

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
(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)

Indian Point Unit 3

DOCKET NUMBER (2)

05000286

PAGE (3)

1 OF 6

TITLE (4)

Emergency Diesel Generators 31, 32 and 33 Inoperable due to Personnel Error Which Resulted in the Local
Control Panels Being in a Non-Seismically Qualified Configuration

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
06	24	93	93	-- 027 --	00	07	23	93	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)		✓ 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)			

Name

Tom Carbone, Instrumentation and Controls Planner

TELEPHONE NUMBER (Include Area Code)

(914) 736-8782

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).

X

NO

EXPECTED
SUBMISSION
DATE (15)

MONTH

DAY

YEAR

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

On June 24, 1993 at approximately 1350 hours with the plant in a cold shutdown condition, the emergency diesel generator (EDG) system engineer determined that the local control panels for the 31, 32, and 33 EDGs did not meet seismic design requirements because they were missing fasteners used to secure the inner hinged panel to the control cabinet. Without these fasteners, the inner hinged panel could swing inside the panel during a seismic event and prevent EDG operation. Indian Point 3 personnel were unable to determine the duration of the event and therefore conservatively assumed a bounding duration of 15 years and 3 months. The cause of this event was personnel error. The Maintenance department replaced the bolts and the shift supervisor declared the 31 and 32 EDGs operable approximately 7 hours after discovery of the event. Department managers will instruct appropriate plant personnel to report similar deficiencies identified during routine equipment walkdowns or inspections.

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

DESCRIPTION OF EVENT

On June 24, 1993 at approximately 1350 hours with the plant in a cold shutdown condition (the reactor power level at 30 cps, reactor coolant temperature at 114 degrees Fahrenheit, reactor coolant pressure at atmospheric and pressurizer level at 35%), the emergency diesel generator (EK) (DG) system engineer observed that the local control panels (PL) for the 31, 32, and 33 emergency diesel generator (EDG) control cabinets (CAB) were missing fasteners (bolts) used to secure the inner hinged panel. The system engineer determined that, with the inner hinged panel not properly secured to the control cabinet, a seismic event could cause the panel to swing freely inside the cabinet and potentially result in damage that would prevent EDG operation. The system engineer immediately notified the shift supervisor who declared EDG 31 and 32 inoperable (33 EDG had been inoperable due to an ongoing 12 year preventive maintenance overhaul) and notified the NRC as required by 10 CFR 50.72. This report was made at 1448 hours on June 24, 1993.

At approximately 2000 hours on June 24, 1993, maintenance department personnel replaced the bolts in all three EDG hinged panels. Operations department personnel performed surveillance tests (i.e., daily operability checks) on the 31 and 32 EDGs and the shift supervisor declared the 31 and 32 EDGs operable at 2045 hours on June 24, 1993.

After interviews with Operations, Maintenance, Instrumentation and Controls (I&C), and Technical Services personnel, and a review of current procedures, the Authority could not establish how long the hinged panels had remained unfastened. Individuals were able to recall that the panels were bolted at one time; however, no definite time frame could be identified. The interviews revealed that no procedures existed at the time of the occurrence which would have required the removal of the bolts. As a result, the Authority established March 12, 1978, as a conservative bounding date for the occurrence. This is the date when the Authority assumed the operating license for Indian Point 3 (IP3).

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CAUSE OF THE EVENT

The cause of this event was personnel error resulting from inattention to detail and a lack of knowledge. The inattention to detail was that personnel working on the EDG control panels did not restore them to their original configuration when the work was completed. The lack of knowledge was that these same personnel were unaware that the hinged panels required the bolts be installed to be seismically qualified.

CORRECTIVE ACTIONS

The immediate corrective action was to replace the missing bolts. This returned the hinged panel to the design configuration required to maintain the seismic design capability of the EDG local control panels.

To prevent recurrence of this and similar events the following corrective actions will be performed:

1. The Technical Services Manager has instructed all System Managers/Engineers to identify hardware deficiencies during routine equipment walkdowns or inspections. Any deficiencies identified in System Managers' Reports on electrical control cabinets/panels will be resolved by evaluation or correction prior to start-up. This corrective action will also identify and correct the extent of this condition.
2. Maintenance and I&C personnel will instruct their respective staffs, by August 16, 1993, of good maintenance and workmanship practices that serve to preclude non-conformances such as the missing bolts reported by this LER. The Construction department staff completed this instruction on July 15, 1993. The instruction requires that the subject personnel follow station procedures by issuing a Problem Identification (PID) to address any non-conformance (e.g., missing cover screws, damaged components).

