



**Commonwealth Edison**

Quad Cities Nuclear Power Station  
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RLB-90-074

March 15, 1990

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Reference: Quad Cities Nuclear Power Station  
Docket Number 50-254, DPR-29, Unit One

Enclosed is Licensee Event Report (LER) 90-003, Revision 00, for Quad Cities Nuclear Power Station.

This report is submitted as a voluntary report.

Respectfully,

COMMONWEALTH EDISON COMPANY  
QUAD CITIES NUCLEAR POWER STATION

R. L. Bax  
Station Manager

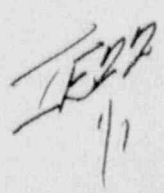
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Enclosure

cc: R. Stols  
R. Higgins  
INPO Records Center  
NRC Region III

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## LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Quad Cities Unit One										Docket Number (2) 0   5   0   0   0   2   5   4					Page (3) 1   of   0   5				
Title (4) Unit One Diesel Generator Inoperable due to Governor Misadjustment with 1/2 Diesel Generator																			
Out-of-Service																			
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   2	1   3	9   0	9   0	0   0   3	0   0	0   3	1   5	9   0	0   5   0   0   0   1   1										
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																
4			<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;">20.402(b)</div> <div style="width: 33%;">20.405(c)</div> <div style="width: 33%;">50.73(a)(2)(iv)</div> <div style="width: 33%;">73.71(b)</div> <div style="width: 33%;">20.405(a)(1)(i)</div> <div style="width: 33%;">50.36(c)(1)</div> <div style="width: 33%;">50.73(a)(2)(v)</div> <div style="width: 33%;">73.71(c)</div> <div style="width: 33%;">20.405(a)(1)(ii)</div> <div style="width: 33%;">50.36(c)(2)</div> <div style="width: 33%;">50.73(a)(2)(vii)</div> <div style="width: 33%;">Other (Specify in Abstract below and in Text)</div> <div style="width: 33%;">20.405(a)(1)(iii)</div> <div style="width: 33%;">50.73(a)(2)(i)</div> <div style="width: 33%;">50.73(a)(2)(viii)(A)</div> <div style="width: 33%;">50.73(a)(2)(viii)(B)</div> <div style="width: 33%;">20.405(a)(1)(iv)</div> <div style="width: 33%;">50.73(a)(2)(ii)</div> <div style="width: 33%;">50.73(a)(2)(ix)</div> <div style="width: 33%;">20.405(a)(1)(v)</div> <div style="width: 33%;">50.73(a)(2)(iii)</div> </div>																
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LICENSEE CONTACT FOR THIS LER (12)																			
Name Michael F. MacLennan, Technical Staff Engineer, Extension 2166															TELEPHONE NUMBER				
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																			
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS										
A	E   K	I   D   G	E   1   4   7	N															
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)									
Yes (If yes, complete EXPECTED SUBMISSION DATE)										X   NO									
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																			

On February 13, 1990, Unit One was in the RUN mode at 99 percent of rated core thermal power. The 1/2 Diesel Generator (DG) was out of service. At 1945 hours, the Unit One DG tripped on overspeed upon manual startup for testing. This caused Unit One to be in a Generating Stations Emergency Plan (GSEP) Unusual Event, however an event declaration was not made. The equipment was reset and a second start attempt made at 2029 hours, with the same results. The equipment was again reset, and the DG speed control lowered. The DG was successfully started at 2048 hours.

The cause of the overspeed was misadjustment of the DG governor. Detailed steps will be added to surveillance procedures to check governor settings, and personnel involved in GSEP declarations will be trained on this event. This report is submitted as a voluntary report.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Quad Cities Unit One	0   5   0   0   0   2   5   4	9   0	-	0   0   3	-	0   0		0   2	OF	0   5
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]										

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power.

EVENT IDENTIFICATION: Unit One Diesel Generator Inoperable due to Governor Misadjustment with 1/2 Diesel Generator Out-of-Service

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: February 13, 1990 Event Time: 1945  
Reactor Mode: 4 Mode Name: RUN Power Level: 99%

This report was initiated by Deviation Report D-4-1-90-018.

