



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

August 1, 2012  
NOC-AE-12002891  
File No.: G25  
10 CFR 50.73  
STI: 33577470

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

South Texas Project  
Unit 1  
Docket No. STN 50-498  
Revision 1 of Licensee Event Report 1-2012-001  
Nuclear Instrumentation Channel NI-45A Failed Channel Check

Reference: Letter dated May 31, 2012, from G. T. Powell, STPNOC, to NRC Document Control Desk, "Licensee Event Report 1-2012-001 Nuclear Instrumentation Channel NI-45A Failed Channel Check," (NOC-AE-12002857) (ML12178A064)


Pursuant to 10 CFR 50.73, STP Nuclear Operating Company (STPNOC) submits the attached revision to the Unit 1 Licensee Event Report (LER) 1-2012-001 regarding the inoperability of Extended Range (E/R) Flux Lower Range Nuclear Instrument (NI-45A). This event is considered reportable pursuant to 10 CFR 50.73(a)(2)(i)(B), as any operation or condition that was prohibited by the plant's Technical Specifications.

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

The attached LER revision provides the results of the Root Cause Evaluation for this event and the associated corrective actions.

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

If there are any questions on this submittal, please contact either Joe Loya at (361) 972-8005 or me at (361) 972-7566.

  
D. W. Rencurrel  
Chief Nuclear Officer

JAL

Attachment: LER 1-2012-001 Rev. 1

IEZZ  
NRR

cc:

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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 FOIA/Privacy Section (T-5 F53). U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to <a href="mailto:Infocollects.resource@nrc.gov">Infocollects.resource@nrc.gov</a> , and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202. (3150-1104), 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.																																								
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1. FACILITY NAME <div style="text-align: center;">South Texas Unit 1</div>					2. DOCKET NUMBER <div style="text-align: center;">05000498</div>			3. PAGE <div style="text-align: center;">1 OF 4</div>																																						
4. TITLE <div style="text-align: center;">Unit 1 Nuclear Instrumentation Channel NI-45A Failed Channel Check</div>																																														
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED																																					
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9. OPERATING MODE  <div style="text-align: center; font-size: 24pt;">1</div>			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR§: (Check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> 20.2201(b)</td> <td><input type="checkbox"/> 20.2203(a)(3)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> </tr> <tr> <td><input type="checkbox"/> 20.2201(d)</td> <td><input type="checkbox"/> 20.2203(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(1)</td> <td><input type="checkbox"/> 20.2203(a)(4)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(ii)</td> <td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iv)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td> <td><input type="checkbox"/> 73.71(a)(4)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iv)</td> <td><input type="checkbox"/> 50.46(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td> <td><input type="checkbox"/> 73.71(a)(5)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(C)</td> <td><input type="checkbox"/> OTHER</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(vi)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(D)</td> <td>Specify in Abstract below or in NRC Form 366A</td> </tr> </table>								<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A
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12. LICENSEE CONTACT FOR THIS LER																																														
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT																																														
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14. SUPPLEMENTAL RESPONSE EXPECTED <input type="checkbox"/> YES (if yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO					15. EXPECTED SUBMISSION DATE			MONTH	DAY	YEAR																																				
<p><b>ABSTRACT</b> (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</p> <p>On March 27, 2012, Operations declared the Extended Range (E/R) Flux Lower Range Nuclear Instrument (NI-45A) inoperable based on failure to meet channel check acceptance criteria per the "Remote Shutdown Monitoring AND Accident Monitoring Instrumentation Channel Checks" Procedure. Subsequent troubleshooting discovered an issue with the channel's isolation circuit card, AT1. The AT1 card was found with a degraded condition which affected the output range of NI-45A. With this degraded condition, Extended Range (E/R) Flux Lower Range Nuclear Instrument (NI-45A) would not have been able to perform its design function. Subsequent review determined that NI 45A had been inoperable since February 29, 2012.</p> <p>After replacement of the AT1 card, the surveillance procedure was completed satisfactory on March 30, 2012 and the instrument was restored to operable. Since NI-45 had been inoperable for longer than the applicable Technical Specification 7 day Allowed Outage Time, this event is reportable under 10CFR50.73(a)(2)(i)(B), as an Operation or Condition Prohibited by Technical Specifications.</p> <p>There were no personnel injuries, no offsite radiological releases, and no damage to safety-related equipment associated with this condition. This condition did not have an adverse effect on the health and safety of the public.</p> <p>This LER revision provides the results of the associated Root Cause Evaluation. The root cause of this event is the lack of timely and dependable testing to identify a failure prior to exceeding the Limiting Condition for Operation (LCO). The corrective action identified to prevent recurrence is to initiate periodic Preventive Maintenance activities to press test switches 1 and 2 to test E/R Low Range indication twice weekly and verify startup rate indication on the Integrated Computer System (ICS).</p>																																														

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**I. DESCRIPTION OF EVENT****A. REPORTABLE EVENT CLASSIFICATION**

This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B), as any operation or condition that was prohibited by the plant's Technical Specifications.

