

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9007030126 DOC. DATE: 90/06/29 NOTARIZED: NO DOCKET #
 FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylvania 05000388
 AUTH. NAME AUTHOR AFFILIATION
 CRIST, M.L. Pennsylvania Power & Light Co.
 STANLEY, H.G. Pennsylvania Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-003-01: on 900228, ADS declared inoperable when CIGH
 pressure dropped below 135 psig due to PRV lifting.
W/9 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: LPDR 1 cy Transcripts. 05000388

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EXTERNAL:	EG&G STUART, V.A	4	4	L ST LOBBY WARD	1	1
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Pennsylvania Power & Light Company

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June 29, 1990

U.S. Nuclear Regulatory Commission
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SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 90-003-01
FILE R41-2
PLAS - 431

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

Attached is Licensee Event Report 90-003-01. This is an update to LER 90-003-00 which was made pursuant to 10CFR50.73(a)(2)(v), in that the Automatic Depressurization System was unable to perform its complete safety function.

H.G. Stanley
Superintendent of Plant - Susquehanna

MLC/mjm

cc: Mr. W. T. Russell
Regional Administrator, Region I
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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Susquehanna Steam Electric Station - Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 8 8	PAGE (3) 1 OF 0 5
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TITLE (4) **Automatic Depressurization System Declared Inoperable When Containment Instrument Gas Header Pressure Dropped Below 135 psig Due to a Pressure Relief Valve Lifting**

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	2	2	8	9	0	9	0	0	0	3	0	1	0	6	2	9	9	0				0 5 0 0 0		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											
POWER LEVEL (10) 1 0 0	20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)			73.71(b)		
	20.405(a)(1)(ii)			50.38(c)(1)			<input type="checkbox"/> 50.73(a)(2)(v)			73.71(c)		
	20.405(a)(1)(iii)			50.38(c)(2)			<input type="checkbox"/> 50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
	20.405(a)(1)(iv)			50.73(a)(2)(i)			<input type="checkbox"/> 50.73(a)(2)(viii)(A)					
	20.405(a)(1)(v)			50.73(a)(2)(ii)			<input type="checkbox"/> 50.73(a)(2)(viii)(B)					
	20.405(a)(1)(vi)			50.73(a)(2)(iii)			<input type="checkbox"/> 50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)									
NAME Michael L. Crist - Compliance Evaluator							TELEPHONE NUMBER 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
X		R V	L 2165	N						

SUPPLEMENTAL REPORT EXPECTED (14)							EXPECTED SUBMISSION DATE (15)			MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)							<input checked="" type="checkbox"/> NO					

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 1110 hours on February 28, 1990, with Unit 2 operating in Condition 1 at 100% power, the Automatic Depressurization System (ADS) was declared INOPERABLE when Containment Instrument Gas (CIG) System's header pressure dropped below 135 psig due to the unexpected opening of a pressure relief valve. The CIG System automatically transferred to its backup nitrogen supplies. The "A" header pressure continued to decrease. The "B" header was being maintained at 160 psig by the backup supplies. Investigations by plant personnel found that pressure relief valve, PSV-22643, located on the "A" header, was stuck open. The valve was manually re-seated and header pressure returned to normal. At 1151 hours LCO 3.5.1 action d was exited when ADS was declared OPERABLE.

The cause of this event was the mis-operation of PSV-22643. The valve was removed from the system for testing and inspection. Neither activity identified a specific cause for the mis-operation. As a prudent measure the valve's internal components were replaced. The valve was tested and re-installed. This event was determined reportable per 10CFR50.73(a)(2)(v) in that the ADS was unable to perform its complete safety function. There were no safety consequences or compromise to public health or safety as a result of this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Unit 2 Susquehanna Steam Electric Station	DOCKET NUMBER (2) 0 5 0 0 0 3 8 8	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

EVENT DESCRIPTION

On February 28, 1990, with Unit 2 operating in Condition 1 at 100% power, the Containment Instrument Gas (EIIS Code: not listed) System's 'A' compressor was in service with the 'A' and 'B' Automatic Depressurization System (ADS, EIIS Code: not listed) header's backup nitrogen (bottles 2T212A-M and 2T213A-M, respectively) supplies at greater than 2100 psig. The 'A' header supplies instrument gas to Main Steam Safety Relief Valves (MSRV) PSV-241-F013G,J, and M, and the 'B' header supplies MSRVs PSV-241-F013K,L, and N. These six MSRVs perform the ADS function. See attached diagram on system configuration. The "B" CIG compressor was out of service for modifications.