RUN Mode (4) - In this position the reactor system pressure is at or above 825 psig, and the reactor protection system is energized, with APRM protection and RBM interlocks in service (excluding the 15% high flux scram).

B. DESCRIPTION OF EVENT:

On February 13, 1990, at 1945 hours, Unit One was in the RUN mode at 99 percent of rated core thermal power. On February 12, at 0500 hours, the 1/2 Diesel Generator (DG)[EK] had been taken out of service (OOS) for scheduled maintenance, which put Unit One in a seven-day Limiting Condition for Operation (LCO). QOS 6600-03, Unit 1/2 Diesel Generator Outage Report - 7 Day Limitation, was initiated, which required that the Unit One DG be proven operable on a daily basis. The DG was tested and proven operable on February 12, 1990, at 2145 hours.

At 1945 hours on February 13, 1990, the Unit One Nuclear Station Operator (NSO) attempted to start the Unit One DG per QOS 6600-1, Diesel Generator Monthly Load Test. The DG immediately tripped on overspeed, which in turn initiated the OVERSPEED TRIP and MACHINE FIELD GROUND alarms [ALM] at panel [PL] 2251-10, and the DIESEL GEN 1 TROUBLE alarm at panel 901-8. The overspeed caused the 125 VDC control power circuit breaker [BRK] to trip. The Shift Control Room Engineer (SCRE), Shift Engineer (SE), and the Operating Engineer (OE), as well as Electrical Maintenance personnel, were notified, and the Equipment Operator (EO) present in the unit One DG room reset the overspeed trip, the ground alarm, and the control power.

With both DGs for Unit One inoperable, a 24-hour LCO is entered per Technical Specification 3.9.E.1. In accordance with QEP 200-T1, Quad Cities Nuclear Station Boiling Water Reactor (BWR) Emergency Action Levels (EAL), condition 3.e., the loss of all Diesel Generators associated with a Unit not in Cold Shutdown or Refuel should be classified as a Generating Station Emergency Plan (GSEP) Unusual Event. However, no GSEP declaration was made.



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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

At 2029 hours, a second attempt was made to start the DG, with the same results. The equipment was reset, and the NSO took the DG Governor [65] adjustor switch [HS] to LOWER for approximately 5 seconds to reduce the speed setting of the DG. At 2048 hours, the unit DG was successfully started. At 2256 hours, following two hours of operation, as required by QOS 6600-1, the DG was unloaded and the control switch [HS] was taken to AUTO.

At 2305 hours, an Emergency Notification System (ENS) phone call was made per the requirements of 10CFR50.72(b)(2)(iii)(D), however, subsequent review considers this to be a courtesy call.

At 2320 hours, the DG was restarted for Maintenance to check the governor adjustment and to verify no trips occurred. No problems were found, and the DG run was subsequently terminated and the control switch returned to AUTO at 2325 hours.

Due to the short duration of this event, the shutdown of Unit One for the 24 hour LCO had not commenced before the problem was corrected. There were no other systems inoperable or degraded at the beginning of this event that could have contributed to the event.

#### C. APPARENT CAUSE OF EVENT:

This report is submitted as a voluntary report. This report will also serve as the final report for Potentially Significant Event (PSE) 90-003.

The root cause of this event could not be positively identified. The DG failed to start due to a misadjustment of the governor. When and how this misadjustment occurred could not be determined. It was determined that the governor misadjustment did not occur on February 12, 1990, when the DG was shut down following testing. The Shift Engineer and a second NSO observed the NSO who was taking the DG off and both individuals saw that the governor was properly adjusted.

The only work being performed which involved manipulation of DG controls was testing being conducted by Operational Analysis Department (OAD) personnel. During the day shift on February 13, 1990, and prior to the Unit One DG operability test, OAD performed testing of the 1/2 DG circuits. This required manipulation of the controls in the control room by an NSO. The NSO may have inadvertently moved the wrong control switch. This error would not have been observed by the OAD test personnel, as they were not in direct sight of the NSO. The NSO stated that he did not manipulate the Unit One DG controls. The OAD personnel monitoring the circuits being tested did not observe any abnormal responses when the NSO performed the switching, thus indicating that the NSO was using the correct control switch. The switch handles are black for Unit One DG controls and yellow for Unit 1/2 DG controls, which decreases the likelihood of this error.

