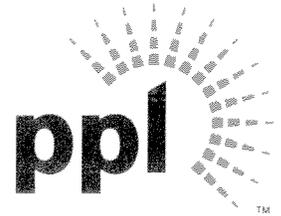


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JUL 15 2010

U. S. Nuclear Regulatory Commission
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Mail Stop OP1-17
Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION
UNIT 1 OPERATING LICENSE NPF-14
LICENSE CONDITIONS 2.C.(37) (a) and 2.C.(37) (b)
UNIT 2 OPERATING LICENSE NPF-22
LICENSE CONDITIONS 2.C.(21) (a) and 2.C.(21) (b)
PLA-6629**

**Docket Nos. 50-387
and 50-388**

- References: 1.) PLA-6451, W. H. Spence (PPL) to Document Control Desk (USNRC),
"Unit 1 Operating License No. NPF-14 License Conditions 2.C. (37) (a) and
2.C. (37) (b) and Unit 2 Operating License No. NPF-22 License Conditions 2.C. (21) (a)
and 2.C. (21) (b)," dated November 18, 2008.*
- 2.) PLA-6481, W. H. Spence (PPL) to Document Control Desk (USNRC),
"Unit 1 Operating License No. NPF-14 License Conditions 2.C. (37) (a) and
2.C. (37) (b) and Unit 2 Operating License No. NPF-22 License Conditions 2.C. (21) (a)
and 2.C. (21) (b) Supplement to PLA-6451 Re: Response to RAI's," dated April 13, 2009.*
- 3.) Letter, B. K. Vaidya (NRC) to T. S. Rausch (PPL), "Susquehanna Steam Electric Station,
Units 1 and 2 - Re: Condensate Pump Trip Test License Condition for Susquehanna
Steam Electric Station Unit Nos. 1 and 2 (TAC Nos. ME0233 and ME0224),"
dated September 8, 2009.*

The purpose of this letter is to provide information related to the condensate pump trip test performed on Susquehanna Steam Electric Station (SSES) Unit 1 on May 28, 2010.

In Reference 1, PPL requested to not perform the condensate pump trip test, as specified by license conditions 2.C.(37)(b) and 2.C.(21)(b) for SSES Units 1 and 2 respectively, at the full Extended Power Uprate (EPU) power level (3952 MWt) . The NRC staff determined (in Reference 3) that PPL's request to not perform the condensate pump trip test on either Susquehanna unit (between 3872 MWt and 3952 MWt), was acceptable provided an additional condensate pump trip test, to be performed in spring 2010, satisfied the acceptance criteria for the test.

The test described below is the additional condensate pump trip test (identified in Reference 3) that was performed in spring 2010 following completion of all condensate and feedwater system modifications in support of power uprate.

The test was initiated from a core power of 3721 MWt (94.2%) with the Unit 1 "A" condensate pump tripped to start the test. Tripping this condensate pump initiated a reactor recirculation runback as designed. The condensate pump trip caused a drop in feedwater flow, which caused the initial reactor water level to decrease. Reactor water level decreased approximately 1 inch to a minimum indicated level of 34 inches. Reactor Feedwater Pump (RFP) suction pressure decreased from an initial pressure of 416 psig to a minimum of 308 psig due to the loss of the condensate pump and the subsequent increase in feedwater demand. The increased feedwater demand caused the RFP speed to increase to a maximum of 5142 rpm. The RFP suction pressure recovered as feedwater demand began to decrease. Feedwater demand decreased as core power decreased because of the initiation of the recirculation runback. Core power reached a final steady state value of 2705 MWt (68.4%).

Please note the following regarding the May 28, 2010 Unit 1 Condensate Pump Trip Test:

- One Unit 1 condensate demineralizer was not in service for the test, which is contrary to PPL's response to NRC RAI-1 provided in Reference 2. This is a conservative test condition because the operation of this equipment would have resulted in additional suction pressure margin.
- The May 28 Unit 1 Condensate Pump Trip test was performed in response to the results of an earlier test on May 14, 2010. During the May 14 test, Unit 1 automatically shutdown due to a high reactor water level signal. The high reactor water level was caused by excessive feedwater flow to the reactor vessel due to the new Integrated Control System (ICS) settings. Otherwise, the results of the May 14 test met the acceptance criteria for recirculation runback and feedwater pump suction margin.

The purpose of the test was to demonstrate that a single condensate pump trip will not result in a loss of all feedwater. All condensate pump trip test acceptance criteria were met for feedwater pump operation, recirculation pump runback, and feedwater pump suction pressure margin, as documented in the Attachment to this letter. Accordingly, Unit 1 License Conditions 2.C.(37) (a) and 2.C.(37) (b) have been met.

In Reference 3, the NRC staff determined that PPL's request to not perform a condensate pump trip test on either Susquehanna unit (between 3872 MWt and 3952 MWt) was acceptable provided the test performed in spring 2010 satisfied the acceptance criteria for the test. Further, since there is no requirement in Reference 3 to perform another condensate pump trip test on Unit 2 at 94.4% power, PPL concludes that the SSES Unit 2 license conditions 2.C.(21)(a) and 2.C.(21)(b) have also been met based on successful completion of the Unit 1 test.

Any questions regarding this letter should be directed to Mr. Duane L. Filchner at (610) 774-7819.

A handwritten signature in cursive script that reads "Richard D. Pagolin for T.S. Rausch".

T. S. Rausch

Attachment: Unit 1 Condensate Pump Trip Acceptance Criteria and Results,
May 28, 2010.

Copy: NRC Region I
Mr. P. W. Finney, NRC Sr. Resident Inspector
Mr. B. K. Vaidya, NRC Project Manager
Mr. R. R. Janati, DEP/BRP

Attachment to PLA-6629

**Unit 1 Condensate Pump Trip
Acceptance Criteria and Results
May 28, 2010**

Unit 1 Condensate Pump Trip Test from 3721 MWt May 28, 2010

Condensate Pump Trip Acceptance Criteria

Level 1 Criteria - The trip of one condensate pump shall not cause the trip of all three feedwater pumps.

Level 2 Criteria:

- (a) The trip of one condensate pump shall not cause the trip of more than one feedwater pump.
- (b) A recirculation runback shall occur upon the trip of a condensate pump.
- (c) For the 3733 MWt test only, the margin to the RFP suction pressure trip setpoint shall not be less than 10 psi.

Results - All Test Acceptance Criteria were Met

Level 1 Criteria – No feedwater pumps tripped.

Level 2 Criteria:

- (a) No feedwater pumps tripped.
- (b) A recirculation runback did occur.
- (c) Margin to RFP suction pressure trip: $(308 \text{ psig} - 288 \text{ psig}) = 20 \text{ psi}$, or 10 psi above the Level 2 acceptance criteria.