CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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FACIL:50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
AUTH.NAME AUTHOR AFFILIATION
CODDINGTON,C.T. Pennsylvania Power & Light Co.
SAUNDERS,R.F. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 99-002-00:on 990325,FW penetration was noted.Caused by wear of valves soft seat.Reworked isolation valves & leakage returned within limits.With 990426 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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April 26, 1999

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
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SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-388/99-002-00
PLA - 0005060 FILE R41-2

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

Attached is Licensee Event Report 50-388/99-002-00. This event was determined to be reportable per 10CFR50.73(a)(2)(ii) in that the leakage through the isolation valves for the 'A' feedwater penetration exceeded the secondary containment bypass leakage acceptance criteria and the as-found 10CFR50, Appendix J acceptance criteria during local leak rate testing. The isolation valves have been reworked and the leakage has been returned to within limits.

RF Saunders

Robert F. Saunders
Vice President – Nuclear Site Operations

Attachment

cc: Mr. H. J. Miller
Regional Administrator
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

cc: Mr. S. L. Hansell
Sr. Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 35
Berwick, PA 18603-0035

IE22

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Susquehanna Steam Electric Station - Unit 2	05000388	1 OF 4

TITLE (4)
Feedwater Penetration

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 NAME	DOCKET NUMBER
										05000
03	25	99	99 --	002 --	00	04	26	99	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9): 5
POWER LEVEL (10): 0

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

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
C. T. Coddington - Senior Engineer, Licensing	610 / 774-4019

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	SJ	ISV	A391	Y					
X	SJ	ISV	A585	Y					

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 15 single-spaced typewritten lines) (16)

On March 25, 1999 at 0130 hours with Unit 2 in Mode 5 (Refueling) at 0 % Power, the leakage through the primary containment isolation valves for the 'A' Feedwater penetration exceeded the secondary containment bypass leakage and the as-found 10CFR50 Appendix J acceptance criteria. During the scheduled Local Leak Rate Test for the Feedwater penetration, both test volumes could not be pressurized. Since the test volumes could not be pressurized, the leakage through these isolation valves was in excess of the analyzed secondary containment bypass leakage criteria and the as-found 10CFR50 Appendix J acceptance criteria. This event was determined to be reportable in accordance with the provisions of 10CFR50.73(a)(2)(ii). The root cause of the leakage of the inboard isolation valve (241F010A) was determined to be wear of the valve's soft seat. In addition to the valve's soft seat wear, the hinge pin was misaligned and contributed to the leakage. The exact root cause of the leakage of the outboard isolation valve (HV-241F032A) could not be determined. The most probable cause of the leakage of this valve is dirt/crud on the valve seat. The isolation valves have been reworked and the leakage returned to within limits. Corrective action to be completed includes for the feedwater penetration inboard isolation valves, re-evaluation of the soft seat life in the preventative maintenance program and other actions as necessary. Since the excessive leakage in the 'A' feedwater penetration was discovered while Unit 2 was in Mode 5 (primary containment isolation not required) and since the isolation valves were not required to perform their safety function, there were no safety consequences or compromises to public health and safety as a result of this event.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

EVENT DESCRIPTION

On March 25, 1999 at 0130 hours with Unit 2 in Mode 5 (Refueling) at 0 % Power, the leakage through the primary containment (EIIS Code: NH) isolation valves for the 'A' Feedwater (EIIS Code: SJ) penetration exceeded the secondary containment bypass leakage and the as-found 10CFR50 Appendix J acceptance criteria. During the scheduled Local Leak Rate Test for the Feedwater penetration, the test volume against the inboard isolation valve (241F010A) could not be pressurized. The leakage was determined to be going past the valve seat. In addition the test volume for the outboard isolation valve (HV241F032A) could not be pressurized. The leakage was determined to be going past the valve seat. Since the test volumes could not be pressurized, the leakage through these isolation valves was in excess of the analyzed secondary containment bypass leakage criteria and the as-found 10CFR50 Appendix J acceptance criteria.

CAUSE OF EVENT

The root cause of the leakage of the inboard isolation valve (241F010A) was determined to be wear of the valve's soft seat. In addition to the valve's soft seat wear, the hinge pin was misaligned and contributed to the leakage. The exact root cause of the leakage of the outboard isolation valve (HV-241F032A) could not be determined. The most probable cause of the leakage of this valve is dirt/crud on the valve seat.

