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Vice President – Nuclear Operations

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MAY 04 2004

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop OP-1-17
Washington, DC 20555-0001

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/2004-001-00
LICENSE NO. NPF-14
PLA-5749 **Docket No. 50-387**

Attached is Licensee Event Report 50-387/2004-001-00. This event was determined to be reportable per 10 CFR 50.73(a)(2)(iv)(A), for an event that resulted in an unplanned automatic actuation of an emergency diesel generator. On March 7, 2004 at 0201 hours, the 'A' emergency diesel generator started due to a detected under-voltage condition on its associated Unit 1 4.16 kV bus. The bus under-voltage condition was created when fuses were removed from an incorrect 4.16 kV bus breaker cubicle during equipment alignment activities for a planned load center / 4.16 kV bus maintenance outage. All plant equipment operated as expected. This event resulted in no actual adverse consequences to the health and safety of the public. There are no commitments associated with this Licensee Event Report.

Richard L. Anderson
Vice President – Nuclear Operations

Attachment

IE22

cc: Mr. H. J. Miller
Regional Administrator
U.S. Nuclear Regulatory Commission
475 Allendale Road
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NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Susquehanna Steam Electric Station - Unit 1	05000387	1 OF 4

4. TITLE

Automatic Actuation of 'A' Emergency Diesel Generator When Operator Removed Incorrect 4.16 kV Bus Fuses

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									SSES – Unit 2	05000388
03	07	2004	2004	– 001	– 00	05	04	2004	FACILITY NAME	DOCKET NUMBER
										05000

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

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Joseph J. Meter - Nuclear Regulatory Affairs	570 / 542-1873

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	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

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

At 02:01 on March 7, 2004 with Unit 1 in Mode 5 at 0% power and Unit 2 in Mode 1 at 100% power, the 'A' Diesel Generator (DG) started due to a detected under-voltage condition on the 1A201 4.16kV Engineered Safeguard System bus. The bus under-voltage condition was created when an in-plant operator removed fuses from an incorrect 4.16 kV bus breaker cubicle during equipment alignment activities for a planned load center / 4.16 kV bus maintenance outage. All plant equipment operated as expected. The 'A' DG was returned to standby status at 16:44 on March 7, 2004. Two root causes were found. The in-plant operators involved did not use adequate self-check / peer-check techniques during performance of the procedure step that identified the location of the breaker cubicle fuses. Additionally, the load center / 4.16 kV bus maintenance outage procedure was not written in accordance with human performance standards. Human performance training was conducted at the plant's performance simulator for all available operators and supervisors. The corrective actions to be taken include establishing a peer-to-peer human performance observation program for field operational activities and incorporating human performance standards into all station load center / 4.16 kV bus procedures. This event is reportable as an event that resulted in an unplanned automatic actuation of an emergency diesel generator per 10 CFR 50.73(a)(2)(iv)(A). There were no actual consequences to the health and safety of the public as a result of this event since there was no actual design basis accident and all station equipment responded as designed during the event.

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

EVENT DESCRIPTION

At 02:01 on March 7, 2004 with Unit 1 in Mode 5 at 0% power and Unit 2 in Mode 1 at 100% power, the 'A' Diesel Generator (DG; EIIS Code: EK) started due to a detected under-voltage condition on the 1A201 4.16kV Engineered Safeguard System (ESS; EIIS Code EK) bus. The bus under-voltage condition was created when an in-plant operator (non-licensed, utility) removed fuses from an incorrect 4.16 kV bus breaker cubicle during equipment alignment activities for a planned load center / 4.16 kV bus maintenance outage. Prior to the event, bus 1A201 was unloaded in accordance with TP-105-006 to support a planned 1B210 load center maintenance outage. The in-plant operator had successfully performed the required alignments for breaker cubicles 1A20106, 1A20102, 1A20108, and 1A20103. TP-105-006, Attachment T, then required removal of fuses FU5 and FU6 in breaker cubicle 1A20101 to prevent an inadvertent automatic start of the 'A' DG. Instead, the operator removed fuses FU5 and FU6 in breaker cubicle 1A20104 which prevented the off-site power sources from providing power to bus 1A201. The 1A201bus under-voltage relays sensed the under-voltage condition and the 'A' DG started as designed. Power for the 'A' Emergency Service Water (ESW; EIIS Code: BI) pump was not available as a result of the TP-105-006 alignment. Since the 'A' ESW pump was not available to automatically supply cooling to the 'A' DG, control room operators (licensed, utility) manually started the 'B' and 'C' ESW pumps to provide cooling to the 'A' DG within two minutes of the 'A' DG start. All plant equipment operated as designed. The 'A' DG was returned to standby status at 16:44 on March 7, 2004.

