unit 2 was operating in Condition 1 at 100% power. At 0841 hours the Reactor Core Isolation Cooling (RCIC) system automatically initiated on a false low reactor water level signal and injected to the reactor vessel. The false reactor level signal was the result of a pressure transient induced on the 2C004 instrument rack due to the mispositioning of an isolation valve by an I&C tecnician. The RCIC system injected to the vessel for approximately 29 minutes until it was manually shutdown. Reactor power increased to 101% during the event. No degradation of fuel was evident. An investigation of the event determined the plant's response to the transient was acceptable.

I&C personnel have reviewed this event, and the necessity of accessing and evaluating unexpected conditions when they occur. In addition, alarm response procedures have been revised to require that control room operators review the status of affected system(s) should a Reactor Building area radiation monitor annunciate.

The RCIC System at Susquehanna is not an Engineered Safety Feature, therefore this event is not reportable per 10CFR50.73. The report is being provided on a voluntary basis.

IE22
1/1

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6) YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	PAGE (3)
Susquehanna Steam Electric Station - Unit 2	0 5 0 0 0 3 8 8	8 9	— 0 0 2	— 0 0	0 2 OF 0 5

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

EVENT DESCRIPTION

At 0800 hours on December 15, 1988 with Unit 2 operating in Condition 1 at 100% power, I&C personnel began performing surveillance SI-280-206. The surveillance is a monthly functional test of Primary Containment Isolation (EIIS Code: JM) System level transmitters, LITS-B21-2N026A,B,C,D. The I&C technicians (utility/non-licensed) had completed testing of LITS-B21-2N026A, and were preparing to test LITS-B21-2N026B. To isolate 2N026B, the I&C technician closed the reference leg isolation valve, then opened the equalization valve. As the technician began closing the variable leg isolation valve a packing leak developed. The technician stopped closing the variable leg isolation valve, and tightened the packing nut to stop the leak. The valve was in mid-position. While focusing his attention on insuring that the leak was stopped, the technician inadvertently re-opened the valve instead of closing the valve. A test pressure source was then connected across the equalizing valve. When the technician began opening the first test connection isolation valve, at approximately 0841 hours, he noticed level indication on the other in-service instrumentation on the 2C004 rack change, including level transmitters LIS-B21-2N031A and C which cause an automatic initiation of the Reactor Core Isolation Cooling (RCIC)(EIIS Code:BN) System. He immediately closed the test connection valve, rechecked the valve position, and discovered that the variable leg isolation valve was open. The I&C technician at the the instrument rack contacted the I&C technician in the control room and informed him of the transient. The control room technician did not observe any alarms and concluded that the transient had no adverse affect on the plant. As such, he did not inform the Plant Control Operator (PCO) (utility/licensed). The valve line-up was corrected and the technicians proceeded with the surveillance.

Approximately two minutes (0843 hours) later a Reactor Building area radiation monitor (ARM) alarm was received in the control room. No other alarms were received. As required by Alarm Response procedure, AR-201-001, the PCO determined that the ARM in the RCIC turbine room had caused the alarm and was indicating approximately 4 to 5 mr/hr. In accordance with AR-201-001, the PCO dispatched a Health Physics technician to perform a survey of the RCIC turbine room to verify the ARM reading. An attempt to reset the alarm was unsuccessful. The PCO then investigated the alarm setpoint to determine if the indicated readings would cause the alarm. He confirmed that they would. The setpoint of the monitor was 4 mr/hr. Following this confirmation, Health Physics personnel had completed surveying the RCIC turbine area and had verified the ARM reading. The PCO then

determined that RCIC was in operation. After verifying that no valid initiation signal was present, the system was shutdown (0910 hours). At 0915 hours the RCIC system was declared inoperable and Limiting Condition of Operation 3.7.3 was entered.

An investigation was conducted, including why no alarms were received for the RCIC initiation. A reactor vessel high/low level alarm was not received during the event since this alarm is generated by the reactor level channel selected for feedwater level control. At the time of the transient, the B channel was selected which originates from the 2C005 instrument rack and was unaffected by the transient. A RCIC Division II reactor low level initiation alarm does exist, however this alarm is generated by LIS-B21-2N031B and D which are mounted on the 2C005 rack. There is no comparable Division I alarm. A RCIC low flow alarm was not received during the RCIC initiation since this alarm is defeated for 15 seconds following a system initiation. RCIC flow was verified to be greater than the low flow setpoint within 15 seconds using historical computer data. Thus, it was concluded that the RCIC system's response was per design and the system was declared operable at 1245 hours.