At approximately 1110 hours, on the above date, the CIG System automatically transferred from its normal source of the CIG compressors to its backup nitrogen supply bottles due to decreasing pressure on both headers. The transfer from the compressors to the bottles is an automatic action which occurs when header pressure drops below 147 psig. Specifically, valves SV-22644 and SV-22643 on the 'A' header, and valves SV-22649 and SV-22648 on the 'B' header changed position aligning the bottles to their respective headers. Following the transfer, pressure on the 'A' header continued to drop below 135 psig, rendering MSRVs F013G,J, and M inoperable. As such, the ADS was declared INOPERABLE, and Technical Specification Limiting Condition of Operation (LCO) 3.5.1 action d.2 was entered. The pressure on 'B' header was being maintained at 160 psig by the backup nitrogen supply. Technical and Maintenance personnel (both utility, non-licensed) were notified and an immediate investigation was commenced. Initial checks of the 'A' and 'B' CIG compressor skids did not reveal any leaks. The 'A' compressor was running, 100% loaded, and maintaining receiver pressure at 110 psig. Normal receiver pressure is 160 psig. Pressure was still decreasing on the 'A' header. Operations personnel (utility, non-licensed) proceeded to isolate the 'A' compressor from the 'A' header. When this was done compressor receiver pressure returned to 160 psig. Further investigations found that pressure relief valve, PSV-22643, located on the 'A' backup nitrogen supply header, was stuck open. Maintenance personnel manually re-seated the valve and header pressure returned to normal. No other nitrogen supplied systems, i.e., Main Steam Isolation Valves, Vacuum Relief Valves, were affected since they are supplied by a separate 90 psig nitrogen header. The CIG system was manually re-aligned to its 'A' compressor. At 1151 hours, LCO 3.5.1 action d.2 was cleared, returning ADS to OPERABLE status. At 1440 hours, ENS notification was made in accordance with 10CFR50.72(b)(2)(iii).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 80.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

CAUSE OF EVENT

The cause of this event was the mis-operation of PSV-22643. The root cause of the PSV lifting is indeterminate, however the most probable cause is that the PSV or supply piping was jarred. This conclusion is based on the valve being located in a high traffic area and the PSV's setpoint (180 ± 3%) being relatively close to the system's operating pressure (155-165 psig). Secondly, once the PSV lifted, the valve should have re-seated. On April 23, 1990, PSV-22643 was removed from the CIG System for testing and inspection. The results of these activities did not identify any definitive cause for the valve failing to re-seat after it lifted. The pressure relief valves used in the CIG System are designed to be compatible for use in gas or fluid systems. Based on this type of design, the valves may not be the optimum valve for this application. No operability concerns exist with this type of valve, however, actions are currently underway to replace these valves with gas specific valves.

REPORTABILITY/ANALYSIS

This event was determined reportable per 10CFR50.73(a) (2) (v) in that with less than five ADS MSRVs OPERABLE, the ADS System was unable to perform its complete safety function. The remaining ECCS were operable throughout the event.

The CIG System provides instrument gas at 160 psig to the six MSRVs which perform the ADS function. The ADS MSRVs have two safety functions, short-term blowdown capability and long-term pressure control capability (long-term cooling). LCO 3.5.1 states that all six ADS MSRVs shall be OPERABLE in Condition 1. Technical Specification Bases and FSAR Table 6.3-2 take credit for five ADS MSRVs. Therefore LCO 3.5.1.d.2 provides for an immediate orderly shutdown for a loss of more than one ADS MSRVs. Further analysis, in support of the Emergency Operating Procedures (EOP) demonstrates that three OPERABLE MSRVs will adequately provide rapid depressurization of the reactor pressure vessel. In addition, EOP EO-1/200-112, Rapid Depressurization Bases, provides guidance for alternate means of depressurizing the vessel if less than three MSRVs are available. Since the backup nitrogen supply did align to the 'B' header and header pressure was maintained at 160 psig, the short-term and long-term functions of the ADS MSRVs F013K,L, and N were still intact. Based on this there were no safety consequences or compromise to public health or safety as a result of this event nor would there have been had it occurred at any other operating condition.