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ANALYSIS OF THE EVENT

This event is reportable under 10 CFR 50.73 (a)(2)(i)(B) as a violation of Technical Specifications (TS). Technical Specification section 3.7.A states that the reactor shall not be brought above cold shutdown unless three EDGs are operable. Technical Specification section 3.7.B provides the actions to be taken if one EDG is inoperable and TS section 3.7.C provides the actions to be taken if the requirements of TS sections 3.7.A and 3.7.B are not met. Technical Specification section 3.7.F requires a minimum of 2 EDGs under all conditions including cold shutdown. Plant operations have been in violation of these Technical Specifications when subcritical and when the reactor was brought above the cold shutdown condition from the time this event occurred until corrective action was completed. This is conservatively estimated to be 15 years and 3 months.

The potential existed that a seismic event could render the EDGs inoperable. Therefore, this event is also reportable pursuant to 10 CFR 50.73(a)(2)(ii)(B) because this condition placed the plant outside of its design basis.

No similar previous events have been reported in Licensee Event Reports.

SAFETY SIGNIFICANCE

This event did not affect the health and safety of the public. With the hinged panel within the EDG control panel not bolted, the EDGs were available but the EDG control panels were not seismically qualified. The potential existed that a seismic event could render the EDGs inoperable. This condition placed the plant outside its design basis.

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The EDGs are required to be operable because a loss of offsite power is expected to occur as a consequence of an earthquake. The EDG would then be required to achieve and maintain the plant in a safe shutdown condition. The plant design basis does not require the postulation of an earthquake simultaneously with a Loss of Coolant Accident (LOCA) even though some equipment is designed for this condition.

No engineering analysis or calculation has been performed to establish the damage that would occur to the local control panels if a seismic event was to occur. Damage assessments reflect engineering judgement and experience. Instrumentation and Controls department personnel determined the bounding damage from seismically induced swinging of the hinged panel. The swinging panel could damage or loosen (i.e., disconnect totally or partially) equipment on the panel. The hinged panel contains the system fuses and fuse clip, emergency start relay, trip relays, timing relays and alarm relays. Loosening or damaging the equipment could prevent the EDG from starting or cause voltage to the 480 volt AC bus to be lost. The most likely damage would be relay chatter and inadvertent operation of relays that could prevent the EDG from starting. This damage is the type expected based on the earthquake experience data developed by the Seismic Qualification Utility Group (SQUG) regarding equipment operability assembled and reviewed in the resolution of Unresolved Safety Issue A-46, "Seismic Qualification of Equipment in Operating Plants." The low value of the IP3 safe shutdown earthquake (i.e., 0.15g maximum ground acceleration earthquake) and the short duration (i.e., 15 seconds) would be unlikely to cause sufficient panel movement to result in significant damage.

The consequences of a seismic event occurring when the panels were unfastened have been identified considering the damage assessments above. The consequences in order of their likelihood of occurrence are as follows:

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1. The most likely damage to occur (i.e., relay chatter) would result in no effect on public health and safety. The EDG could readily be restored to an operating condition by operator action. Operator action to restore the relays would not take a significant amount of time. The feasibility of operator action has been established by IP3 station blackout analyses which considered a four hour coping capability.
2. If additional damage up to and including the unlikely bounding damage were to occur, the EDG local control panels may not be repairable in the four hour period assessed for station blackout. Given these circumstances, there are two sources of backup power available for plant shutdown. The gas turbines are one backup source and the Appendix R diesel generator is the other. There are control room procedures in place to allow the Consolidated Edison gas turbines to be connected to the 13.8 kV bus. This bus would feed the 6.9 kV bus and the 480 volt AC bus. The Appendix R diesel generator was added to address 10 CFR 50 Appendix R requirements. The Appendix R diesel generator feeds the 6.9 kV bus and the 480 volt AC bus. The Appendix R diesel generator is the alternate AC power source for station blackout and procedures are in place for its use. At different times either or both of these alternate power sources could have been out of service for preventive maintenance or other reasons. These sources are not seismically qualified but may operate after a seismic event based on the earthquake experience data developed by the Seismic Qualification Utility Group (SQUG) in addressing Unresolved Safety Issue A-46.