

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8804120073      DOC. DATE: 88/04/06      NOTARIZED: NO      DOCKET #  
 FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylvania      05000388  
 AUTH. NAME      AUTHOR AFFILIATION  
 RYDER, T.S.      Pennsylvania Power & Light Co.  
 BYRAM, R.G.      Pennsylvania Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 88-002-00: on 880309, Loop A containment atmosphere control containment isolation valves ESF actuation.

W/8      ltr.

DISTRIBUTION CODE: IE22D      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: LPDR 2 cys Transcripts.

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| INTERNAL: | ACRS MICHELSON         |  | 1      | 1    | ACRS MOELLER     |              | 2 | 2      |      |  |
|           | AEOD/DOA               |  | 1      | 1    | AEOD/DSP/NAS     |              | 1 | 1      |      |  |
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|           | NRR/DEST/ADS 7E        |  | 1      | 0    | NRR/DEST/CEB 8H  |              | 1 | 1      |      |  |
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|           | NRR/DRIS/SIB 9A        |  | 1      | 1    | NRR/PMAS/ILRB12  |              | 1 | 1      |      |  |
|           | <del>REG FILE</del> 02 |  | 1      | 1    | RES TELFORD, J   |              | 1 | 1      |      |  |
|           | RES/DE/EIB             |  | 1      | 1    | RES/DRPS DIR     |              | 1 | 1      |      |  |
|           | RGN1 FILE 01           |  | 1      | 1    |                  |              |   |        |      |  |
| EXTERNAL: | EG&G GROH, M           |  | 4      | 4    | FORD BLDG HOY, A |              | 1 | 1      |      |  |
|           | H ST LOBBY WARD        |  | 1      | 1    | LPDR             |              | 2 | 2      |      |  |
|           | NRC PDR                |  | 1      | 1    | NSIC HARRIS, J   |              | 1 | 1      |      |  |
|           | NSIC MAYS, G           |  | 1      | 1    |                  |              |   |        |      |  |

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### LICENSEE EVENT REPORT (LER)

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 4**

TITLE (4) **Loop 'A' Containment Atmosphere Control Containment Isolation Valves ESF Actuation**

| 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              | 3   | 09   | 8              | 8                 | 002             | 0               | 4   | 06   |                               |  | 0 5 0 0 0        |
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|                               |  |   |   |  |  |  |  |  |  |  |
|-------------------------------|--|---|---|--|--|--|--|--|--|--|
| OPERATING MODE (9) <b>5</b>   | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) |   |   |  |  |  |  |  |  |  |
| POWER LEVEL (10) <b>0 0 0</b> | <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"/> 50.38(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"/> 50.38(c)(2)      | <input type="checkbox"/> 50.73(a)(2)(vii)           | OTHER (Specify in Abstract below and in Text, NRC Form 366A) |  |  |  |  |  |  |
|                               | <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 **T.S. Ryder - Power Production Engineer** TELEPHONE NUMBER **7 1 7 5 4 2 1 - 3 2 3 5**

| 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)  
 YES (If yes, complete EXPECTED SUBMISSION DATE)  NO  
EXPECTED SUBMISSION DATE (15) MONTH  DAY  YEAR

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

On March 9, 1988 with Unit 2 in Condition 5 at 0% power, it was observed that the inboard and outboard containment isolation valves for Loop "A" of the Containment Atmosphere Control (CAC) system were closed. The unplanned automatic closure of these valves constituted an ESF actuation which is reportable per 10CFR50.73(a)(2)(iv). The inboard CAC valves were successfully reopened, but an outboard CAC valve would not reopen during subsequent reopening attempts because of limit switches in need of adjustment. Identification of the root cause of the ESF actuation could not be determined. The event did not pose any significant safety consequences. The isolation valves are designed to close following a design basis LOCA. Since the valves were in the closed position, they were fulfilling their design accident function. Corrective actions will include determining various voltages for the relays integral to the isolation logic for the CAC valves. The results will be evaluated and conclusions drawn after the data is taken. The limit switches were adjusted for the malfunctioning valve, and the valve was later stroked successfully several times. The valve's limit switches and internal wiring will be replaced because of signs of discoloration on internal wires and cracked insulation on the lugs.