In accordance with the guidance provided in NUREG 1022 Supplement 1 Item 14.1, the required submission date for this report was determined to be March 30, 1990.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		90	003	01	04	OF 05

TEXT (If more space is required, use additional NRC Form 368A's) (17)

CORRECTIVE ACTIONS

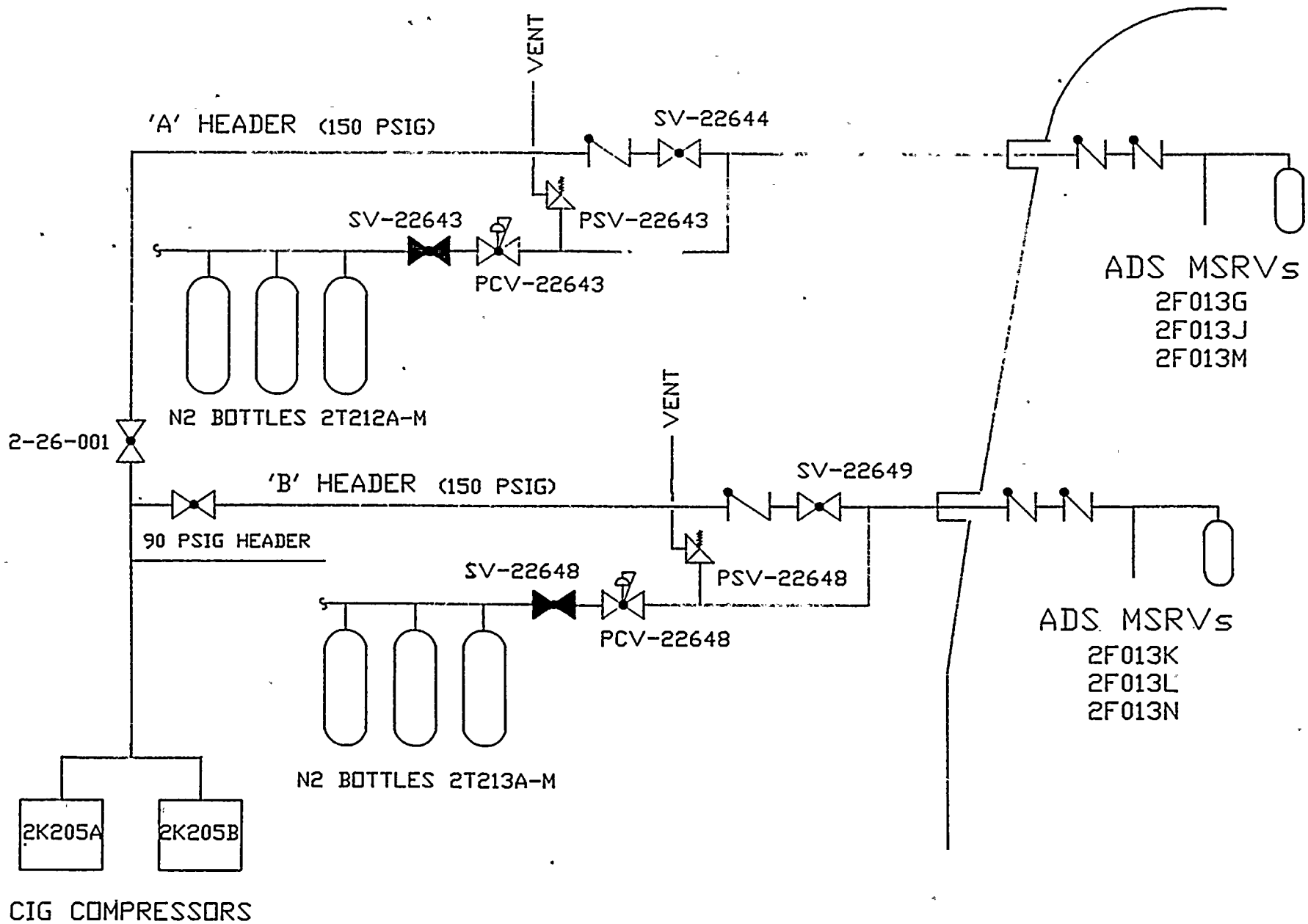
Immediate corrective actions consisted closing PSV-22643 and returning the system to its normal configuration. On April 23, 1990, PSV-22643 was removed from the CIG System for testing and inspection. Maintenance personnel (utility, non-licensed) performed bench lifts and internal inspections on the valve, neither of which identified any contributing factors for the mis-operation. As a prudent measure all internal components were replaced. The valve was tested and re-installed in the system. Long term actions consist of replacing the pressure relief valves in the CIG System with a valves designed specifically for gas applications.

ADDITIONAL INFORMATION

Failed Component Identification: Valve: PSV-22643
Model: LCT-11
Manufacturer: J.E. Lonergan Co.

Previously Reported Events: None.

UNIT 2 CIG/ADS EVENT 2-28-90



Facility Name
Unit 2
Susquehanna Steam Electric Station

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05000388

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90-003-01

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