

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 736.8001



Robert J. Barrett
Site Executive Officer

September 8, 1997
IPN-97-120

U.S. Nuclear Regulatory Commission
ATTN: Document Control Center
Washington, D.C. 20555

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
License No. DPR-64
Licensee Event Report 97-016-00

**Two Emergency Diesel Generators Rendered Inoperable by
Engineered Safety Feature Logic Circuit Surveillance Testing;
A Condition Prohibited by Technical Specifications**

Dear Sir:

The attached Licensee Event Report (LER) 97-016-00 is submitted as required by 10 CFR 50.73. This event is of the type defined in 10 CFR 50.73 (a)(2)(i)(B).

The Authority is making no new commitments in this letter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Robert J. Barrett", written over a horizontal line.

Robert J. Barrett
Site Executive Officer
Indian Point 3 Nuclear Power Plant

Attachment

cc: see next page

11
Te22

9709170019 970908
PDR ADCK 05000286
S PDR



170019

cc: Mr. Hubert J. Miller
Regional Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

INPO Record Center
700 Galleria Parkway
Atlanta, Georgia 30339-5957

U.S. Nuclear Regulatory Commission
Resident Inspectors' Office
Indian Point 3 Nuclear Power Plant

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)
Indian Point 3

DOCKET NUMBER (2)
05000286

PAGE (3)
1 OF 6

TITLE (4) Two Emergency Diesel Generators Rendered Inoperable by Engineered Safety Feature Logic Circuit Surveillance Testing; A Condition Prohibited by Technical Specifications

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
08	06	97	97	-- 016 --	00	09	08	97	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	000	20.402(b)	20.405(c)	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
		20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		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
Kevin Kingsley, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)
(914) 734-6034

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)

YES (If yes, complete EXPECTED SUBMISSION DATE). NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

Safety Injection Test 3PT-R003C is conducted at a refueling frequency with the plant at cold shutdown conditions to verify that the safety injection system logic circuits perform as designed in accordance with Technical Specification 4.5.A.1.a. A portion of the test involves verifying logic circuits associated with operation of the Emergency Diesel Generators (EDG) in response to the test safety injection signal. This LER describes two cases in which performance of this test rendered two EDGs inoperable, which is a condition prohibited by Technical Specification 3.7.F.4. The first case occurred during tests performed prior to Refueling Outage 9 (RO9) and involves interrupting power to EDG support components for two EDGs at the same time. This condition was identified and corrected by a procedure revision prior to performing the test on August 8, 1997 for RO9. The second case occurred during the performance of the test on August 8, 1997 and involved tripping of the EDG lockout relay for two EDGs at the same time. The EDG lockout relays were reset within approximately five minutes and a procedure change was processed to prevent recurrence. There was no affect on public health and safety for either case because there was no actual loss of offsite power during these tests.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Indian Point 3	05000286	YEAR 97	SEQUENTIAL NUMBER -- 016 --	REVISION NUMBER 00	2 OF 6

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

The Energy Industry Identification System Codes are in brackets, { }.

DESCRIPTION OF EVENT

Two separate but related occurrences involving the performance of Safety Injection Test 3PT-R003C, rendered two of the three Emergency Diesel Generators (EDGs) {EK} inoperable, which is a condition prohibited by Technical Specification 3.7.F.4. This Safety Injection test is performed at a refueling frequency, with the plant at cold shutdown (Reactor Coolant System temperature ≤ 200 °F), to verify proper operation of electrical controls and logic circuits that support the safety injection actuation function.

Case 1 - Power supplies to EDG support components deenergized:

On August 6, 1997 while reviewing procedure 3PT-R003C, Operations Department personnel identified a concern about a portion of the test sequence. The procedure was in the process of being revised for other reasons and had not yet been issued for test performance during Refueling Outage 9 (RO9), which was in progress.

The procedure sequence results in power supplies to EDG support components being deenergized for 2 of the 3 EDGs at the same time. The EDGs are treated as inoperable when the support components are not available. Technical Specification 3.7.F.4 requires that at least 2 EDGs be operable. The affected EDG support components include room ventilation fans, the fuel transfer pump, and the engine crankcase exhauster. Although the EDGs can start without these support components, subsequent long-term operation could be affected by increased room temperature or increased crankcase pressure.

The objective of the test is to verify proper operation of the safety injection logic circuit which provides auto-close signals to the supply breakers {BKR} for the Motor Control Centers (MCCs) {ED} that power the EDG support components. In the unlikely event that a Loss of Offsite Power (LOOP) occurs during the few minutes that this portion of the test is being performed, there is no design feature which automatically restores power to the affected MCCs. Restoration of power to the EDG support components would require operator action.

After reviewing alternative resolutions, a decision was made to revise the procedure so that the test objective could be achieved using a method that did not affect the power supplies to two trains of EDG

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Indian Point 3	05000286	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 6
		97	-- 016 --	00	

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

support components at the same time. The revised procedure also contains steps to declare the affected EDG inoperable during the period of time that the MCC for the support components is deenergized. The revised procedure was performed August 8, 1997

Although the procedure was not approved for use for R09, plant records indicated that the test sequence of concern was part of the original version of this procedure and had been used for tests prior to R09. There was no evidence that a written evaluation had been performed to justify the test sequence. A procedure revision in February 1995, for the latest test performed prior to R09, added a caution statement to perform the affected series of steps as quickly as possible to minimize the length of time that the EDG support components (for two EDGs at the same time) are deenergized.

Case 2 - Inadvertent actuation of Lock-out relays

On August 8, 1997 while performing restoration steps for 3PT-R003C, the lockout relays {RLY} for two EDGs tripped when the tested logic circuits were being returned to a normal configuration, as explained below.

