

Bryce L. Shriver
Vice President – Nuclear Site Operations

PPL Susquehanna, LLC
P.O. Box 467, Berwick, PA 18603
Tel. 570.542.3120 Fax 570.542.1477
blshriver@pplweb.com



May 3, 2002

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/2002-003-00
PLA - 5475 FILE R41-2

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

Attached is Licensee Event Report 50-387/2002-003-00. This event was determined to be reportable per 10CFR50.73(a)(2)(i)(B), in that Unit 1 was in a condition prohibited by the Technical Specifications when required actions for inoperable Anticipated Transient Without Scram Recirculation Pump Trip Instrumentation may not have been completed within the specified completion times. The condition was subsequently recognized and corrected. There was not a loss of safety function associated with the event, and there were no actual adverse consequences to the health and safety of the public.

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

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjr1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

Susquehanna Steam Electric Station - Unit 1

2. DOCKET NUMBER

05000387

3. PAGE

1 OF 4

4. TITLE

Operations Prohibited By Technical Specifications Due To Inoperable ATWS Recirc Pump Trip Breaker

5. EVENT DATE

6. LER NUMBER

7. REPORT DATE

8. OTHER FACILITIES INVOLVED

MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	04	2002	2002	003	00	05	03	2002	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)
4	20.2201(b) 20.2203(a)(3)(ii) 50.73(a)(2)(ii)(B) 50.73(a)(2)(ix)(A)
10. POWER LEVEL	20.2201(d) 20.2203(a)(4) 50.73(a)(2)(iii) 50.73(a)(2)(x)
0	20.2203(a)(1) 50.36(c)(1)(i)(A) 50.73(a)(2)(iv)(A) 73.71(a)(4)
	20.2203(a)(2)(i) 50.36(c)(1)(ii)(A) 50.73(a)(2)(v)(A) 73.71(a)(5)
	20.2203(a)(2)(ii) 50.36(c)(2) 50.73(a)(2)(v)(B) OTHER
	20.2203(a)(2)(iii) 50.46(a)(3)(ii) 50.73(a)(2)(v)(C) Specify in Abstract below or in
	20.2203(a)(2)(iv) 50.73(a)(2)(i)(A) 50.73(a)(2)(v)(D) NRC Form 366A
	20.2203(a)(2)(v) X 50.73(a)(2)(i)(B) 50.73(a)(2)(vii)
	20.2203(a)(2)(vi) 50.73(a)(2)(i)(C) 50.73(a)(2)(viii)(A)
	20.2203(a)(3)(i) 50.73(a)(2)(ii)(A) 50.73(a)(2)(viii)(B)

12. LICENSEE CONTACT FOR THIS LER

NAME

Joseph J. Meter - Nuclear Regulatory Affairs

TELEPHONE NUMBER (Include Area Code)

570 / 542-1873

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

CAUSE	SYSTEM	COMPONENT	MANU- FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU- FACTURER	REPORTABLE TO EPIX
X	EB	CNTR	W123	Y					

14. SUPPLEMENTAL REPORT EXPECTED

15. EXPECTED
SUBMISSION
DATE

MONTH DAY YEAR

YES (If yes, complete EXPECTED SUBMISSION DATE).

X

NO

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On March 4, 2002 at 01:20 with Unit 1 in Mode 4 at 0% power, an Instrumentation and Control Technician performing a 24 month logic system functional test observed that an Anticipated Transient Without Scram (ATWS) Recirculation Pump Trip (RPT) 4.16 kV breaker did not trip as required. The Truck Operated Cell (TOC) switch contact in the rear of the associated 4.16 kV switchgear cubicle had failed to make-up properly. The TOC had excessive drive shaft and gear rotary motion, which allowed the TOC to over-travel when the breaker was "racked-in". The breaker was "racked-out" and returned to the "racked-in" position. The contact was checked for proper continuity and the logic system functional test was then completed successfully. The TOC was subsequently replaced with a design that is less susceptible to over-travel. An investigation showed that the contacts are not visible (i.e. "blind") when the breaker is in the "racked-in" position and there is no specific written guidance on how to verify that the contact is properly made-up. All other ATWS-RPT breakers were checked for proper contact make-up and found satisfactory. All other 4.16 kV breaker cubicles that have "blind" TOC contacts will be identified and it will be determined where verification of contact alignment is necessary. Written guidance and training for monitoring the necessary "blind" TOC contact make-up after a breaker is "racked-in" will be established. The condition may have existed since the last time the breaker had been racked-in during the previous Unit 1 refueling and inspection outage in the Spring of 2000. This event is reportable as a condition prohibited by Technical Specification 3.3.4.2 per 10CFR50.73(a)(2)(i)(B). There was not a loss of safety function associated with the event. There were no actual adverse consequences to the health and safety of the public as a result of this event.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Susquehanna Steam Electric Station - Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		2002	-- 003	-- 00	