CAUSE OF EVENT

The event was caused by the I&C technician's failure to close the variable leg isolation valve prior to connecting the test pressure source and opening the test connection valve. As a result, the valving error caused a pressure perturbation on the 2C004 instrument rack simulating a -30 inch reactor level condition at level switches LIS-B21-2N031A and C, resulting in an automatic initiation of the RCIC System.

Secondly, had the I&C technician informed the PCO of the transient at the instrument rack, the PCO would have discovered that the RCIC system was injecting water into the vessel. The knowledge of a transient on the rack, on which Emergency Core Cooling System initiation instrumentation is mounted, coupled with the higher than normal radiation level in the RCIC room being alarmed in the control room, would have given the operator sufficient cause to review the control room panels. Upon review of the panels, the PCO would have observed that RCIC was in operation.

EVENT ANALYSIS

The RCIC system injected to the vessel for 29 minutes. Reactor power increased to 101% power during this time due to

increased core inlet subcooling. While RCIC was injecting to the 'A' Feedwater Header the temperature of the feedwater injecting to the vessel decreased approximately 12 degrees F. Operation at 101% power for 29 minutes was within the allowable deviation limits of the licensed power level. No fuel thermal limits were exceeded and no fuel preconditioning guidelines were exceeded. No changes in offgas pretreatment radiation levels occurred. A conservative analysis of the injection, performed by Nuclear Plant Engineering, indicates that the current fatigue usage factor for all affected injection nozzles is less than 0.70. As of December 15, 1988, the total number of RCIC injections, for all reasons, for Unit 2 is 59. Based on the above, this event did not pose any significant safety consequences.

REPORTABILITY

Per Section 6.0 of the Final Safety Analysis Report, the Reactor Core Isolation Cooling System is not an Engineered Safety Feature. Thus, the event is not reportable per 10CFR50.73. This report is being submitted on a voluntary basis.

CORRECTIVE ACTIONS

Procedure SI-280-206 was reviewed and found to be accurate and easily followed. The failure to close the isolation valve is attributed to the I&C technician's attention being diverted by the packing leak on the valve. I&C personnel have reviewed this event, and the necessity of accessing and evaluating unexpected conditions when they occur. The training also emphasized the importance of notifying Operations personnel of any system perturbations.

In addition, the installation of an audible alarm in the control room to alert the control room operator of a RCIC system initiation was investigated and found to be not justifiable. Adequate control room instrumentation exists to alert the control room operator and allow him to diagnose inadvertent initiations. At power, whenever the RCIC system actuates, the representative room area radiation monitor trips, and produces an alarm in the control room as happened in this event. To modify the plant for the addition of other alarms is redundant and unnecessary. A revision to the alarm response procedures requiring the operator to review the control room panels, should a Reactor Building area radiation monitor annunciate, will achieve the identical results as an alarm which specifically annunciates on the initiation of RCIC. The alarm response procedures have been revised.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6) YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	PAGE (3)
Susquehanna Steam Electric Station - Unit 2	0 5 0 0 0 3 8 8	8 9	— 0 0 2	— 0 0	0 5 OF 0 5

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

ADDITIONAL INFORMATION

Previous License Event Reports from both units were reviewed to identify any similar events, none were found.

PP&L Pennsylvania Power & Light Company
Two North Ninth Street • Allentown, PA 18101 • 215/770-5151

March 13, 1989

Mr. W.T. Russell
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
SPECIAL REPORT - RCIC INJECTION
LICENSEE EVENT REPORT 89-002-00
FILE R41-2
PLAS - 356

Docket No. 50-388
License No. NPF-22

Dear Mr. Russell:

In pursuant of Technical Specification 4.7.3.d, a Special Report documenting a Reactor Core Isolation Cooling (RCIC) System injection to Unit 2 on December 15, 1988 is provided. The RCIC System automatically initiated due to a false low reactor water level signal and injected to the reactor vessel.

As of December 15, 1988, the total number of RCIC System injections for Unit 2 is 59. A conservative analysis, performed by Nuclear Plant Engineering, indicates the current usage factor for the affected nozzles is less than 0.70.

In addition, Licensee Event Report 89-002-00, outlining the event, is being provided on a voluntary basis. The RCIC System at Susquehanna is not an Engineered Safety Feature, therefore this event is not reportable per 10CFR50.73.

R.G.Byram
Superintendent of Plant - Susquehanna

MLC/mjm

cc: U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Mr. F. I. Young
Sr. Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 35
Berwick, PA 18603-0035

IE22
1/1