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MAY 08 2000

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/00-006-00
PLA - 5197 FILE R41-2

Docket No. 50-387
License No. NPF-14

Attached is Licensee Event Report 50-387/00-006-00. This report is being made pursuant to 10.CFR50.73(a)(2)(i)(B) in that is was discovered that the requirements for leak rate testing of Technical Specification 3.6.1.1 had not been adequately performed on certain spectacle flanges in Susquehanna SES Units 1 and 2. The testing of Unit 1 spectacle flanges was successfully completed. Enforcement discretion to allow continued power operation of Unit 2 was requested by PPL on April 8, 2000 and granted in writing by the NRC on April 11, 2000. Testing of the Unit 2 spectacle flanges will be completed during the Unit 2 10th Refueling Outage in the spring of 2001, or the next entry into Mode 4, if that precedes the refueling outage.

Bryce L. Shriver
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

APPROVED BY OMB NO. 3150-0104
EXPIRES 06/30/2001

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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 1	05000387	1 OF 4

TITLE (4)
Invalid Local Leak Rate Tests For Testable Spectacle Flanges

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
									Susquehanna SES – Unit 2	05000388
04	07	00	00	-- 006 --	00	05	08	00	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)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		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)
Gerard M. Machalick – Senior Engineer, Licensing	570 / 542-3861

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

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 April 7, 2000 with Unit 1 in Mode 5 (Refueling) and Unit 2 in Mode 1 (Power Operation) at 100% power, maintenance and engineering personnel (utility; non-licensed) determined that Local Leak Rate Tests (LLRT) performed on Unit 1 and 2 Residual Heat Removal system (EIIS Code: BO) testable spectacle flanges may not be valid due to the presence of an additional o-ring on each flange face that is not per design. The configuration of Unit 1 flanges was corrected and required testing was satisfactorily performed. It was concluded that Unit 2 was not in compliance with Technical Specification Surveillance Requirement 3.6.1.1.1, and a Request for Enforcement Discretion was submitted to the NRC and approved on April 8, 2000. The cause of the event is inadequate technical detail to maintain design configuration in the work plan. Corrective actions include correction of the flange reassembly work plans and enhancements to the work planning technical review process. This event is reportable per 10CFR50.73(a)(2)(i)(B), operation or condition prohibited by the plant's Technical Specifications, based on the failure to adequately perform Surveillance Requirement 3.6.1.1.1. The safety significance of this event is low because the presence of the third o-ring does not affect the pressure-retaining capability of the flange, actual leakage is significantly less than maximum allowed leakage, and any leakage through the seals would be treated prior to its release to the environment. The health and safety of the public was not compromised.

EVENT DESCRIPTION

On April 7, 2000 with Unit 1 in Mode 5 (Refueling) and Unit 2 in Mode 1 (Power Operation) at 100% power, it was determined through observation and document review that Local Leak Rate Test (LLRT) results may not have been valid for two Unit 1 and two Unit 2 Residual Heat Removal (RHR; EIIS Code: BO) system spectacle flanges due to the presence of an additional o-ring on each flange face that is not per design.

The spectacle flanges are installed to provide a barrier to test against when performing the LLRT on containment isolation valves. Each flange face has three grooves. The design of the flanges is to have two o-rings installed per flange face; one in the inner groove and one in the outer groove. The purpose of the middle groove is to have a place to test the inner and outer o-rings and to tie together the flanges on either side of the spectacle.

On April 6, 2000 during the Unit 1 11th Refueling Outage, mechanics rotated one of the Unit 1 RHR spectacle flanges in support of LLRT activities. The mechanics installed three o-rings per flange face in accordance with the work plan. During work document closeout, a mechanic questioned the use of three o-rings, especially the middle groove o-ring, since this appeared to be the pathway for test air. Upon evaluation by his supervision and engineers involved with the LLRT program, it was determined that the middle o-ring was not to be installed.

Based on document review, it was identified that three o-rings were installed on each side of the two Unit 1 and two Unit 2 flanges. LLRTs had been performed after the spectacles were rotated to the open position with the third o-ring in place. However, with an o-ring in the middle groove, it cannot be demonstrated positively that the containment boundary (i.e. the o-rings) has been adequately tested. The configuration of the Unit 1 flanges was corrected and testing was satisfactorily performed. Testing of the Unit 2 flanges requires a unit shutdown. A Request for Enforcement Discretion for Unit 2 from the requirements of Technical Specification Surveillance Requirement 3.6.1.1.1 was submitted to the NRC and was granted verbally on April 8, 2000 and in writing on April 11, 2000.