**B. PLANT OPERATING CONDITIONS PRIOR TO EVENT**

South Texas Project (STP) Unit 1 was in Mode 1, with Reactor Power at approximately 100%.

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

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

**D. NARRATIVE SUMMARY OF THE EVENT**

On March 27, 2012, Operations declared the Extended Range (E/R) Flux Lower Range Nuclear Instrument (NI-45A) inoperable based on the failure to meet Technical Specifications (TS) channel check acceptance criteria per the "Remote Shutdown Monitoring AND Accident Monitoring Instrumentation Channel Checks" Procedure. Subsequent troubleshooting discovered an issue with the channel's isolation circuit card, AT1. The AT1 card was found with a degraded condition which affected the indication of NI-45A Lower Range. With this degraded condition, Extended Range (E/R) Flux Lower Range Nuclear Instrument (NI-45A) would not have been able to perform its design function. After replacement of the AT1 card, the surveillance procedure was completed satisfactory on March 30, 2012 and the instrument was returned to an operable condition.

Each E/R channel has a Lower Range (which provides indication in shutdown conditions (counts per second)) and an Upper Range (which provides indication at power). For the time period under evaluation, Unit 1 was operating at power and the E/R Lower Range indication was saturated and considered unreliable. The E/R Lower Range indication is considered unreliable above approximately 1E-4% Power (100,000 CPS). At 100,000 CPS, saturation occurs in the Extended Range Lower Range Nuclear Instrumentation circuitry and a channel may indicate less than 100,000 CPS.

A review of channel data indicated that starting in December 2011; the NI-45 E/R Lower Range indication began a downward trend. Subsequent Channel Checks performed in January and February (monthly surveillance) were completed satisfactorily. These Channel Checks are performed with an acceptance criterion that notes the Lower Range indications may be unreliable, and that other indications such as E/R Upper Range output may be used to determine problems with the detector. During this time period, there were no issues found with the detectors E/R Upper Range output indication.

As stated previously, a degraded condition (downward trend) involving the E/R Lower Range indication had been evident since December 2011. Even though this indication is considered unreliable, there is reasonable confidence that in this instance, the indication showed the degrading performance of the AT1 card. Based on how the Surveillance procedure is performed, the Channel Check between NI-45A and NI-46A would have failed to meet the "factor of 10" acceptance criteria on February 29, 2012, (NI-045A = 10,527 cps, NI-046A = 106,057 cps). Therefore, it was concluded that the E/R Lower Range indication was inoperable from February 29, 2012 until the

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channel was restored to operable on March 30, 2012.

The TS 3.3.3.6 Allowed Outage Time for an inoperable Extended Range nuclear instrumentation channel is 7 days. Because Extended Range channel NI-45 was inoperable longer than the TS allowed outage time and associated shutdown time, this event is considered REPORTABLE under 10CFR50.73(a)(2)(i)(B), Operations or Conditions Prohibited by Technical Specifications.

E. METHOD OF DISCOVERY

This event was discovered by Operations during the performance of the "Remote Shutdown Monitoring AND Accident Monitoring Instrumentation Channel Checks" surveillance procedure.

II. EVENT-DRIVEN INFORMATION

A. SAFETY SYSTEMS THAT RESPONDED

N/A

B. DURATION OF SAFETY SYSTEM INOPERABILITY

As discussed above, the Extended Range (E/R) Flux Lower Range Nuclear Instrument (NI-45A) was inoperable from February 29, 2012 until March 30, 2012 (approximately 31 days).

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

Nuclear or radiological safety was not affected. This event had no impact to the safety of the public or station personnel. This event did not impact the reliability of plant operation or production capacity. There was no impact to the Core Damage Frequency or Large Early Release Frequency associated with this event.

III. CAUSE OF THE EVENT

- A. The root cause of this event was the lack of timely and dependable testing to identify a failure prior to exceeding the Limiting Condition for Operation (LCO).

This investigation identified that the monthly channel check test method provided in the Remote Shutdown Monitoring and Accident Monitoring Instrumentation Channel Checks procedure, 0PSP03-SP-0001, is not a reliable method to determine operability of the low range channels due to their unreliable indication when at power. With the required monthly frequency, exceeding the 7 day LCO is possible. A more reliable method would be by using the presently designed built in test pushbuttons. Performing a periodic test to use pushbuttons S1 and S2 to test Integrated Computer System (ICS) point NI0045A would have identified the fault with the degrading AT1 much earlier and would have prevented this event from being reportable.

IV. CORRECTIVE ACTIONS

- A. Initiate periodic preventive maintenance activities to press test switches 1 and 2 to test E/R Low Range indication twice weekly and verify startup rate indication on ICS.

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## V. PREVIOUS SIMILAR EVENTS

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

## VI. ADDITIONAL INFORMATION

N/A