Overcurrent (OCR) and Reverse Power (RP) signals are equipment protection features which prevent the affected EDG from being started or shut it down if it is already running. The test procedure 3PT-R003C includes steps which verify that these signals are blocked in the event of the safety injection signal to increase the availability of emergency AC power. During the test, a safety injection signal is applied while the OCR and RP relays are manually actuated to verify that the EDG lockout relay does not trip under this condition. The procedure step calls for resetting the relay by releasing the manual actuation. However, a seal-in circuit maintains the OCR and RP signals until another alarm reset pushbutton is depressed. The procedure did not contain steps to clear the seal-in logic so that when other portions of the circuit were restored to normal, these equipment protection signals were still present and tripped the EDG lockout relays for the two EDGs affected by the test. The test restoration steps were being performed by the Nuclear Plant Operator (NPO) at the EDG local control panels. The unexpected condition was noticed by control room operators when the "Auto Start Defeated" alarm annunciated. The NPO was notified and, within approximately 5 minutes, the lockout relays were reset in accordance with Alarm Response Procedure, ARP-12.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)	
Indian Point 3	05000286	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 6
		97	-- 016 --	00	

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

CAUSE OF EVENT

Case 1 - Power supplies to EDG support components deenergized

Because the procedure steps in question originated with the initial issue of the procedure, a specific cause could not reasonably be identified. Potential causes include: i) failure to document a justification / evaluation for the test configuration, and ii) use of a different philosophy regarding the definition of 'operability' as it applies to support components. Identification of the questionable test sequence at this time can be attributed to recent improvements implemented at IP3, including: i) process improvements in the preparation and review of new procedures and procedure revisions, and ii) process improvements in the implementation and tracking of Technical Specification Limiting Conditions for Operation.

Case 2 - Inadvertent actuation of Lock-out relays

The event occurred because of a procedure deficiency created when the procedure was revised to test additional logic circuits. Steps for restoration following completion of the testing did not clear sealed-in trip signals which subsequently resulted in an inadvertent actuation of EDG lockout relays. The cause of the procedure deficiency was human error during procedure development. The preparer of the affected procedure steps did not recognize that manual actuation of the equipment protective trip signal relays energized a seal-in circuit that was not cleared simply by releasing the relay. This aspect of the circuit design also was not identified during the review process.

CORRECTIVE ACTIONS

Case 1 - Power supplies to EDG support components deenergized

Upon discovery of the questionable procedure sequence, performance of the test was deferred pending resolution. Following evaluation of alternatives, the procedure was revised so that EDG support component power supply breakers are tested one at a time. Discovery of this condition indicates that recent process improvements have made an effective contribution to questioning attitude and improved procedures.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
Indian Point 3		05000286		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 6
				97	-- 016 --	00	

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

Case 2 - Inadvertent actuation of Lock-out relays

Upon discovery of the procedure deficiency during the performance of the test for the first safety injection train, a procedure change was prepared. The procedure was subsequently used to test the second safety injection train with acceptable results. The procedure preparer was interviewed and counseled to reinforce the importance of attention to detail.

ANALYSIS OF EVENT

This report is being submitted in accordance with 10 CFR 50.73 (a)(2)(i)(B) for operation or condition prohibited by Technical Specification. The prohibited condition involves failure to maintain 2 EDGs operable as required by TS 3.7.F.4.

A review of LERs submitted during the past two years identified the following LERs involving the EDGs:

LER 97-010; "Less Than the Required Number of EDGs were Operable due to Inadvertent Operation of a Carbon Dioxide (fire suppression) System" (dated 7/18/97)

LER 96-006; "Two EDGs were Declared Inoperable in Hot Shutdown due to a Leaking Lube Oil Header Check Valve" (dated 4/1/96)

SAFETY SIGNIFICANCE

There was no affect on the health and safety of the public for either of the cases described in this LER. An actual loss of offsite power did not occur during the performance of the test sequences in question. The subject test is performed only while the plant is in cold shutdown when the AC power requirements for both normal and hypothetical accident conditions is much less than when the plant is at power operation. The design basis loss of offsite power event is based on full power operation when a maximum amount of stored energy and decay heat must be promptly dissipated. With the plant in cold shutdown, the decay heat generation rate is substantially reduced. In addition, since there were no fuel handling operations being performed at the time of the test, there were no AC power requirements needed to mitigate the consequences of a postulated fuel handling accident.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Indian Point 3	05000286	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	6 OF 6
		97	-- 016 --	00	

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

Case 1 - Power supplies to EDG support components deenergized

The test sequence is performed twice; once for SI Train 1 and once for SI Train 2. When the Train 1 test is performed the designated RHR train, which is providing decay heat removal, is associated with the EDG that is not affected by the test. When the Train 2 test is performed, each of the two RHR trains are associated with the EDGs being tested. Therefore, in the unlikely event that a LOOP occurs during the few minutes that this portion of the test is being performed, power to the support components could be interrupted for the two EDGs that provided power for residual heat removal. As previously described, the EDGs can still start without the affected support components operating; however, subsequent long-term operation may be unreliable. Operator response to alarms during this time period could restore power to the EDG support components to assure reliable long-term operation of the EDGs. Even if both RHR pumps are lost, as previously discussed, the decay heat source is such that a significant time period is available for operators to reestablish cooling.

Case 2 - Inadvertent actuation of Lock-out relays

The test was first performed on SI Train 1 when the designated RHR train was not associated with either EDG being tested. The auto-start function for the two EDGs involved in the Train 1 test was defeated for approximately 5 minutes. The third EDG was not affected by the test and remained available to power the designated RHR train in the event of a loss of offsite power. The test deficiency was identified and corrected before the test was performed for SI Train 2.