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September 30, 1998

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 98-013-00

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555-0001

The attached Licensee Event Report LER 98-013-00 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Attachment

cc: Mr. Hubert J. Miller,
Regional Administrator-Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1498

Mr. Jefferey F. Harold, Project Manager
Project Directorate I-1
Division of Reactor Projects I/II
US Nuclear Regulatory Commission
Mail Stop 14B-2
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NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point Nuclear Generating Station, Unit No. 2	05000-247	1 OF 4

TITLE (4)

INADVERTENT STATION BLACKOUT ACTUATION DURING TEST OF DIESEL GENERATORS.

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 NAME	DOCKET NUMBER
09	01	1998	1998	-- 013 --	00	09	30	1998	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	000

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

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)	X	50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Ingvar G. Kjellberg Sr. Engineer	914 734-5567

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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 15 single-spaced typewritten lines) (16)

At 5:53 PM on September 1, 1998, with the unit in "Hot Standby", all control rods fully inserted and the reactor trip breakers open, the plant experienced an inadvertent station blackout. Emergency operating procedure "E-0", for reactor trip and safety injection, was entered. All safety related automatic actuations required by the station blackout signal performed as designed, including the auto start and loading of all three emergency diesel generators (EDGs). After approximately 18 minutes transition to the Abnormal Operating Instruction 27.1.1 was performed for restoration of the 480 volt buses to offsite power. As of 7:00 PM all 480V buses were restored to offsite power and the EDGs were returned to standby. The blackout signal was received when, during a post maintenance test of the 22 Emergency Diesel Generator, two (2) under voltage relays for offsite bus 5A were depressed to simulate a "black" start of the 22 diesel generator. Earlier that day, the generator lockout relays "86P" and "86BU" had changed from their "reset" position to their "tripped" position by performance of another test. The presence of unit trip signal simultaneously with actuation of two under-voltage relays from either bus 5A or bus 6A will initiate a blackout signal. Step 3.4.2 in Emergency Diesel Generator procedure PT-M21 states: "*Verify that lockout relays 86P and 86BU are reset. If they are found in tripped condition, reset both relays. Record on data sheet.*" The failure to recheck this procedure step after a test interruption and a 5 hours delay resulted in the subsequent actuation of the blackout sequence.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point Nuclear Generating Station, Unit No. 2	05000-247	1998	-- 013 --	00	2 OF 4

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

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Inadvertent station blackout actuation during test of diesel generators.

EVENT DATE:

September 1, 1998

REPORT DUE DATE:

October 1, 1998

REFERENCES:

Condition Reporting System (CRS) : 199807587

PAST SIMILAR OCCURRENCE:

None

DESCRIPTION OF OCCURRENCE:

On September 1, 1998, Indian Point unit 2 was in "Hot Standby" with all rods fully inserted and the reactor trip breakers open. The reactor coolant system (RCS) temperature was 545 degrees F and the RCS pressure was 2235 PSIG. On the morning of September 1st the reactor protection system RPS logic train "B" functional test, PT-2M3, was in progress. While this test was in progress, the senior reactor operator (SRO) was given the emergency diesel generator test, PT-M21, for review. He performed a review of the precautions and limitations and checked off the initial steps including the reset mode of the generator lockout relays. Later, at approximately 1 PM, the RPS logic test, PT-2M3, was completed and the main generator lockout relays 86P and 86BU were left in their tripped mode. The SRO was notified of the "as left" condition of the generator lockout relays. Several hours later, when the diesel generator test PT-M21 commenced, the step to check if the generator trip relays were reset, was not rechecked or verified. At 1750 hours, two (2) of bus 5A's under voltage relays were depressed to simulate a "black" start of the 22 diesel generator. As the main generator lockout relays "86P" and "86BU" were in the tripped position, this resulted in an inadvertent station blackout actuation. Emergency Operating Procedure "E-0", for reactor trip and safety injection, was entered.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point Nuclear Generating Station, Unit No. 2	05000-247	1998	-- 013 --	00	4 OF 4

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

CAUSE OF OCCURRENCE:

Although lack of procedure adherence was the direct cause of the incident, there were several causal factors that contributed to this event. A root cause evaluation was performed in accordance with a station administrative order, SAO-112, which identified factors contributing to the incident. Test interruption of PT-M21 was a main cause to this event, because during this delay, test prerequisites for PT-M21 were changed by test PT-2M3, which altered the previously verified relay line up. This relay lineup was a prerequisite for the successful execution of test PT-M21. A pre-job briefing, which was performed for other jobs that day, was not done. If performed prior to commencing PT-M21, it would most likely have discovered the change of state of the generator lockout relay.

CORRECTIVE ACTIONS:

Corrective actions include:

1. Pre-job briefings are now required for all work outside the normal shift routine and shall occur in close proximity to the start of a job.
2. Guidance has been given to manage handling of interruptions and delays. If a procedure or test is delayed, completed procedure activities such as precautions, limitations and completed procedure steps will be verified again prior to resuming the procedure or test.

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Indian Point Nuclear Generating Station, Unit No. 2	05000-247	1998	-- 013 --	00	3 OF 4

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

DESCRIPTION OF OCCURRENCE (continued):

All safety related automatic actuations, required by the station blackout sequence, performed as designed, including the auto start and loading of all three emergency diesel generators (EDGs). After approximately 18 minutes the operator made a transition to a Abnormal Operating Instruction (AOI) 27.1.1. AOI 27.1.1 is the procedure that is used to connect the 480 volt buses to offsite power. As of 7:00 PM all 480V buses were restored to offsite power and the EDGs were returned to standby.

ANALYSIS OF OCCURRENCE:

An inadvertent blackout signal was received at approximately 5:53 PM September 1, 1998. It occurred during performance of PT-M21, a load test of the Emergency Diesel Generators, when two (2) under voltage relays for bus 5A were depressed to simulate a "black" start of the 22 diesel generator. It was discovered that, earlier that day , the RPS logic train "B" functional test, PT-2M3 had changed the generator lockout relays "86P" and "86BU" from reset to their tripped position. The presence of generator trip signal simultaneously with actuation of two under-voltage relays from either bus 5A or bus 6A will initiate a blackout sequence.
Review of PT-M21 revealed that the procedure, if adhered to, was adequate, both with respect to procedure prerequisites and "step by step" instructions, to provide assurance that the test was properly performed. Procedure Step 3.4.2 in PT-M21 states: "*Verify that lockout relays 86P and 86BU are reset. If they are found in tripped condition, reset both relays. Record on data sheet.*" Omission to recheck this step resulted in the subsequent actuation of the blackout sequence.
The SRO received test procedure PT-M21 in the morning. He reviewed the procedure the actual relay position and found that the 86P and 86 BU relays to be in the "reset" position at that time. The prerequisites for the test were satisfied before noon. However, PT-M21, scheduled to take place at this time, was then interrupted and delayed. At approximately 1 PM the SRO was notified, at the completion of the reactor protection logic train "B" functional test, PT-2M3, that this test left relays 86P and 86BU in their "tripped" position. Therefore, during the test delay of PT-M21, the initial conditions for the test had changed. The pre-job briefing, which is usually performed prior to the start of the test, was not performed prior to resuming the test. A pre-job briefing at this time could have determined that the generator lockout relay had changed from being reset to its tripped condition. Further, the steps in test procedure PT-M21 previously performed were not rechecked. The lockout relays remained in the tripped position, which in turn caused the blackout sequence to occur when the under voltage relays on bus 5A were depressed to simulate a "black" start of the 22 diesel generator.