



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

December 4, 2007
NOC-AE-07002241
10CFR50.73

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

South Texas Project
Unit 1
Docket No. STN 50-498
Licensee Event Report 2007-003

Incorrect Count Rate Board Installed in Extended Range Nuclear Instrumentation Channel

Pursuant to 10 CFR 50.73, the STP Nuclear Operating Company (STPNOC) submits the attached Unit 1 Licensee Event Report 2007-003 to address the installation of an incorrect count rate board in Extended Range Nuclear Instrumentation Channel NI-46, which resulted in the instrument channel being inoperable for greater than the 7-day Allowed Outage Time permitted by Technical Specification (TS) 3.3.3.6.

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

There are no commitments contained in this event report. Resulting corrective actions will be implemented in accordance with the Corrective Action Program.

If there are any questions regarding this submittal, please contact Jim Morris at (361) 972-8652 or me at (361) 972-8902.

A handwritten signature in black ink, appearing to read "Ken Coates".

Ken Coates
Plant General Manager

jrm/

Attachment: South Texas Unit 1 LER 2007-003

STI: 32229992

IE22
NLR

cc:

(paper copy)

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LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory 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 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.

1. FACILITY NAME South Texas, Unit 1	2. DOCKET NUMBER 05000498	3. PAGE 1 OF 5
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4. TITLE Incorrect Count Rate Board Installed in Extended Range Nuclear Instrumentation Channel
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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
04	13	2007	2007	- 003 -	00	12	04	2007	NA	05000
									FACILITY NAME	DOCKET NUMBER
									NA	05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
	<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)						
10. POWER LEVEL 100	<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							

12. LICENSEE CONTACT FOR THIS LER	
NAME James R. Morris (Licensing Engineer)	TELEPHONE NUMBER (Include Area Code) (361) 972-8652

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					15. EXPECTED SUBMISSION DATE		
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)					<input checked="" type="checkbox"/> NO		
					MONTH	DAY	YEAR

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

At 1900 on April 6, 2007, with Unit 1 at 100% power, Extended Range Nuclear Instrumentation Channel NI-46 was declared inoperable due to erratic indication. Subsequent troubleshooting identified that the "A4" Log Count & Rate circuit board was defective and needed to be replaced. Based on available replacement boards whose design would permit installation in either an A2 or A4 card slot, in addition to an incorrect decision to use the wrong type replacement board, an "A2" model card was used as a replacement and Channel NI-46 was declared operable at 0456 on April 7, 2007. Subsequently, on April 14, 2007, while troubleshooting erratic / unexpected count rate and start-up rate indications on NI-46 it was identified that the A2 board installed in the A4 slot on April 7, 2007 was the wrong type of board which caused the startup rate indication to read higher than it should in addition to the shutdown monitor reading lower than expected. Therefore, Extended Range Channel NI-46 had been inoperable since April 6, 2007. Following replacement of the A2 board with the correct A4 board, NI-46 was successfully returned to service and declared operable at 2310 on April 14, 2007. However, the total time that NI-46 was inoperable had exceeded the 7-day Allowed Outage Time permitted by TS 3.3.3.6, therefore resulting in a 10 CFR 50.73 reportable occurrence as a condition prohibited by TS.

The causes of the event were (1) The Extended Range Nuclear Instrumentation vendor (Gamma Metrics) made a change to the A2 and A4 circuit boards that removed the slot interchangeability design without notification to STPNOC; and (2) the decision to use the A2 board as a replacement part instead of the A4 board based on outdated information from Training material and the use of stock code information rather than manufacturer's part number information from the Master Parts List.

Corrective actions include the addition of a QC inspection hold point to the Master Equipment Database / Master Parts List to confirm all incoming A2 and A4 boards have only one key on each board (specific to its respective signal processing assembly slot), and all A2 and A4 boards in the warehouse will be inspected and any double-keyed board will be disposed of.

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

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NARRATIVE

I. DESCRIPTION OF REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

This event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications (TS). Extended Range Nuclear Instrumentation Channel NI-46 was inoperable for greater than the 7-day Allowed Outage Time permitted by TS 3.3.3.6 due to the installation of an incorrect model Log Count and Rate circuit board.

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

At the time of the event, Unit 1 was operating at 100%.

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

No equipment that was inoperable at the initiation of the event contributed to the event.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES

At 1900 on April 6, 2007, with Unit 1 at 100% power, Extended Range Nuclear Instrumentation Channel NI-46 was declared inoperable due to erratic indication. Subsequent troubleshooting identified that the "A4" Log Count & Rate circuit board was defective and needed to be replaced. Each of the Extended Range Nuclear Instrumentation channels (NI-45 and NI-46) utilizes two printed circuit boards, designated as "A2" and "A4," to condition signals received from the associated Extended Range detector. Instrumentation & Control (I&C) personnel made the decision to use an A2 board as a replacement instead of an A4 board based on information from training material, which indicated the boards were interchangeable, and based on the use of a the stock code number for the A2 board when no stock code number for the A4 board could be found in the Master Equipment Database / Master Parts List (MED/MPL). The training material is not a controlled document, and the stock code field used to assist in making the decision is a reference field only. The correct database information that should have been referred to was the manufacturer's part number, which is a controlled field, and was unique for each board. It should also be noted that older versions of the A2 and A4 boards contain slots that would allow installation in either the A2 or A4 location in the signal processor assembly. This was the case with the A2 board installed on April 7.