CAUSE OF EVENT

The cause of the event is that adequate technical detail to maintain design configuration was not provided in the work plan for reassembling the spectacle flanges. Specifically:

- The work plan had inadequate technical review, based on the assumption that previously established work plans were technically correct.
- The work plan did not include any design configuration information or drawings that would indicate only two o-rings were required; the information management system did not provide a reference to design drawings from the component identification.

REPORTABILITY/ANALYSIS

Surveillance Requirement 3.6.1.1.1 requires the following: "Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with the Primary

Containment Leakage Rate Testing Program." The PPL Primary Containment Leakage Rate Testing Program is defined in PPL Nuclear Department procedure NDAP-QA-0412, "Leakage Rate Test Program". Attachment B of the procedure identifies the subject spectacle flanges. Several historical instances were found where the above tests were performed on Unit 1 and 2 flanges with a third o-ring installed. The additional o-ring may block the LLRT test port connection such that the pressure retaining ability of the inner and outer o-rings is not tested. The test frequency for the flanges is driven by the need to rotate the spectacle flange for other testing. This event is reportable per 10CFR50.73(a)(2)(i)(B), operation or condition prohibited by the plant's Technical Specifications.

The existence of the third o-ring per face in the two RHR spectacle flanges does not affect the pressure retaining ability of the pipe flange to spectacle flange interface. The spectacle flange is a static device that uses o-rings for sealing. The groove this third o-ring occupies is machined to the same dimensions as those grooves intended to house o-rings for sealing. The o-ring installed in the center groove is also of the same material and width as those intended for sealing. Testing performed on Unit 1 spectacle flanges showed no substantial difference in leakage rate between the 2 o-ring and the 3 o-ring configuration. The isolation capability of the flanges with three o-rings is at least as good as the double o-ring configuration. Therefore, the present condition does not degrade safety.

There is substantial margin between the actual containment leakage and the maximum allowed leakage. The current type B and C containment minimum pathway leakage 0.2 L_a for Unit 1 and 0.05 L_a for Unit 2, a small fraction of the limit of 0.6 L_a. The leakage through these penetrations, caused by the presence of the third o-ring, would have to be at least two times greater than the sum of all other penetrations for this issue to represent a significant safety issue. Such a leakage rate is not considered credible for a passive o-ring seal.

Any leakage through the o-ring seals would be directly into the Reactor Building, which is part of secondary containment, and would be filtered by the Standby Gas Treatment System (SGTS; EIIS Code: BH). Any additional leakage, beyond that measured during the associated LLRT, is not expected to result in total primary containment leakage rate that is greater than the design capacity of SGTS. Thus, any leakage through these seals would be treated prior to its release to the environment.

Given the layers of defense in depth discussed above, the safety significance of this event is low, and the health and safety of the public is not compromised.

In accordance with the guidelines provided in NUREG-1022, Revision 1, the required submission date for this report is May 8, 2000.

CORRECTIVE ACTIONS

Corrective actions that have been completed are:

- The configuration of Unit 1 RHR spectacle flanges was corrected and required testing was satisfactorily performed.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
	05000	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Susquehanna Steam Electric Station - Unit 1	387	00	-- 006 --	00	4 OF 4

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

- Enforcement Discretion for Unit 2 was requested from the NRC and granted verbally on April 8, 2000 and in writing on April 11, 2000.
- Proposed Amendment No. 195 to License No. NPF-22 was submitted on April 10, 2000, in support of the Enforcement Discretion.
- Design document relationships have been strengthened in the plant's information management system to clearly define the design requirements of the spectacle flanges.

Corrective actions to be completed are:

- Work plan library for reassembly of the subject spectacle flanges will be corrected to be consistent with design requirements.
- The configuration of Unit 2 spectacle flanges will be corrected and testing will be performed during the Unit 2 10th Refueling Outage in the spring of 2001, or the next entry into Mode 4, if that precedes the refueling outage.
- Maintenance planning procedures will be revised to clarify work package technical review expectations and requirements.
- A process will be established to incorporate an independent management review of all existing work plans in the work plan library prior to use.

ADDITIONAL INFORMATION

Past Similar Events: None

Failed Component: None