REPORTABILITY/ANALYSIS

During the performance of local leak rate testing, the test volume for the 'A' Feedwater penetration inboard primary containment isolation valve (241F010A), a tilting disc check valve, was unable to maintain the test pressure of 45.5 psig. The leakage was determined to be going through the valve seat.

During performance of local leak rate testing on the 'A' Feedwater outboard priomary containment isolation valve (HV241F032A), a swing check valve with a motor actuator to assist in closing, the test volume could only reach a pressure of 1 psig. By checking the test vents, it was determined that the isolation valve was leaking through the valve seat. The isolation valve was then electrically closed. With the valve electrically closed, the test pressure of 45.5 psig was achieved with approximately 1 slm leakage from the test volume. With the test volume still pressurized, the valve actuator was electrically opened and the leak rate remained at approximately 1 slm. The test volume was then depressurized. Attempts were again made to repressurize the test volume. The test volume again could only reach a pressure of 1 psig.

The inboard isolation valve (241F010A) was reworked. A visual inspection of the old soft seat showed a flattened worn away or eroded area on the soft seat from around the 10:00 to around the 2:00 positions on the soft seat. The visual inspection also identified two scratches in the soft seat at around the 3:30 position on the soft seat. Markings on the valve seat ring indicated that the disc had sagged on one hinge pin. This was supported by the dimension checks on the hinge pins that showed that there was greater play in the dimensions for one hinge pin. The soft seat and both hinge pins were replaced. The soft seat was previously replaced in September 1995. The feedwater inboard isolation valves have a 4-year preventative maintenance activity to replace the soft seat.

The outboard isolation valve (HV241F032A) was reworked. The disc and seat interface was inspected upon disassembly. There was good fit-up between the disc and seat. The soft seat was inspected after it was removed from the disc. The soft seat was pliable, it retained its original shape, and there were no abrasions, cuts, or nicks in it. When the valve was disassembled, dirt/crud was found in the valve. The soft seat had been previously replaced in July 1996. The feedwater outboard isolation valves have a 4-year preventative maintenance activity to replace the soft seat.

During the Unit 2 Ninth Refueling Outage, the 241818 valve in each feedwater penetration was modified to be a soft seated simple check valve. This valve is located between the 241F010 and HV-241F032 valves in the feedwater penetration. This valve is now considered to be a containment isolation valve in each feedwater penetration in addition to the 241F010 and HV-241F032 valves. When Unit 2 returns to service, the feedwater line will have three (3) containment isolation valves. To have a complete failure of the feedwater penetration in the future, 3 valves would have to fail leak rate testing.

This event was determined to be reportable in accordance with 10CFR50.73(a)(2)(ii), as a condition resulting in degraded barriers found while the reactor was shutdown.

Since the excessive leakage in the 'A' feedwater penetration was discovered while Unit 2 was in Mode 5 (primary containment isolation not required) and since the isolation valves were not required to perform their safety function, there were no safety consequences or compromises to public health and safety as a result of this event. Had these isolation valves been called upon to isolate during a design basis event, there could have been significant leakage through the valves. For events that do not have any fuel failure or cladding damage associated with them, such as feedwater line break inside containment or a primary containment isolation, the offsite or control room doses as analyzed for the unit would not have been exceeded. For events where there is fuel failure or cladding damage, such as a recirculation line break, the offsite and control room doses that were analyzed for the unit could have been exceeded.

In accordance with the guidelines provided in NUREG-1022, Revision 1 Section 5.1.1, the required submission date for this report was determined to be April 26, 1999.

CORRECTIVE ACTIONS

Corrective actions that have been completed are the rework and testing of the 241F010A and HV-241F032A isolation valves to return their leakage to within acceptable limits.

Corrective action that is to be completed:

- Re-evaluation of the soft seat life in the preventative maintenance program for the feedwater penetration inboard isolation valves and other actions as necessary.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

ADDITIONAL INFORMATION

Past Similar Events: None

Failed Component: 241F010A and HV-241F032A

Manufacturer: 241F010A - Anchor Darling

HV-241F032A - Atwood & Merrill