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April 6, 1993

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 93-004-00

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

The attached Licensee Event Report LER 93-004-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Attachment

cc: Mr. Thomas T. Martin
Regional Administrator - Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Francis J. Williams, Jr., Project Manager
Project Directorate I-1
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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point Unit No. 2	0 5 0 0 0 2 4 7	1 OF 0 5

TITLE (4)

Emergency Disel Generator Auto-Start

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 3	0 4	9 3	9 3	0 0 4	0 0	0 4	0 5	9 3		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	N	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
James Maylath, Senior Engineer	AREA CODE 9 1 4 5 2 6 - 5 3 5 6

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	
X	E C	B K R	W 1 2 0	Y		X	E K	F U	X 0 0 0	N	
X	E K	R L Y	W 1 2 0	N		X	E K	L S	M 0 4 0	Y	

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 March 4, 1993, during a refueling outage with the reactor at cold shutdown and all fuel discharged from the core, two emergency diesel generators automatically started. While restoring a 480V bus supply breaker following preventive maintenance, the bus tie breaker tripped and de-energized the 480V bus. The two diesels received an undervoltage signal from the 480V bus, which initiated the start. The third diesel did not auto start because it was tagged out for maintenance. All offsite power remained available during the event. Failure of a trip bale wire in the 480V bus supply breaker to properly reset was the cause of initiating a trip signal to the tie breaker.

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Emergency Diesel Generator Auto-Start

EVENT DATE:

March 4, 1993

REPORT DUE DATE:

April 5, 1993

REFERENCES:

Significant Occurrence Report (SOR) 93-58

PAST SIMILAR OCCURRENCE:

February 28, 1991; LER 91-005-00
March 28, 1991; LER 91-007-00
June 22, 1991; LER 91-010-00
February 8, 1993; LER 93-002-00

DESCRIPTION OF OCCURRENCE:

On March 4, 1993, at 2050 hours, with the unit in cold shutdown and all fuel out of the core, two Emergency Diesel Generator (EDGs) automatically started. Startup was initiated by the tripping of the 480V Bus 2A-5A tie breaker. The normal supply breaker for 480V Bus 5A had undergone preventive maintenance and was in the process of being restored when this event occurred. Bus 5A was de-energized when the tie breaker tripped, and this in turn resulted in an undervoltage signal which initiated the start of EDGs 21 and 22 as designed. EDG 23 had been tagged out of service for previously planned maintenance and therefore did not start. Service Water Pump 21, which was supplying river water to the component cooling water heat exchanger, was shutdown when the bus de-energized.

DESCRIPTION OF OCCURRENCE: (continued)

Upon determination that the trip was caused when the normal supply breaker for Bus 5A was not properly reset during its restoration, the 2A-5A bus tie breaker was reclosed, which in turn re-energized 480V Bus 5A. This allowed Service Water Pump 21 to be restarted and provide river water to the component cooling water heat exchanger. Lighting, ventilation and motor control centers supplied by 480V bus 5A were restored as appropriate. In the course of the event, 480V Bus 5A was de-energized for approximately one minute.

When the 2A-5A bus tie breaker tripped open, the amber trip light for the 5A normal supply breaker did not light. This was subsequently determined to be due to a burned out bulb which was then replaced. Also, the 480V Bus 5A lockout relay was not manually reset prior to reclosing the 2A-5A bus tie breaker. The lockout relay would have prevented the reclosing of the bus tie breaker if it was not reset. This type of lockout relay can trip and reset itself due to the rebound action of the relay slug when it is actuated, combined with a weakened device spring. This relay, which was subsequently replaced, had to have been reset to allow for reclosure of the 2A-5A bus tie breaker.

