

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 736-8001



L. M. Hill
Resident Manager

November 7, 1994
IPN-94-141

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop PI-137
Washington, D.C. 20555

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
License No. DPR-64
Licensee Event Report # 94-010-00
"A Surveillance Test of the CO₂ Fire Protection System Resulted
in a Condition Prohibited by Technical Specifications due to a
Procedural Deficiency and Personnel Error"

Dear Sir:

The attached Licensee Event Report (LER) 94-010-00 is submitted as required by 10CFR50.73. This event is of the type defined in 10CFR50.73(a)(2)(i)(B). Also attached are the commitments made by the Authority in this LER.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'L. M. Hill'.

L. M. Hill
Resident Manager
Indian Point 3 Nuclear Power Plant

LMH/vjm

Attachments

cc: See next page

010013
9411220180 941107
PDR ADDCK 05000286
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1/1

Docket No. 50-286

IPN-94-141

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

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

Attachment 1
List of Commitments

Number	Commitment	Due
IPN-94-141-01	Technical Services will revise TSP-42, "Surveillance And Engineering Acceptance Test Preparation and Review," to reaffirm to the preparer of a surveillance procedure the need to identify when a support system renders a system inoperable by the test and to place this in the precautions and limitations.	December 15, 1994
IPN-94-141-02	The CO ₂ test, 3PT-R82, will be revised by Operations to identify the systems made inoperable and identify requirements for operability to be restored after the test in each cubicle.	Prior to use
IPN-94-141-03	Operations will place the lessons learned from this event in the agenda for discussion at the weekly department meetings.	November 18, 1994
IPN-94-141-04	The extent of condition is under investigation by a Plant Operating Review Committee (PORC) subcommittee. The need for additional corrective action is being investigated as part of this evaluation.	December 14, 1994

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
(MNRB 7714), U.S. NUCLEAR REGULATORY COMMISSION,
WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK
REDUCTION PROJECT (3150-D174), OFFICE OF
MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Indian Point Unit 3

DOCKET NUMBER (2)

05000286

PAGE (3)

1 OF 6

TITLE (4)

A Surveillance Test of the CO₂ Fire Protection System Resulted in a Condition Prohibited by Technical Specifications due to a
Procedural Deficiency and Personnel Error

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
10	07	94	94	-- 010 --	00	11	07	94	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(e)			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)(3)(vii)	OTHER
			20.405(a)(1)(iii)		✓	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

Charlie Caputo, Operations Senior Technical
Advisor

TELEPHONE NUMBER (Include Area Code)

(914) 736-8814

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs

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)

ABSTRACT

On October 7, 1994, at approximately 1500 hours, with the plant in cold shutdown, Technical Services concluded that at least two Emergency Diesel Generators were inoperable during a June 1992 surveillance test. During this event and seven prior surveillance tests, IP3 was in violation of Technical Specification 3.7.F.4. This event was caused by a procedural deficiency and personnel error. Corrective actions include correction of the surveillance test, a revision of the writers guide to require consideration and identification of system inoperability induced by surveillance test and counseling of plant personnel. These actions correct the deficiency and prevent recurrence. The extent of condition and corrective action that may be required are under evaluation. The effects on public health and safety were negligible.

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 Unit 3	05000286	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 6
		94	-- 010 --	00	

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

DESCRIPTION OF EVENT

On October 7, 1994, at approximately 1500 hours, with the plant in cold shutdown (the reactor power level at 0%, reactor coolant temperature at 95 degrees F, reactor coolant pressure at atmospheric and pressurizer level at 70%), Technical Services concluded that at least two Emergency Diesel Generators (EDG) (EK) were inoperable during a June 1992 carbon dioxide (CO₂) fire protection system (LW) test (3PT-R82). Technical Services documented this event, a violation of Technical Specification 3.7.F.4 (requires at least two operable EDGs in cold shutdown), in Deviation Event Report (DER) 94-930. The Technical Services investigation that led to discovery of the event was initiated by the Operations Department on October 2, 1994, after stopping the CO₂ test (3PT-R82) due to blown fuses (FU) in the CO₂ system.

The event reported in the DER was investigated by the Operations Department. Performance of the CO₂ fire protection system test requires energizing fusible links which close the inlet ventilation smoke dampers (DMP) for the Emergency Diesel Generator Building (NB) Heating and Ventilation system (VJ). The test also closes the exhaust dampers and disables the exhaust fans (FAN). Although the EDG combustion air and exhaust would not be affected (they are routed independently), the relay (RLY) cabinets (CAB) for the EDGs were not designed to operate without the associated ventilation system to dissipate heat. The sequence of actions for surveillance test 3PT-R82 is as follows: the CO₂ fire protection system for an EDG cubicle is tested; after the test, the room is cleared of CO₂ by wedging open the inlet smoke dampers with wooden blocks or dowels (broomsticks) and placing the exhaust fans in service; when the first EDG cubicle is cleared to allow personnel entry (this occurs about 15 minutes after the test is initiated) the test is performed in the next EDG cubicle, and; after the last test, all the fusible links are replaced. A fire watch is kept after the first test until the fusible links are replaced.

Operations found that the ventilation system for the 31 EDG was inoperable because the wedges in the smoke dampers had not been designed to remain in place during a seismic event or when subject to the vibration associated with diesel operation. The EDG was available but was not designed for operation without the ventilation system. Operations concluded that an EDG was inoperable from the time the fusible links melted until the fusible links were replaced.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

Operations confirmed that each EDG became inoperable when the test was performed on its associated CO₂ fire protection system on June 25, 1992. The work order for restoring fusible links was not required until after the three cubicles had been tested per procedure 3PT-R82. Prior to the testing, the 33 EDG had been removed from service for scheduled preventative maintenance. The 33 EDG was returned to service on June 28, 1992, and the CO₂ fire protection system test on the three EDGs was completed on July 1, 1992 (this date was identified from the date the CO₂ fire protection system was returned to auto per the shift supervisor's log).

