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

January 18, 2011
NOC-AE-10002631
File No.: G25
10 CFR 50.73
STI: 32813082

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

South Texas Project
Unit 2
Docket No. STN 50-499
Licensee Event Report 2-2010-006
Technical Specifications Not Met for Reactor Coolant System Unidentified Leakage

Pursuant to 10 CFR 50.73, STP Nuclear Operating Company (STPNOC) submits the attached Unit 2 Licensee Event Report (LER) 2-2010-006 to address the non-compliance with Technical Specifications associated with unidentified leakage that occurred between November 5 and November 10, 2010.

This condition is considered reportable under 10 CFR 50.73(a)(2)(i)(B), any operation or condition which was prohibited by the plant's Technical Specifications. This event did not have an adverse effect on the health and safety of the public. There are no commitments contained in this LER.

If there are any questions on this submittal, please contact either J. L. Paul at (361) 972-7344 or me at (361) 972-7158.

M. A. SCHAEFER FOR L. PETER

L. W. Peter
Plant General Manager

JLP

Attachment: LER 2-2010-006: Technical Specifications Not Met For Reactor Coolant System Unidentified Leakage

IE22
NRR

cc:
(paper copy)

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NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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 an 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.

LICENSEE EVENT REPORT (LER)

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

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4. TITLE

Technical Specifications Not Met For Reactor Coolant System Unidentified Leakage

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
11	10	2010	2010	- 006 -	0	01	18	2011	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE

3

10. POWER LEVEL

0%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Jamie Paul, Licensing Engineer	361-972-7344

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

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

At 0910 on November 10, 2010, while Unit 2 was in Mode 3, the operating crew identified an unexpected lowering of Volume Control Tank (VCT) level and an increased frequency of makeup. Unit 2 entered Action b of TS 3.4.6.2, Reactor Coolant System Operational Leakage, for unidentified leakage greater than one gallon per minute. Action b requires that the leakage be reduced to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. At 1052 RCS unidentified leak rate was measured at 1.955 gpm. Leakage was discovered through the Reactor Coolant Filter 2B vent valve. The filter was removed from service at 1531. TS 3.4.6.2 Action b was exited at 1728.

Engineering review determined that the leak rate through the 2B Reactor Coolant (RC) Filter vent valve had exceeded 1.0 gpm since November 5, 2010 when the filter was replaced with Unit 2 in Mode 5. The leakage was not isolated until November 10, 2010 at 1531 hours, which exceeded the time permitted by TS 3.4.6.2 to be in cold shutdown if the leakage could not be reduced within limits. Additionally, the plant heatup to Modes 4 and 3 was made with the limiting condition of operability not met, a condition prohibited by Technical Specification 3.0.4. The root cause was determined to be a lack procedural guidance. The applicable procedure is being revised to ensure monitoring for indications of excessive leakage prior to entry into Mode 4.

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

I. DESCRIPTION OF EVENT

A. REPORTABLE EVENT CLASSIFICATION

This condition is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as a condition which was prohibited by the plant's Technical Specifications.

B. PLANT OPERATING CONDITIONS PRIOR TO EVENT

South Texas Project (STP) Unit 2 was in Mode 3.

C. STATUS OF STRUCTURES, SYSTEMS, AND COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

No other structures, systems, or components were inoperable at the start of the event that contributed to the event.

D. NARRATIVE SUMMARY OF THE EVENT

On November 10, 2010, Unit 2 was in Mode 3 at NOP/NOT preparing to ascend to Mode 2 as part of startup from an outage due to a reactor trip. The operating crew identified a downward trend in the Volume Control Tank (VCT) level as well as a needed increase in makeup frequency that could not be explained. At 0910 on November 10, 2010, Unit 2 entered Action b of TS 3.4.6.2, Reactor Coolant System Operational Leakage, for unidentified leakage greater than one gallon per minute. This was a conservative decision because the actual leak rate was not known at this time.

A reactor coolant water inventory balance determined that the Unidentified Leakage Rate was approximately 2 gpm, exceeding the 1.0 gpm unidentified leakage limit of Technical Specification 3.4.6.2. Investigation into the source of the leakage determined it to be leak-by from the 2B RC Filter Vent Valve. At 1531 hours, 2B RC Filter was removed from service and leakage from the associated vent valve was stopped

Action b requires that the leakage be reduced to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The unit was already in Mode 3, HOT STANDBY. Consequently, COLD SHUTDOWN was required within the following 34 hours of the time of discovery.

Engineering reviewed plant computer trends, as well as Equipment Clearance Order (ECO) and Control Room logs, to determine if firm evidence existed which would indicate when the unidentified leakage rate began exceeding the 1.0 gpm TS limit. Based on this review, engineering determined that the leak rate through the 2B RC Filter vent valve was above the 1.0

gpm limit since approximately 1225 on November 5, 2010 when the ECO was released following replacement of the 2B RC Filter. At this time, Unit 2 was in Mode 5, and the provisions of TS 3.4.6.2 did not apply.

With the unidentified leak rate greater than TS limit although not noted at the time, Unit 2 entered Mode 4 on November 8 at 2348 hours. Unit 2 subsequently entered Mode 3 on November 9 at 0253. The unidentified leakage was not isolated until November 10 at 1531 hours, which is a total of 39 hours 43 minutes. This exceeded the 34 hours permitted by TS 3.4.6.2 to be in cold shutdown if the leakage could not be reduced within limits. Additionally, the plant heatup to Mode 4 and Mode 3 was performed with excessive unidentified leakage, a condition prohibited by Technical Specification 3.0.4.

E. METHOD OF DISCOVERY

The control room staff identified an unexplained downward trend of VCT level and the associated increased frequency of makeup.

II. EVENT-DRIVEN INFORMATION

A. SAFETY SYSTEMS THAT RESPONDED

No safety systems were required to respond.

B. DURATION OF SAFETY SYSTEM INOPERABILITY

N/A

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

There was no impact to radiological safety, safety of the public, or safety of station personnel during this event.

The water discharged from the vent valve drained through a floor drain to a tank. There was no release of radioactive material or additional contamination associated with this event. VCT level was monitored and controlled such that charging pump suction isolation circuitry was not challenged. The integrity of the reactor coolant pressure boundary was adequately monitored throughout the event by the Containment Atmosphere Radioactivity Monitor and the Containment Normal Sump Level and Flow Monitoring System as required by Technical Specification 3.4.6.1, Reactor Coolant System Leakage, Leakage Detection Systems.

III. CAUSE OF THE EVENT

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

The root cause of the event was determined to be that Procedure 0POP03-ZG-0001, Plant Heatup, does not have any means to ensure leakage in the control volume for the reactor coolant inventory surveillance is identified before Mode 4 entry.

IV. CORRECTIVE ACTION

Revise 0POP03-ZG-0001 to require Operations and Engineering to monitor plant parameters for indications of excessive RCS leakage (including the entire control volume of 0PSP03-RC-0006, Reactor Coolant Inventory) before entering Mode 4.

V. PREVIOUS SIMILAR EVENTS

There have been no similar events within the last three years.

VI. ADDITIONAL INFORMATION

N/A