Approximately three hours later, after power was restored to 480V bus 5A, EDG's 21 and 22 were shut down in accordance with station procedures. At 2345 hours, after the EDG's had been shut down, the "21 DIESEL GENERATOR UNAVAILABLE FOR AUTO START" alarm actuated. The operators responded to the Alarm Response Procedure (ARP), but they found all alarm inputs listed in this ARP to be clear. EDG 21 was then manually started and synchronized to 480V Bus 5A as a precaution. The EDG operator noted that the indicating lights for EDG 22 Fuel Oil Transfer Pump (FOTP) were not lit. This was because the control power supply fuse to EDG 22 FOTP was blown. The fuse was replaced, EDG 22 FOTP automatically started, and the "22 DIESEL GENERATOR UNAVAILABLE FOR AUTO START" alarm actuated. At this point the EDG 22 day tank fuel level was checked and found to be below the setpoint for automatically starting the FOTP. The EDG 21 day tank was then checked and found to be at the same level, but EDG 21 FOTP would not start. EDG 22 FOTP was used to fill the day tanks for EDG 21 and 22. EDG 21 was then secured, and the alarms were cleared for both EDG 21 and 22. EDG 23 FOTP had been tagged out for maintenance previously, and was unavailable during this entire event.

ANALYSIS OF OCCURRENCE:

This report is being made because actuation of an Engineered Safety Feature (ESF) System occurred. Any manual or automatic actuation of an ESF is reportable under 10 CFR 50.73(a)(2)(iv). There were no adverse safety implications as a result of this event. Except as described above, all ESFs performed as expected. Component cooling water and spent pool cooling flow were not impacted by this event. Service water was promptly restored. This event did not cause any personnel injury or damage to equipment.

CAUSE OF OCCURRENCE:

The trip of the 2A-5A bus tie breaker which resulted in the start of the EDG's was caused by a trip signal initiated by the 480V bus 5A normal supply breaker. The normal supply breaker is a Westinghouse Type DB-75 breaker. When this breaker was being restored following preventive maintenance, the trip bale wire did not properly reset and was not in the reset position. The operators reported pressing the manual "TRIP" button on the DB-75 breaker after racking it into its cubicle. This action is designed to lift the breaker trip bale wire from the internal fault trip buttons, allowing the breaker to be restored. With the trip bale wire not in the reset position, the breaker status logic output was the same as if the breaker had been on line and then tripped on an overcurrent condition. As a result, when DC control power was restored a trip signal was sent to the bus lockout relay, which is designed to trip when the supply breaker trips on an overcurrent condition. Actuation of the lockout relay caused a trip of the 2A-5A bus tie breaker, which in turn de-energized 480V bus 5A. No electrical fault existed at this time. Subsequent testing of the subject DB-75 supply breaker showed that the trip bale would reset as designed, but excessive force was required to achieve reset. This was a subjective determination as there is not specified value of force required to achieve reset.

The alarm on EDG 21 was initiated because the associated day tank was below the tank level that was designed to start the EDG 21 FOTP, but the FOTP did not start. This alarm input was not included in the ARP for the unavailability of auto start alarm for all three EDG's. The EDG 21 FOTP was prevented from starting by the low level cutout switch on the EDG 21 fuel oil storage tank. A piece of metal was found between the contacts in the low level cutout switch, rendering it inoperable in such a manner that the EDG 21 FOTP was prevented from starting. The origin of the metal piece could not be determined. As stated above, at this time the EDG 22 FOTP was unavailable due to a blown fuse which was subsequently replaced, and the EDG 23 FOTP was tagged out due to maintenance being performed on the EDG 23 fuel oil storage tank magnetrol.

CORRECTIVE ACTION:

The DB-75 breaker trip bale was lubricated after subsequent testing had shown that excessive force was required for the trip bale to obtain reset. Operating procedures have since been revised to require physical verification of trip bale wire positioning and operability prior to breaker rack in. Test procedures will be revised so that each time a breaker is returned to operations, the breaker will have been manually barred shut and manually tripped as a final step prior to returning to operations. Appropriate training on the procedure changes will be provided.

The metal piece was removed from the EDG 21 fuel oil storage tank low level cutout switch, and the switch tested satisfactorily on the following day. The ARP's have been revised to include the alarm input for the FOTP failing to start when the associated day tank level goes below a specific level to the unavailability for auto start alarm for each of the three EDG's. Tests and calibrations will be made at each refueling interval for the FOTP and day tank level alarm circuit. Appropriate training will be provided.