

CATEGORY 10

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9704240137 DOC.DATE: 97/04/18 NOTARIZED: NO DOCKET #
 FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv 05000388
 AUTH.NAME AUTHOR AFFILIATION
 CODDINGTON, C.T. Pennsylvania Power & Light Co.
 KUCZYNSKI, G.J. Pennsylvania Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-004-00: on 970322, main steam line penetration leakage rate exceeded TS limit due to two MSIVs having excessive leakage rates. Two MSIVs were reworked & maint procedure revised. W/970418 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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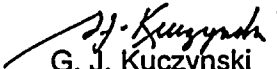
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SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-388/97-004-00
PLAS - 706 FILE R41-2

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

Attached is Licensee Event Report 97-004-00. This event was determined to be reportable per 10CFR50.73(a)(2)(ii) in that the Main Steam Line penetration leakage exceeded the Technical Specification limit during regularly scheduled Local Leak Rate Testing.


G. J. Kuczynski
General Manager - Susquehanna SES

Attachment

cc: Mr. H. J. Miller
Regional Administrator
U. S. Nuclear Regulatory Commission
475 Allendale Road
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Mr. Kenneth M. Jenison
Sr. Resident Inspector
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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 4 |
|---|--------------------------------------|----------------------|

TITLE (4)
Main Steam Line Penetration Leakage Rate Exceeded Technical Specification Limit

| 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 | 2 2 | 9 7 | 9 7 | 0 0 4 | 0 0 | 0 4 | 1 8 | 9 7 | | 0 5 0 0 0 |

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|--|--|---|--|--|--|--|--|--|--|--|
| OPERATING MODE (9) 5 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 1: (Check one or more of the following) (11) | | | | | | | | | |
| POWER LEVEL (10) 0 0 0 | <input type="checkbox"/> 20.402(b) | <input type="checkbox"/> 20.405(c) | <input type="checkbox"/> 50.73(a)(2)(v) | <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)(vi) | | | | | | | |
| | <input type="checkbox"/> 20.405(a)(1)(iii) | <input type="checkbox"/> 50.73(a)(2)(i) | <input type="checkbox"/> 50.73(a)(2)(vii)(A) | | | | | | | |
| | <input type="checkbox"/> 20.405(a)(1)(iv) | <input checked="" type="checkbox"/> 50.73(a)(2)(ii) | <input type="checkbox"/> 50.73(a)(2)(vii)(B) | | | | | | | |
| <input type="checkbox"/> 20.405(a)(1)(v) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(viii) | | OTHER (Specify in Abstract below and in Text, NRC Form 368A) | | | | | | |

| | | | | | | | | | | |
|---|--|--|--|--|--|--|---|--|--|--|
| NAME Comelius T. Coddington - Sr. Project Engineer, Licensing | | | | | | | TELEPHONE NUMBER 7 1 7 5 4 2 - 3 2 9 4 | | | |
|---|--|--|--|--|--|--|---|--|--|--|

| 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 | S B | S V | A 5 8 5 | Y | | | | | | |

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|---|--|--|--|-------------------------------|--|-------|-----|------|
| 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 1730 hours on March 22, 1997, with Unit 2 in Condition 5 (Refueling, 0% power), an evaluation of data from the scheduled Main Steam Line (MSL) penetration Local Leak Rate Testing (LLRT) determined that the "as-found" leakage through both the inboard and outboard Main Steam Isolation Valves (MSIV) was in excess of the limit of Technical Specification 3.6.1.2.c for the MSL containment penetration maximum pathway leakage of 300 standard cubic feet per hour (SCFH). The total "as-found" maximum pathway leakage was in excess of 700 SCFH. However, the total "as-found" minimum pathway leakage was only 78.8 SCFH. The evaluation determined that the MSIV LLRT excess "as-found" maximum pathway leakage was reportable pursuant to 10CFR50.72(b)(2)(i) and 10CFR50.73(a)(2)(ii). The cause was determined to be that 2 MSIVs had excessive leak rates. The causes of the excessive leak rates were due to normal wear on one MSIV and loose internal parts on the other MSIV. The corrective actions include reworking of 2 MSIVs and revision of a Maintenance procedure. Since the leakage (the minimum path leak rate - 78.8 SCFH) that would have actually reached the condenser is well below the 300 SCFH analyzed in the dose calculations, there were no safety consequences or compromises to public health and safety as a result of this event.