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

EVENT DESCRIPTION

On March 4, 2002 at 01:20 with Unit 1 in Mode 4 at 0% power for a refueling and inspection outage, an Instrumentation and Control Technician (non-licensed, utility) performing a 24 month logic system functional test observed that Anticipated Transient Without Scram (ATWS) Recirculation Pump Trip (RPT) 4.16 kV breaker 1A20502 (EIS Code: EB) did not trip as required. Investigation by Electrical Maintenance personnel (non-licensed, utility) identified that the Truck Operated Cell (TOC) switch contact 52-H2 in the rear of the associated 4.16 kV switchgear cubicle had failed to make-up properly. The TOC had excessive drive shaft and gear rotary motion, which allowed the TOC to over-travel when the breaker was "racked-in". This condition resulted in less than adequate contact 52-H2 make-up to trip the breaker on an ATWS - RPT instrumentation signal. The condition only affected the 52-H2 contact. Electrical Maintenance personnel "racked-out" breaker 1A20502 and returned it to the "racked-in" position. Contact 52-H2 was checked for proper continuity and the logic system functional test was then completed successfully. The TOC was then subsequently replaced with a design less susceptible to over-travel.

An investigation of the as-found condition by Engineering personnel (non-licensed, utility) determined that the degraded condition of contact 52-H2 had only affected the breaker's ability to trip on an ATWS-RPT instrumentation input signal. All other required functions of 1A20502 would have performed as designed. The condition of contact 52-H2 may have existed since the last time the breaker had been "racked-in" during the previous Unit 1 refueling and inspection outage in the Spring of 2000. Unit 1 Technical Specification (TS) Basis for the ATWS - RPT Instrumentation (EIS Code: JD) requires that instrument channels associated with a breaker that is incapable of operating be declared inoperable. The 'B' and 'D' ATWS-RPT instrumentation channels (Division 2 trip system) are associated with breaker 1A20502 and therefore should have been declared inoperable since the Spring of 2000. With the Division 2 trip system of ATWS-RPT inoperable and the Unit in Mode 1, Unit 1 Technical Specification (TS) 3.3.4.2 required actions were not completed since the condition of the TOC was not known.

CAUSE OF EVENT

The failure of breaker 1A20502 to trip on an ATWS-RPT instrumentation input signal was attributed to inadequate make-up of TOC switch contact 52-H2 in the rear of the associated 4.16 kV switchgear cubicle. The TOC had excessive drive shaft and gear rotary motion, which allowed the TOC to over-travel when the breaker was "racked-in". This condition resulted in less than adequate contact 52-H2 make-up, and the inability to trip the breaker on an ATWS - RPT instrumentation signal.

An investigation of the event showed that contact 52-H2 is not visible (blind) when the breaker is in the "racked-in" position and there is no lamp indication to verify correct contact alignment. Additionally, there is no specific written guidance concerning verification of contact 52-H2 position.

ANALYSIS / SAFETY SIGNIFICANCE

This event is reportable as a condition prohibited by the Technical Specifications per 10CFR50.73(a)(2)(i)(B) in that Unit 1 was in a condition prohibited by the Technical Specification 3.3.4.2.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Susquehanna Steam Electric Station - Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		2002	-- 003	-- 00	

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

Specifically, the Division 2 trip system for the ATWS-RPT instrumentation was apparently inoperable for approximately two years while Unit 1 was in Mode 1. This time period exceeded that allowable by the Technical Specifications. However, due to redundancy in the design, both Reactor Recirculation Pumps would have tripped as required during an actual ATWS event. There are two ATWS-RPT breakers in series provided for each of the two Reactor Recirculation Pumps. A trip of either breaker in the series will trip the associated Reactor Recirculation Pump. The Division 1 trip system trips one of the two breakers for each Reactor Recirculation Pump and Division 2 trips the other breaker for each Reactor Recirculation Pump. Redundancy and diversity were reduced, but the ability to perform the safety function remained.

In addition, the degraded condition of contact 52-H2 had only affected the breaker's ability to trip on an ATWS-RPT instrumentation input signal. All other required functions of 1A20502 would have performed as designed. This event did not constitute a loss of safety function. There were no actual adverse consequences to the health and safety of the public as a result of this event.

In accordance with guidance in NUREG-1022, Revision 2, the due date for this report is May 3, 2002.

CORRECTIVE ACTIONS

Corrective actions that have been completed:

- The TOC switch associated with 4.16 kV breaker 1A20502 was replaced with a design less susceptible to over-travel and subsequently tested satisfactorily.
- All other Unit 1 and Unit 2 52-H2 contacts on ATWS-RPT breakers were checked for proper contact make-up and found satisfactory.

Corrective actions to be completed:

- Identify other 4.16 kV breaker cubicles that have "blind" TOC contacts and determine where verification of contact alignment is necessary.
- Establish and implement written guidance for monitoring the necessary "blind" TOC contact make-up after a breaker is "racked-in".
- Establish training for monitoring the necessary "blind" TOC contact make-up for Operations and Maintenance personnel involved with 4.16 kV breaker manipulations.
- Station personnel are still evaluating additional corrective actions. An update to this report will be made if additional corrective actions are specified.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Susquehanna Steam Electric Station - Unit 1	05000387	2002	-- 003 --	00	4 OF 4

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

ADDITIONAL INFORMATION

Past Similar Events: None

Failed Component: 4.16 kV Breaker 1A20502 TOC

Manufacturer: Westinghouse

Model: 50DHP250