



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

June 25, 2014
NOC-AE-14003151
10 CFR 50.73

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

South Texas Project
Unit 1
Docket No. STN 50-498
Cancellation of Licensee Event Report (LER) 2014-001-00 and Supplement LER 2014-001-01:
Overpower Condition Relating to the Ultrasonic Flow Measurement System

- Reference: 1) Letter from G.T. Powell, STPNOC, to NRC Document Control Desk, "Licensee Event Report LER 2014-001-00, LER 2014-001-00: South Texas Project (STP) Unit 1 Overpower Condition Relating to the Ultrasonic Flow Measurement System," dated March 24, 2014 (NOC-AE-14003113) (ML14119A068)
- 2) Letter from G.T. Powell, STPNOC, to NRC Document Control Desk, "Licensee Event Report LER 2014-001-01: Overpower Condition Relating to the Ultrasonic Flow Measurement System," dated April 30, 2014 (NOC-AE-14003128) (ML14135A190)

The purpose of the letter is to formally notify the Nuclear Regulatory Commission of the cancellation of STP Nuclear Operating Company (STPNOC) Licensee Event Report (LER) 2014-001-00, "South Texas Project (STP) Unit 1 Overpower Condition Relating to the Ultrasonic Flow Measurement System," and related supplement LER 2014-001-01, Reference 1 and 2 respectively.

On March 24, 2014, STPNOC submitted LER 2014-001-00 pursuant to 10 CFR 50.73(a)(2)(i)(B), as a Condition prohibited by Technical Specifications. This LER documented an apparent overpower event that occurred in STP Unit 1 as a result of inside diameter changes in feedwater piping related to possible pipe wall erosion which affected the Ultrasonic Flow Measurement System. The feedwater inside diameter is a direct input into the Ultrasonic Flow Measurement System software "CROSSFLOW".

Subsequent to the submittal of the LER, two independent evaluations were performed using two different approaches based on plant data using detailed plant modeling. STPNOC has reviewed and accepted the conclusions of these reports (Case Study 1 and Case Study 2). The evaluations determined that both STP Unit 1 and Unit 2 were operating below the Technical Specification allowable operating limits. No Technical Specifications violations occurred related to this event.

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Case Study 1

This study states that the pipe wall erosion occurred gradually over a period of time, it considered the effects of relevant plant changes within the study period, and used several data analysis methods to evaluate the condition (i.e. electrical production, indirect thermal power changes, and key plant parameters of flow through the turbine cycle).

The study concluded that the error in the flow measurement caused by the erosion was compensated for by other likely flow phenomena, resulting in a change in the flow velocity profile due to a change in the turbulent flow hydraulic characteristics affected by pipe roughness.

The study further concluded that prior to correcting the input parameter for the internal diameter of the feedwater pipe for STP Unit 1, the Ultrasonic Flow Measurement System software CROSSFLOW was within its rated accuracy and STP Unit 1 operated within thermal power limits. The study quantified that the current actual power level (subsequent to correcting the input parameter for internal feedwater pipe diameter) is approximately 1% conservative and below the licensed core thermal power operating limit.

Case Study 2

This second study used EnergiTools thermal performance software to determine if the Ultrasonic Flow Measurement System was performing to the rated accuracy. The accuracy of the EnergiTools Data Qualification method for this study is $\pm 0.5\%$ or better, with a 95% confidence level.

The study concluded that prior to correcting the input parameter for the internal diameter of the feedwater pipe, the Ultrasonic Flow Measurement System was within its rated accuracy and STP Unit 1 operated within thermal power limits.. Subsequent to this event, the Ultrasonic Flow Measurement software CROSSFLOW has been corrected to include the change in the inside feedwater pipe diameter. Following implementation of this change, the EnergiTools Data Qualification results indicate that the current Ultrasonic Flow Measurement System measurements have shifted in a conservative direction by 1.3%.

Conclusion

The as-found data reported in LER 2014-001-00 and related supplement LER 2014-001-01 resulted in the initial conclusion that Unit 1 was overpowered by approximately 1.8%. The subsequent studies described above provide reasonable assurance that STP Unit 1 did not exceed the Trip Setpoint Total Allowable value for the Power Range Nuclear Instruments (PRNI) High Trip specified in the Technical Specifications. The results of the studies indicate that the total power calorimetric uncertainty with CROSSFLOW in-service remained within the STP instrument uncertainty of 0.6%. Based on this new information, the initial reportable condition pursuant to 10 CFR 50.73(a)(2)(i)(B), as a Condition prohibited by Technical Specifications is being retracted.

This event did not have an adverse effect on the health and safety of the public.

There are no commitments in this letter. Corrective actions will be implemented in accordance with the STP Corrective Action Program.

If there are any questions, please contact Rafael Gonzales at (361) 972-4779, or me at (361) 972-7566.

A handwritten signature in black ink, appearing to read "G. T. Powell". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

G. T. Powell
Site Vice President

RJG

cc:
(paper copy)

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