*JRZ*  
*1/1*

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

|   |  |                |                   |                 |          |    |       |
|---|--|----------------|-------------------|-----------------|----------|----|-------|
| FACILITY NAME (1)<br><br>Susquehanna Steam Electric Station<br>Unit 2 | DOCKET NUMBER (2)<br><br>0   5   0   0   0   3   8   8   8   8 | LER NUMBER (6) |                   |                 | PAGE (3) |    |       |
|   |  | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |    |       |
|   |  | - 0            | 0   2             | - 0   0         | 0   2    | OF | 0   4 |

TEXT (If more space is required, use additional NRC Form 365A's) (17)

DESCRIPTION OF EVENT

On March 9, 1988 with Unit 2 in Condition 5 at 0% power, an Engineered Safety Feature (ESF) actuation occurred when the inboard and outboard containment isolation valves for Loop "A" of the Containment Atmosphere Control (CAC, EIIS Code: IK) system unexpectedly closed. The event was discovered when Chemistry personnel requested that the Control Room investigate if there were any problems with the lineup for the CAC valves. They were working on the Post Accident Sampling Station (PASS) system (EIIS Code: IP) and were unable to draw a gas sample. When a Plant Control Operator (PCO, utility-licensed operator) checked panel indication in the Control Room, he found that position indication was "closed" for switches HS-25740A and HS-25742A. The closed indication for these switches reflected that all five inboard and all five outboard Loop "A" CAC containment isolation valves were closed. A check of the isolation status lights and other isolation valves indicated no full containment isolations had occurred. The operator placed open HS-25740A and received full open indication. When HS-25740A is placed in the open position, inboard CAC valves SV-25736A, 40A, 50A, 76A, and 80A should open and, likewise, when HS-25742A is placed in open, outboard CAC valves SV-25734A, 42A, 52A, 74A, and 82A should open. When he next tried to open HS-25742A, dual indication was received. The operator pressed closed HS-25742A, waited approximately five seconds, and reopened the valve. The full open indication was received for about 3-5 seconds and then dual indication was received indicating at least one valve had gone closed. A Nuclear Plant Operator (NPO, utility-nonlicensed operator) who was dispatched to the local panel reported that SV-25752A indicated closed. HS-25742A was again cycled and this time only SV-25782A indicated closed. After one more attempt of cycling HS-25742A was performed, SV-25782A stayed closed and the other affected valves all opened.

CAUSE OF EVENT

A review for possible causes of the actuation was performed. Preliminary results failed to identify the cause of the actuation. The valves automatically close on -38 inches water level in the reactor vessel or on high drywell pressure of 1.72 psig. No valid receipt of these signals was received because the unit was in refuel with the vessel level at > 200 inches and the drywell was open to the atmosphere. Identification of the root cause of this event could not be determined. The valves were confirmed to have been open at shift turnover (at approximately 0700 hours). There were no alarms to indicate an isolation had occurred. A review of computer historical data for the period of 0000 to 1240 hours on March 9, 1988 did not identify any alarms or conditions indicative of cause. There were no surveillances being performed at the time of the event that would have impacted the CAC valves which isolated. Operations personnel were interviewed and were not aware of any work being performed in the plant that would have caused the isolation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

|   |                                      |                |                              |                          |          |  |
|---|--------------------------------------|----------------|------------------------------|--------------------------|----------|--|
| FACILITY NAME (1)<br>Susquehanna Steam Electric Station<br>Unit 2 | DOCKET NUMBER (2)<br>0 5 0 0 0 3 8 8 | LER NUMBER (6) |                              |                          | PAGE (3) |  |
|   |                                      | YEAR<br>8 8    | SEQUENTIAL NUMBER<br>- 0 0 2 | REVISION NUMBER<br>- 0 0 |          |  |

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

A remote possibility exists that when the Reactor Recirculation Motor Generator (MG) Sets (EIIIS Code: AD) were started that morning, the relays integral to the CAC isolation logic may have seen a voltage drop of significant enough magnitude to cause them to drop out on undervoltage causing the valves to close. Such an occurrence has never been observed previously and is considered remote.

REPORTABILITY/ANALYSIS

This event was determined to be reportable per 10CFR50.73 (a) (2) (iv), in that the closure of the CAC system containment isolation valves constituted an unplanned ESF actuation. The event did not pose any significant safety consequences. The isolation valves are designed to close following a design basis LOCA. Since the valves were in the closed position, they were fulfilling their design accident function.