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All of the NSO's assigned to Unit One between the evenings of February 12, 1990, and February 13, 1990, were interviewed to identify any other activities that could have resulted in misadjustment of the governor. No other activities were identified, and all the NSO's stated that they did not change the setting of the governor at any time other than during the DG surveillances noted in this report. The EO's in attendance during the February 12, 1990, surveillance and the February 13, 1990, surveillance were also interviewed. They stated that they did not change the adjustment of the governor speed control at any time.

The governor setting may have increased as the result of an electrical short in the raise portion of the governor circuitry occurring while the DG was in standby between the February 12, 1990, surveillance and the February 13, 1990, surveillance. The likelihood of this is very low, as no shorts in the circuit were detected by the 125 Volt battery [BTRY] ground detector [GDET].

Operating personnel involved in the event believed that the worst consequence of losing both the unit DGs was that the unit would be in a 24-hour LCO. They believed that a Generating Station Emergency Plan (GSEP) Unusual Event did not have to be declared until the unit shutdown began. This requirement comes from an EAL that covers equipment degradation combinations which would require a shutdown. Therefore, they thought that a limited amount of time was available for troubleshooting prior to declaring a GSEP Unusual Event.

According to the appropriate EAL in QEP 200-T1, an Unusual Event will be declared whenever a unit not in cold shutdown or refuel loses both Diesel Generators.

#### D. SAFETY ANALYSIS OF EVENT:

Technical Specification 3.9.E.1. states that whenever the reactor is in the RUN mode and a unit or shared diesel generator is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 7 days provided that all of the low-pressure core cooling and all loops of the containment cooling mode of the RHR system associated with the operable diesel generator shall be operable, and two offsite lines available. If this condition cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.

The safety significance of this event is minimal due to the short amount of time that the Unit One DG was inoperable. The total amount of time that the DG could have been inoperable and gone undetected was less than 22 hours. Once the DG failed, it was corrected and successfully started within sixty-three minutes. Normal offsite lines were available throughout this event to supply power to Emergency Core Cooling Systems (ECCS) in an accident. The bus cross tie from bus 14-1 to bus 24-1 was also available. This would allow Unit Two to supply one division of Unit One emergency loads. The Unit Two DG was available at all times during this event.



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**E. CORRECTIVE ACTIONS:**

The immediate corrective action was to reset the DG equipment and adjust the governor down to reduce the speed. This allowed the DG to be started without an overspeed trip.

The Unit One DG was restarted on February 13, 1990, at 2320 hours, to check the governor. No problems were identified with the governor, and the DG performed properly.

The Unit One DG was again restarted on February 14, 1990, at 1535 hours, to identify the correct governor setting on the local indication. Since the event, routine checks of this setting were performed by the Operating Department to verify that no drifting of the setting has occurred. No drifting was observed.

In order to prevent future occurrences of this event, more detailed steps will be added to surveillance procedures that will require verifying proper governor settings after unloading a DG following a surveillance (NTS 2542009001802). Further, the acceptable range of the governor setting for each DG will be determined, and a verification of the governor setpoint will be incorporated into the operations department shiftily plant rounds (NTS 2542009001801).

On February 20, 1990, a courtesy red phone call was made to report the failure to classify the GSEP event.

Appropriate Operating Department management personnel will be trained on this event with emphasis placed on reviewing all EALs to determine that the appropriate EAL for a given condition is selected (NTS 2542009001803).

**F. PREVIOUS EVENTS:**

There have been no previous reportable events in which a DG tripped on overspeed due to a governor misadjustment.

No other reportable events were found that involved a missed GSEP declaration. There was one previous event that was identified in our review that occurred on October 7, 1989, involving a similar missed GSEP declaration. That event was not reportable and a station event report exists to document it.

As this event was not a component failure, a Nuclear Plant Reliability Data System (NPRDS) search was not conducted. Based on corrective actions to be completed, no further action is deemed necessary.

**G. COMPONENT FAILURE DATA:**

This event did not involve a component failure.