**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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| FACILITY NAME (1) Unit 2 Susquehanna Steam Electric Station | DOCKET NUMBER (2) 0 5 0 0 0 3 8 8 | LER NUMBER (6) | | | | | | PAGE (3) | | |
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TEXT (if more space is required, use additional NRC Form 366A's) (17)

EVENT DESCRIPTION

At 1730 hours on March 22, 1997, with Unit 2 in Condition 5 (Refueling, 0% power), an evaluation of data from the scheduled Main Steam Line (MSL; EIS Code: SB) penetration Local Leak Rate Testing (LLRT) determined that the "as-found" leakage through both the inboard and outboard Main Steam Isolation Valves (MSIV; EIS Code: BD) was in excess of the limit of Technical Specification 3.6.1.2.c for the MSL containment penetration maximum pathway leakage of 300 standard cubic feet per hour (SCFH). The total "as-found" maximum pathway leakage was in excess of 700 SCFH. However, the total "as-found" minimum pathway leakage was only 78.8 SCFH. The evaluation determined that the MSIV LLRT excess "as-found" maximum pathway leakage was reportable pursuant to 10CFR50.72(b)(2)(i) and 10CFR50.73(a)(2)(ii).

CAUSE OF EVENT

The excess "as-found" maximum pathway leakage was attributed to the combined performance of the MSIVs. The leak rate for both the "C" outboard MSIV and the "B" inboard MSIV were in excess of 100 SCFH (141.5 slm) for each valve. Upon restroking of the "C" outboard MSIV and retesting, the leak rate dropped to approximately 30 SCFH. The cause of the failure of the "C" outboard MSIV was determined to be due to normal wear of the MSIV and rust on the pilot seat. It is theorized that inadequate seating of the "C" outboard MSIV prior to the "as-found" testing was caused by closing the MSIV at low pressure and low steam flow conditions. Therefore, it would seat in an accident. The cause of the failure of the "B" inboard MSIV was determined to be loss of integrity of the bolted connection between the stop plate and poppet. This was caused by the loss of the bolted connection pre-load due to either 1) improper sizing and fit-up between the poppet and stop plate when the valve was last worked (1989), or 2) the use of new parts during the last maintenance introduced a possibility for an embedment condition which allowed the fasteners to lose their pre-load.

REPORTABILITY/ANALYSIS

This event was determined to be reportable under 10CFR50.72(b)(2)(i), as a condition resulting in degraded safety barriers found while the reactor was shutdown, and 10CFR50.73(a)(2)(ii) in that MSL containment penetration leakage through both the inboard and outboard MSIVs was in excess of the total "as-found" maximum pathway leakage Technical Specification limit.



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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

The MSIV leakage was found during scheduled testing with the unit in Condition 5, Refueling. If the MSIVs had been challenged to perform their safety function during unit operation, the MSIVs would have closed. The maximum pathway leak rate through the valves would have been greater than the 300 SCFH Technical Specification criteria. However, the leakage that would have actually reached the condenser (i.e., the minimum pathway leak rate) was 78.8 SCFH. This value is well below the 300 SCFH analyzed for the condenser and in the dose calculations. As such, there were no safety consequences or compromises to public health and safety as a result of this event.

The generic implication of the loose internal parts was investigated. It was determined that of the 15 other MSIVs (total for both units), only the Unit 2 "A" outboard MSIV could be susceptible to this type of failure. The "A" outboard MSIV was inspected. The integrity of the bolted connection was found to be good, and proper fit between the stop plate and poppet was confirmed.

In accordance with the guidelines provided in NUREG-1022, Supplement 1, Item 14.1 and 10CFR50.4, the required submission date for this report was determined to be April 21, 1997.

CORRECTIVE ACTIONS

The "B" inboard MSIV and the "C" outboard MSIV were reworked and the leak rate for each MSIV was restored to less than 11.5 SCFH. The "as-left" maximum pathway leak rate was measured to be 145.2 SCFH. The leak rate for each of the eight MSIVs is less than 100 SCFH. The appropriate maintenance procedures have been revised to measure the adequacy of the fit between the poppet and the stop plate prior to completing valve assembly. Also the torque value for poppet studs was increased. In addition, a review of MSIV trends and rework history will be performed to determine if there is an ability to predict failures of these valves.

ADDITIONAL INFORMATION

The events listed below are for the total minimum pathway leak rates exceeding the MSIV as-found criteria. The Technical Specifications were revised in 1995 for Unit 2 and in 1996 for Unit 1 to change the acceptance criteria to the total maximum pathway leak rates which is the subject of this LER.

Past Similar Events: LER 83-062-00, Docket No. 387/License No. NPF-14
 LER 83-064-00, Docket No. 387/License No. NPF-14
 LER 86-007-00, Docket No. 388/License No. NPF-22
 LER 89-010-01, Docket No. 388/License No. NPF-22

**LICENSEE EVENT REPORT (LER)
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

- LER 90-020-00, Docket No. 387/License No. NPF-14
- LER 92-005-00, Docket No. 387/License No. NPF-14
- LER 95-006-00, Docket No. 387/License No. NPF-14
- LER 95-012-00, Docket No. 388/License No. NPF-22
- LER 96-010-00, Docket No. 387/License No. NPF-14

Failed Component: MSIVs, HV-241F022B and HV-241F028C

Manufacturer: Atwood and Morrill Co., Inc.

Model: 21190-H