CAUSE OF EVENT

Two root causes were found. The in-plant operator removing the fuses and the in-plant operator providing a peer-check did not use adequate self-check / peer-check techniques to identify the location of the breaker cubicle for fuses FU5 and FU6 and TP-105-006 was not written in accordance with human performance standards.

Less than adequate self-check / peer-check techniques were used by both the in-plant operator removing the fuses and the in-plant operator providing the peer check. Both operators had a mind-set that all the actions in the procedure subsection were in cubicle 1A20204 and misread 1A20101 as 1A20104.

In addition to the human performance error, TP-105-006 was not written in accordance with human performance standards. TP-105-006, Attachment T, Section 1 is written with sub-sections "a" through "d" identifying a specific breaker cubicle in the heading. Those sub-sections are further divided into steps that list actions to be taken at the cubicle listed at the beginning of the sub-section. Sub-section 'e' of Attachment T contained a human performance trap. It was not written in accordance with station human performance standards for procedure writing. Sub-section 'e' of Attachment T was titled, "Cubicle 1A20104, A DG". The first step of sub-section 'e' required action in cubicle 1A20104. The next step removed fuses FU5 and FU6 in cubicle 1A20101 instead of 1A20104. Remaining steps then required actions in cubicle 1A20104.

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

ANALYSIS / SAFETY SIGNIFICANCE

This event is reportable as an event that resulted in an unplanned automatic actuation of an emergency diesel generator per 10 CFR 50.73(a)(2)(iv)(A). The fuse removal error that caused Unit 1 ESS bus 1A201to de-energize had no nuclear safety consequences. The 'A' DG started as designed. No actual design basis events occurred that required plant equipment to perform its required design function. Additionally, there was no loss of safety function of equipment required to respond to a potential design basis event for either Unit 1 or Unit 2. Since Unit 1 was in Mode 5, the number of required ESS buses is less than during power operation and the required number of buses remained operable. All required Diesel Generators remained operable for both Units 1 and 2. Although the 'A' ESW pump did not have power from 1A201, the remaining ESW pumps were adequate to fulfill the required safety functions for Units 1 and 2.

In accordance with guidance in NUREG-1022, Revision 2, Section 5.1.1, the due date for this report is May 6, 2004.

CORRECTIVE ACTIONS

Corrective actions that have been completed:

- Human performance training was conducted at the plant's performance simulator between March 14, 2004 and March 16, 2004 which all available operators and supervisors attended. The activity focused on four error prevention tools: self-checking, peer checking, three-way communication, and pre-job briefs. The objective was to perform an assessment of the utilization and application of error prevention techniques and provide behavioral reinforcement of human performance tools and techniques.

Corrective actions to be completed:

- Provide a peer-to-peer observation program to evaluate use of human performance tools for field operational activities.
- Incorporate human performance standards into Unit 1 and Unit 2 load center/ 4.16kV bus procedures.

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

ADDITIONAL INFORMATION

Past Similar Events: LER 94-001-00 Docket No. 05000387

LER 90-022-00 Docket No. 05000387

Failed Component : None