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SHOREHAM NUCLEAR POWER STATION • P.O. BOX 628 • WADING RIVER, NEW YORK 11792

TEL. (516) 929-8300

February 9, 1990 PM 90-029

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

Dear Sir:

In accordance with 10CFR50.73, enclosed is Shoreham Nuclear Power Station's Licensee Event Report, LER 90-001.

Sincerely yours,

Jack A. Notaro
Plant Manager

JN/RP/jp

Enclosure

cc: William T. Russell, Regional Administrator
Institute of Nuclear Power Operations, Records Center
American Nuclear Insurers

SR.A21.0200

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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Shoreham Nuclear Power Station Unit 1	0 5 0 0 0 3 2 2	1 OF 0 4

TITLE (4) Unplanned Actuation of Reactor Building Standby Ventilation System During Test of Emergency Bus Switchgear

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)
0 1	1 7	9 0	9 0	–	0 0 1	–	0 0	0 2	0 9	9 0		0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	*	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10) 0 0 0		20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
George D. Schnaars, Operational Compliance Engineer	AREA CODE 5 1 6 — 9 2 9 – 8 3 0 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On January 17, 1990 at 0457 hours, an unplanned actuation of the Engineered Safety Feature Reactor Building Standby Ventilation System (RBSVS) "B" occurred. This actuation occurred during the performance of a surveillance procedure that tested the ability of Emergency Bus 102 to automatically "fast transfer" from its normal to its alternate power supply. The voltage dip during the fast transfer was sufficient to deenergize interlocking relays in the control circuits for 1T46*AOV-35B or 37B (Reactor Building Normal Ventilation Supply and Exhaust Valves). Either one of the AOVs going closed caused the actuation of RBSVS "B". Testing was stopped and plant management was notified of the event. The event was reportable under 10CFR50.72(b)(2)(ii) and the NRC was notified at 0652 hours. Corrective actions include changing the surveillance test procedure to require that if a minimum emergency bus load cannot be achieved, then RBSVS is to be manually initiated.

* Reactor Defueled

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as [xx].

IDENTIFICATION OF THE EVENT

Unplanned actuation of the Engineered Safety Feature Reactor Building Standby Ventilation System (RBSVS)[BH] "B" during a surveillance test.

Event Date: 01/17/90

Report Date: 02/09/90

CONDITIONS PRIOR TO THE EVENT

Reactor Defueled - All fuel assemblies stored in the Spent Fuel Pool

Mode Switch - Shutdown

RPV Pressure = 0 psig RPV Temperature = 85 Degrees F

POWER LEVEL - 0

DESCRIPTION OF THE EVENT

On January 17, 1990 Control Room Operators were performing surveillance test procedure SP 24.301.01, Station Power Supply Transfer Test. This test is performed in order to satisfy Technical Specifications 4.8.1.1.1.b and 4.8.1.2. The operators were performing step 58 of this procedure. This step verifies the operability of the fast transfer capability of the Emergency Bus 102 switchgear. At 0457 hours, the operators manually tripped the normal supply breaker to bus 102 and then verified that the reserve supply breaker to bus 102 closed automatically as required by the fast transfer scheme. However, during the performance of this step an unplanned actuation of the Engineered Safety Feature RBSVS "B" occurred.

Testing was then stopped and RBSVS "A" and the A and B trains of Control Room Air Conditioning were manually initiated. The unplanned actuation of an Engineered Safety Feature is reportable per 10CFR50.72(b)(2)(ii). Plant management personnel were notified of the event and the NRC was notified at 0652 hours.

CAUSE OF THE EVENT

The unplanned actuation of RBSVS "B" was caused by the transient voltage dip on bus 102 which occurred during the fast transfer test of the bus 102 switchgear. Specifically, the voltage dip allowed an interlocking relay to drop out in the control circuit for 1T46*AOV-35B or 37B (Reactor Building Normal Ventilation Supply and Exhaust Valves). These relays have seal-in contacts that open on relay dropout and prevent them from picking up again after normal voltage is restored. When these relays deenergize they allow their associated AOV to close (1T46*AOV-35B or 37B) and either AOV closing initiated RBSVS "B".

The fast transfer of an emergency bus from its normal to its alternate power supply is designed to be completed within 10 cycles to prevent running motors from dropping out of step. Testing determined that this fast transfer is completed in 4.5 to 6 cycles. This testing was performed while the emergency buses were supplying loads consistant with the current plant operating condition.

Additional testing determined that the critical factor in this event is that the magnitude of the voltage dip during the fast transfer is dependent upon the amount of rotating equipment being powered by the bus. For example, during a bus deenergization, the length of time for the bus voltage to drop low enough for the interlocking relays to deenergize was 1 cycle with a bus load of 20 amps. The time was 21.5 cycles when additional motors were run to increase the bus load to 140 amps.

Since the emergency bus switchgear complete the fast transfers within the design requirement, the occurrence of the interlocking relays dropping out (and the RBSVS initiation) is dependent upon the bus load. The inductive loads being supplied by the bus help maintain the residual bus voltage during the fast transfer. Without sufficient inductive load, the bus voltage decays to a point where the interlocking relays drop out.

The occurrence of an RBSVS initiation during an emergency bus fast transfer test had never been experienced prior to this event. This is because the previous fast transfer tests were performed when the emergency bus loads were higher than present.

ANALYSIS OF THE EVENT

There was no safety significance to this event. The plant is shutdown and has been defueled since August of 1989. The operators took the proper corrective actions in response to the RBSVS initiation.

Plant Systems, including the RBSVS and the Bus 102 switchgear, performed as designed.

CORRECTIVE ACTIONS

1. Station Procedure 24.301.01, Station Power Supply Transfer Test, has been modified to require operators to start additional rotating equipment so that the emergency bus loads are above a specified minimum load. If this minimum load cannot be achieved then the applicable train of RBSVS is to be manually initiated prior to the fast transfer test of the emergency bus switchgear.

2. Station Procedure 23.309.01, 4160 Emergency Bus Distribution, has been changed by adding precautions and instructions to cover the event where the emergency bus fast transfer occurs and RBSVS actuates.

ADDITIONAL INFORMATION

a. Manufacturer and model number of failed component (s)

N/A

b. LER numbers of previous similar events

None