

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Susquehanna Steam Electric Station - Unit 1

DOCKET NUMBER (2)  
0 5 0 0 0 3 8 7

PAGE (3)  
1 OF 0 3

TITLE (4) 'A' Drywell Hydrogen Analyzer Channel Inoperable Due To Amplifier Board Replacement Having Soldered Wire Connector Instead Of Resistor

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
09	25	86	86	034	00	10	27	86			0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9) 1

POWER LEVEL (10) 0 8 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.408(a)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.408(a)(1)(i)	<input type="checkbox"/> 50.38(a)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(a)
<input type="checkbox"/> 20.408(a)(1)(ii)	<input type="checkbox"/> 50.38(a)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)
<input type="checkbox"/> 20.408(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	
<input type="checkbox"/> 20.408(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)	
<input type="checkbox"/> 20.408(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)	
<input type="checkbox"/> 20.408(a)(1)(vi)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: T.S. Ryder - Power Production Engineer

TELEPHONE NUMBER: 717 542-1323

AREA CODE: 717

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
D	BB	AIMPI	CI51319	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On 9/25/86 with Unit 1 operating at 80% power, it was discovered that the 'A' Drywell Oxygen/Hydrogen Analyzer hydrogen low range mode was inoperable. Investigation determined the hydrogen channel had been inoperable for a period of 92 days from 6/26/86 - 9/25/86. Unit 1 operated in a condition prohibited by the plant's Technical Specifications as a result of not discovering and repairing the inoperable channel until after the allowable time had elapsed to restore the channel to operable status.

On 6/26/86 an original amplifier board for the Hydrogen Analyzer had been replaced with one in stock. The replacement board came from the vendor with a soldered wire connector installed in the circuitry in place of a resistor. The wire connector caused the hydrogen high range to operate continuously even when the low range mode was selected. The wire connector was replaced with the proper resistor on 9/25/86 restoring the 'A' Hydrogen Channel to operational status. Steps outlined in the text of the LER were taken to prevent recurrence of the event.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Susquehanna Steam Electric Station Unit 1	DOCKET NUMBER (2) 05000381786	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		OF
		-034	-000	2	03	

TEXT (If more space is required, use additional NRC Form 366A's) (17)

Description of Event

On 9/25/86 with Unit 1 operating at 80% power, it was observed during maintenance of the 'A' Drywell Oxygen/Hydrogen Analyzer (EIIS Code: BB) that the high range mode of the Hydrogen Channel was always operating although status lights indicated the channel was in the low range when selected. No structures, components, or systems that were inoperable at the start of the event contributed to the event.

Cause of Event

The problem was traced back to a vendor installed wire connector on an amplifier board which had been installed in the Analyzer on 6/26/86. The board was Amplifier Card 1429B5 for Delphi Model B5 Thermal Conductivity Hydrogen Analyzer. The wire connector caused the amplifier to continuously operate in the hydrogen high range. It turns out that each plant using Comsip Inc. - Delphi Systems Division K-IV Containment Hydrogen Monitors may require a different value resistor to be installed on the amplifier board depending on the length of field run cable required for powering the analyzer. Because of this fact, all the amplifier boards sent from Comsip as replacement parts have a soldered wire connector installed in place of the resistor. The information contained in Comsip's Instruction, Operation and Maintenance Manual (IOM) did not state that the wire connector was installed on all replacement amplifier boards and needed to be replaced with the properly valued resistor. Therefore when troubleshooting erratic hydrogen indication on 6/26/86, the original amplifier board was replaced with a new board from the storeroom without removing the wire connector and installing the appropriate resistor in its place. Consequently, the low hydrogen range on the 'A' Drywell Oxygen/Hydrogen Analyzer was inoperable for 92 days until 9/25/86 when the corrective actions described below were taken restoring it to operable status.

Analysis of Event

Technical Specification 3.3.7.5 addresses operability of the Drywell Oxygen/Hydrogen Analyzers. The applicable Action Statement states that with the number of operable channels one less than the required number of channels, the inoperable channel shall be restored to operable status within 30 days or the unit shall be in at least Hot Shutdown within the next 12 hours. It additionally states that with the number of operable channels less than the minimum channels required to be operable, the inoperable channel shall be restored to operable status within 7 days or be in at least Hot Shutdown within the next 12 hours.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Technical Specification 3.3.7.5 applies for Conditions 1, 2, and Special Test Exception 3.10.3 (during low power physics testing which is not applicable during this event). Out of the 92 days during which the 'A' Hydrogen Analyzer had its low hydrogen range inoperable, Unit 1 was in Condition 1 or 2 for 84 days. Therefore, between 6/26/86 and 9/25/86, the 30 day Limited Condition for Operation (LCO) requirement was exceeded. The LCO logs for the period 6/26/86 thru 9/25/86 were reviewed. During that time the 7 day LCO requirement for minimum channels required to be operable was never exceeded. Apart from performing daily surveillance requirements in which the 'B' Hydrogen Analyzer was aligned to the Suppression Pool, the 'B' Hydrogen Analyzer was operable during the entire time that the 'A' Hydrogen Analyzer low hydrogen range was inoperable except for a 27 hour 30 minute time span between 8/12/86 - 8/13/86 when repairs were being made due to low cell flow.

Due to the above, Unit 1 operated in a condition prohibited by the plant's Technical Specifications as a result of not discovering and repairing the inoperable channel of the 'A' Drywell Hydrogen Analyzer until after the allowable time had elapsed to restore the channel to operable status.

Corrective Actions

Immediate corrective actions included removing the wire connector from the amplifier board, installing the proper resistor in its place and observing satisfactory operation during a functional test of the range selection using span gas for a known hydrogen concentration. These actions took place on 9/25/86, the day the event was discovered.

Actions to prevent recurrence will include tagging the hydrogen amplifier boards in stock to assure that the proper resistor will be installed on the amplifier boards in place of the wire connector prior to use. Secondly, the vendor IOM will be revised to reflect that replacement amplifier boards have a soldered wire connector installed which must be removed and replaced with the proper resistor prior to installation in the plant.

Additional Information

Failed Component Identification

Amplifier Card 1429B5 for Delphi Model B5 Thermal Conductivity Hydrogen Analyzer.

Previous Similar Events

There have been no previous similar events.



Pennsylvania Power & Light Company

Susquehanna Steam Electric Station  
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October 27, 1986

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 86-034-00  
FILE- R41-2  
PLAS- 207

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Docket No. 50-387  
License No. NPF-14

Attached is Licensee Event Report 86-034-00. This event was determined reportable per 10CFR50.73 (a) (2) (i), in that Unit 1 operated in a condition prohibited by the plant's Technical Specifications as a result of not discovering an inoperable channel of the 'A' Drywell Hydrogen Analyzer until after the allowable time had elapsed to restore the channel to operable status.

T.M. Crimmins, Jr.  
Superintendent of Plant-Susquehanna

TSR/cdn

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