The A2 board was installed and calibrated with the post maintenance test (PMT) being completed satisfactorily and NI-46 was declared operable at 0456 on April 7, 2007.

On April 7, 2007 at 1352 a condition report was generated stating that the NI-46 shutdown monitor was reading low when it should be reading high.

On April 14, 2007, a condition report was generated stating the start up rate indication was indicating higher than it should. While performing work under this work order, it was identified that the A2 board installed in the A4 slot on April 7, 2007 was the wrong type of board which caused the startup rate indication to read higher than it should in addition to the shutdown monitor reading lower than expected.

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Following replacement of the A2 board with a new A4 board, NI-46 was successfully returned to service and declared operable at 2310 on April 14, 2007.

Additional investigation into this issue has identified that per the Extended Range Nuclear Instrumentation vendor information (Gamma Metrics), prior to 1986 the A2 and A4 boards were interchangeable. However, in the April 10, 1986 revision to the vendor manual, the A4 board design was changed, although this information was not well documented in this or subsequent revisions of the manual. Additionally, no information exists to indicate that STPNOC received information from the vendor regarding the A4 board design change. This resulted in a lack of review by STPNOC which would have evaluated this design change for impact and properly documented and annotated the changes within STP process and programs.

E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE, OR PROCEDURAL OR PERSONNEL ERROR

Installation of the incorrect Log Count and Rate board in the NI-46 Extended Range Nuclear Instrumentation channel was discovered during maintenance troubleshooting of NI-46 erratic / unexpected indication on April 14, 2007.

The original reportability review of this occurrence performed in April 2007 did not reach the correct reportability conclusion, however, subsequent re-evaluation of this issue led to the determination on October 5, 2007, that this was a reportable event per 10 CFR 50.73(a)(2)(i)(B) as an event involving operation or condition prohibited by Technical Specifications (i.e., inoperability greater than TS Allowed Outage Time).

II. COMPONENT OR SYSTEM FAILURES

A. FAILURE MODE, MECHANISM, AND EFFECTS OF EACH FAILED COMPONENT

This issue documented in this Licensee Event Report is not a result of a failed component.

B. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

Not applicable.

C. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF COMPONENTS WITH MULTIPLE FUNCTIONS

None.

D. FAILED COMPONENT INFORMATION

Not applicable.

III. ANALYSIS OF THE EVENT

A. SAFETY SYSTEM RESPONSES THAT OCCURRED

No safety system responses were required or occurred.

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B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

Extended Range Nuclear Instrumentation channel NI-46 was inoperable from April 6, 2007 at 1900 until April 14, 2007 at 2310, which exceeds the 7-day Allowed Outage Time by 28 hours 10 minutes.

C. SAFETY CONSEQUENCES AND IMPLICATIONS

The event did not have an adverse affect on the health and safety of the public.

The Extended Range Nuclear Instrumentation channels (NI-45 and NI-46) do not provide any automatic protection signal, but provide indication and alarm functions only. The redundant Extended Range channel (NI-45) remained operable for the duration of the NI-46 inoperability. Additionally, all Technical Specification required channels of Power Range and Intermediate Range Nuclear Instrumentation were operable during the NI-46 inoperability time period. Furthermore, the period of time by which Channel NI-46 exceeded its 7-day Allowed Outage Time was only slightly greater than one additional day. Therefore the safety significance and risk impact of the Channel NI-46 inoperability beyond its Allowed Outage Time is minimal.

This event resulted in no personnel injuries, no offsite radiological releases, and no damage to other safety-related equipment.

IV. CAUSE OF THE EVENT

- The Extended Range Nuclear Instrumentation vendor (Gamma Metrics) made a change to the A2 and A4 circuit boards that removed the slot interchangeability design without notification to STPNOC. This resulted in lack of review by STPNOC which would have identified this change and properly documented and annotated the changes within STP process and programs.
- I&C personnel made the decision to use the A2 board instead of the A4 board based on outdated information from Training material, which indicated the parts were interchangeable, and the use of the stock code number for the A2 board when no stock code number for the A4 board could be found in the Master Parts List. The training material is not a controlled document. The stock code field that was used in the Master Parts List to assist in making this decision is a reference field only. The correct database information that should have been referred to was the manufacturer's part number, which is a controlled field, and was unique for each board.

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V. CORRECTIVE ACTIONS

- STPNOC replaced the incorrect board and restored Extended Range channel NI-46 to operability.
- A QC inspection hold point will be added to the Master Equipment Database / Master Parts List to confirm all incoming A2 and A4 boards received in the warehouse have only one key on each board (specific to its respective signal processing assembly slot).
- All A2 and A4 boards in the warehouse will be inspected and any double-keyed board will be disposed of.
- Training will be provided to I&C personnel regarding the use of Master Parts List information fields.

VI. PREVIOUS SIMILAR EVENTS

There have been no STPNOC Licensee Event Reports in the past three years regarding the installation of a wrong component. A review of the STP Corrective Actions Program identified two similar wrong parts related Condition Reports, both occurring in 2002:

- On May 1, 2002, an incorrectly size screen was installed on a Moisture Separator Drip Tank Pump motor.
- On June 12, 2002, a 120 VAC coil was delivered to the field, whereas a 125 VDC coil was needed. Maintenance personnel identified the incorrect part before it was installed.

The corrective actions associated with these occurrences were specific to their respective issue and would not have precluded the incorrect Extended Range NI-46 board from being installed.

VII. ADDITIONAL INFORMATION

None.