In addition to the 1992 test, the CO₂ fire protection system test was performed seven times following installation of the system (i.e., 10-6 to 10-21-82, 1-6-83, 8-11-85, 7-2 to 7-13-87, 5-22-88, 4-16-89, 4-30-90). Five tests were completed (i.e., from initiation of the first test to replacement of the last fusible link) in one day, one test took 11 days to complete and one test took 15 days to complete. The two long tests were due to problems with the dampers which had to be repaired.

Operations assessed the barriers in place to prevent surveillance testing from placing the plant in a condition that violated Technical Specifications. Procedure 3PT-R82 did not identify that the EDG Ventilation system was made inoperable by the CO₂ fire protection system test or that an EDG was made inoperable when its associated ventilation system was inoperable. The procedure writers guide, TSP-42 "Surveillance And Engineering Acceptance Test Preparation and Review," did not require this information to be identified. Further, the reviewer and approver of the procedure, personnel expected to provide a technical review, apparently did not identify the effect of testing on EDG operability and require the ventilation system to be restored to an operable condition prior to the next test. The last barrier, Operations' review of a test prior to performance, also failed to identify the effect of testing on EDG operability. Operations allowed the test to proceed in 1992 with one EDG out of service for maintenance.

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TEXT CONTINUATION

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

CAUSE OF THE EVENT

The causes of the event were inadequate procedural guidance and personnel error. There was a lack of appropriate guidance in the surveillance writing procedure TSP-42 and neither the reviewer nor approver of the test or operations personnel approving performance of the test recognized the effect of the test. The reason for this is unknown.

CORRECTIVE ACTION

The following corrective actions will be performed in order to establish the extent of condition and prevent recurrence:

1. Technical Services will revise TSP-42, "Surveillance And Engineering Acceptance Test Preparation and Review," to reaffirm to the preparer of a surveillance procedure the need to identify when a support system renders a system inoperable by the test and to place this in the precautions and limitations. This will be completed by December 15, 1994.
2. Prior to use, the CO₂ test, 3PT-R82, will be revised by Operations to identify the systems made inoperable and identify requirements for operability to be restored after the test in each cubicle.
3. Operations will place the lessons learned from this event in the agenda for discussion at the weekly department meetings. This will be completed by November 18, 1994.
4. The extent of condition is under investigation by a Plant Operating Review Committee (PORC) subcommittee. The need for additional corrective action is being investigated as part of this evaluation. The investigation is scheduled for completion by December 14, 1994.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

ANALYSIS OF THE EVENT

This event is reportable under 10 CFR 50.73(a)(2)(i)(B). The Licensee shall report any event or condition that resulted in the plant being in a condition outside the Technical Specifications. The EDG was not designed to operate without the ventilation system (the ventilation system is required to maintain the temperature in the EDG cubicle within component design limits of 126 degrees F). The ventilation systems for the three EDGs were not operable due to CO₂ fire protection system testing from June 25, 1992 to July 1, 1992, a period of 6 days. This places the plant in violation of Technical Specification 3.7.F.4 which requires at least two operable EDGs in cold shutdown. The Technical Specification violation also occurred during seven prior CO₂ fire protection system tests for a total period of 31 days. The total number of days in violation of the Technical Specifications was 37 during a period of more than 10 years.

Similar events have been reported in previous Licensee Event Reports. Events related to the EDG ventilation system that occurred during performance of the CO₂ fire protection system test have been reported in LERs 92-17, 16 and 10. Events related to inadequate surveillance testing or tests have been reported in LERs 94-4, 3, and 2, 93-49, 40, 37, 34, 28, 23, 17, 10, 9, 8, 5, 4, and 1, 92-1. Events affecting the operability of the EDGs have been reported in LERs 93-53, 42, and 27, 92-11, 10, 7, and 6, 91-2, and 90-2.

SAFETY SIGNIFICANCE

This event had a negligible effect on the public health and safety.

This conclusion was reached because there was no loss of offsite power and Operations and Licensing did not consider it reasonable and credible to postulate a loss of offsite power or an earthquake with a consequential loss of offsite power during the limited period that the EDGs were inoperable. The CO₂ fire protection system test is performed only during cold shutdown and the testing has resulted in the three EDGs being inoperable for 37 days since the first test in 1982. This is less than one percent of the time. The probability of a loss of offsite power with damper closure induced by EDG vibration is 4.6E-4/year. The probability of a seismically induced loss of offsite

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power with damper closure induced by the earthquake is $1.7E-6$ /year. In both of these cases the dampers were assumed to close giving a probability of all dampers closing of 1.

Even if there had been a loss of offsite power during the CO₂ fire protection system test, there is reason to expect that the wedges would have stayed in place so that the EDGs remained operable. Engineering and Operations inspected the dampers and assessed the manner in which they were wedged open. The dampers have springs on each of the vanes and are normally wedged fully open with dowels between 3 to 5 vanes. Based on engineering judgement, Engineering and Operations concluded that the pressure exerted by the springs when the vanes were wedged full open would have been sufficient to prevent any motion of the vanes during an earthquake or during EDG operation. The dowels would therefore have stayed in place. Even if some dampers had closed, there would have been partial ventilation. Each EDG cubicle has two sets of vanes in the upper duct smoke damper, two sets of vanes in the lower duct smoke damper and, to provide the fire watch with clear visibility, the doors between the EDG cubicles were open.

The extent of condition is under investigation by a PORC subcommittee. The need for additional corrective action is being investigated as part of this evaluation.