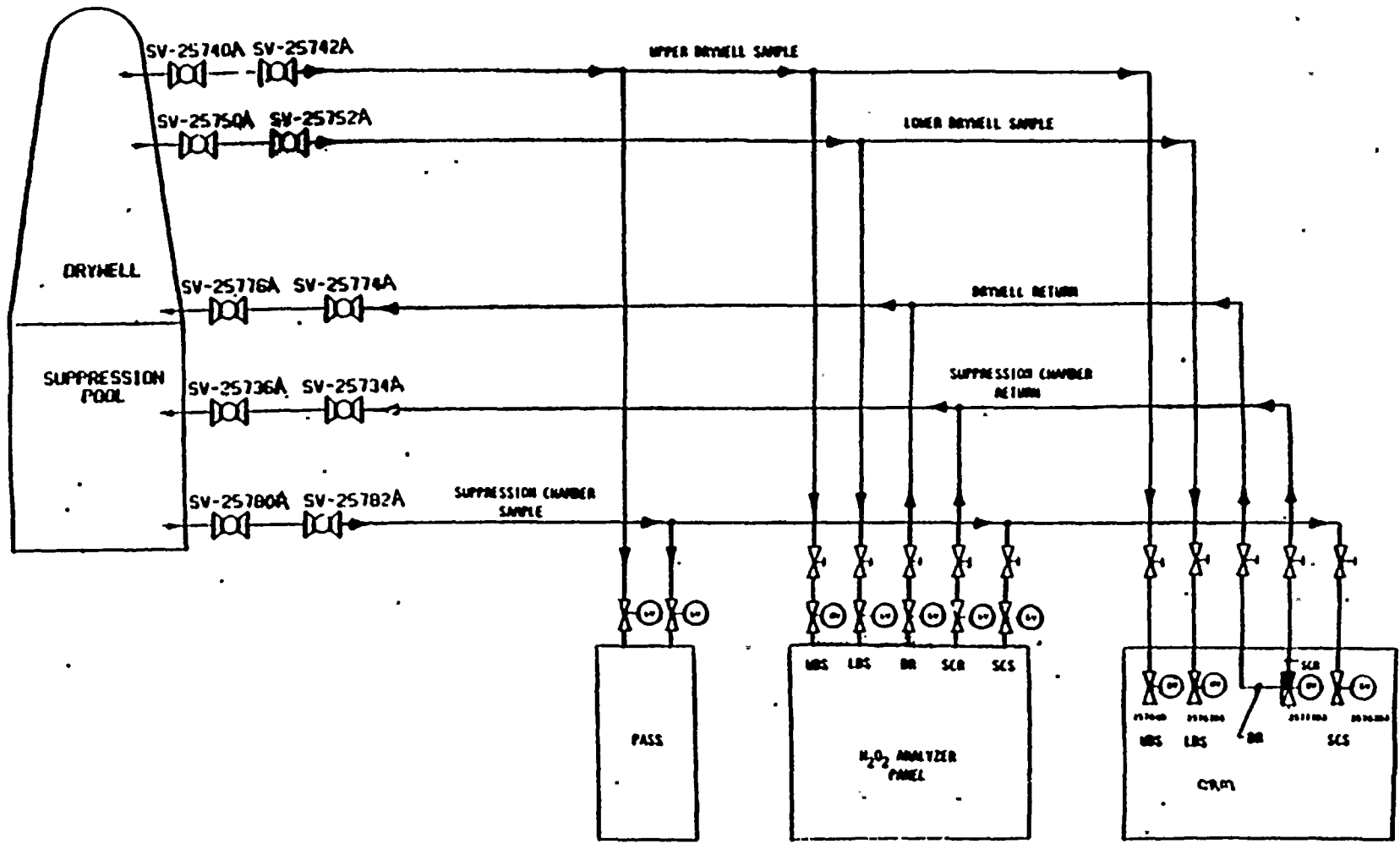
CORRECTIVE ACTIONS

A Work Authorization (WA) has been initiated to determine the supply, pickup, and dropout voltages for the relays integral to the isolation logic for the CAC valves. This action is being taken in an attempt to rule out the remote possibility of a voltage drop having occurred of significant magnitude to cause the relays to drop out when the Reactor Recirculation Motor Generator (MG) Sets were started that morning. The results will be evaluated and conclusions drawn after the data is taken. Maintenance Department investigated the stroking problem for SV-25782A. After adjusting the limit switches, the valve was stroked successfully several times. Signs of discoloration on internal wires and cracked insulation on the lugs were observed. Maintenance will replace the limit switches and internal wiring before the end of the current refueling outage. A review of historical events was performed and no similar previous occurrences were identified.

ADDITIONAL INFORMATION

Failed Component Identification: Not Applicable.

Previous Similar Events: None.





**Pennsylvania Power & Light Company**

Two North Ninth Street • Allentown, PA 18101 • 215/770-5151

April 6, 1988

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

SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 88-002-00  
FILE R41-2  
PLAS- 312

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

Attached is a Licensee Event Report 88-002-00. This event was determined reportable per 10CFR50.73(a) (2) (iv) in that an engineered safety feature actuation occurred when the inboard and outboard Loop "A" Containment Atmosphere Control containment isolation valves closed unexpectedly.

R.G. Byram  
Superintendent of Plant Susquehanna

TSR/mjm

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