

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
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Title (4)
 Continuous Firewatch Not Established Following Impairment Of A Safe Shutdown Path.

Event Date (5)			LER Number (6)			Report Date (7)			Other Facilities Involved (8)																		
Month	Day	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)																		
0	1	2	1	9	4	9	4	--	0	0	3	--	0	0	0	2	1	8	9	4	0	5	0	0	0		

OPERATING MODE (9) 4

POWER LEVEL (10) 9 7

(THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11))

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Dale McCullough, Ext. 3120
 TELEPHONE NUMBER AREA CODE 3 0 9 6 5 4 - 2 2 4 1

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
E									

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) Month Day Year

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

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

ABSTRACT:

Unit one was in the RUN mode at approximately 97% of rated core thermal power on 1/21/94. Unit Two was shutdown with the Reactor (Rx) Mode switch in the REFUEL position. The Unit Two Emergency Diesel Generator (EDG) [KL] was Out Of Service (OOS) which placed the Unit in a Limiting Condition for Operation (LCO), requiring hourly compensatory firewatch measures (which were in place). At 1600 on 1/21/94, it was noted that the Unit 1/2 Rx Recirculation System Motor Generator Set Deluge "Water Curtain" system [KP] had also been OOS during the time period (from 1/15/94 to 1/21/94) the EDG was OOS (12/29/94 to 1/21/94). Per QCAP 1500-2, "Administrative Requirements For Inoperable Safe Shutdown (SSD) Equipment", the simultaneous OOSs of a SSD equipment system and a Fire Protection (FP) system in the same (SSD) path required that a continuous, rather than an hourly firewatch, be established.

The primary Causal Factors for this event were inadequate verbal communications and training which resulted in shift supervision misinterpreting procedural requirements. Contributing causal factors were written communications, and change management. Written communications and training have previously been identified as elements of programmatic problems with the appendix R safe shutdown program. Corrective actions to address these causal factors are planned and in the process of being implemented.

Proper compensatory measures were established. Designated Operations personnel will receive additional training on the Fire Protection Administrative Requirements/SSD procedures in retraining sessions during the first quarter of 1994.

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TEXT Energy Industry Identification System (EIS) 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: Continuous firewatch not established following impairment of a safe shutdown path.A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: January 21, 1994 Event Time: 1600
 Reactor Mode: 04 Mode Name: Run Power Level: 97

This report was initiated by Licensee Report 254\94-003.

RUN (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 12/29/93 Unit one was in the RUN mode at approximately 97% of rated core thermal power. Unit Two was shutdown with the Reactor (Rx) Mode switch in the REFUEL position. The Unit two Emergency Diesel Generator (EDG), which is classified as a piece of Safe Shutdown (SSD) equipment, was taken Out Of Service (OOS) for maintenance. Per QCAP 1500-2, "Administrative Requirements For Inoperable Safe Shutdown Equipment" procedure, this placed the Unit in a seven (7) day Limiting Condition for Operation (LCO), requiring hourly compensatory firewatch measures. The compensatory firewatches were properly established and performed.

On 1/15/94 the Unit 1/2 Rx Recirculation system Motor Generator (MG) set Deluge "Water Curtain" system [KP] (which is a Fire Protection (FP) system) was taken OOS for maintenance. A review of the OOS by shift supervision did not identify the need to establish a continuous fire watch as required by QCAP 1500-2.

At 1154 on 1/21/94 the EDG was returned to service and the continuous firewatch was no longer required. At 1600 on 1/21/94, the Shift Engineer noted there had been an OOS of FP equipment on a SSD path affected by the OOS on the Unit 2 EDG during the same time period. Per QCAP 1500-2, the simultaneous OOSs on a SSD equipment system and a FP system which impacts a SSD path affected by the SSD OOS, requires that a continuous, rather than an hourly firewatch, be established. A Problem Identification Form (PIF) was written to document the occurrence evaluate its' cause.

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C. APPARENT CAUSE OF EVENT:

The primary Causal Factors (C/F) of this event were TRAINING/QUALIFICATION and VERBAL COMMUNICATIONS.

1. TRAINING/QUALIFICATION

Shift Supervision was not familiar with the use of QCAP 1500-2 Administrative Requirements for SSD Equipment and had not been trained in its use. In this instance, the inter-relationship between an active SSD system LCO and an inoperable FP system (OOS) in the same SSD path, was not clearly understood. As identified in previous Licensee Event Reports (LERs), this lack of knowledge of the design bases used in the development of the Fire Protection Administrative Requirements and SSD procedures has directly contributed to inconsistent applications of the requirements and consequently, a number of repeat events.

2. VERBAL COMMUNICATIONS

The Shift Engineer recalls requesting the Shift Foreman to review the OOS for impact on FP and believed the Shift Foreman had reviewed the out of service for impact on SSD LCOs. The Shift Foreman indicated that he reviewed the out of service for backup FP but not for SSD impact.

3. WRITTEN COMMUNICATIONS

Guidance for the establishment of compensatory measures is contained in several procedures as opposed to being consolidated in one instruction. The procedures used to determine affected SSD paths is complicated; however, given the complexity of the SSD analysis, further simplification may not be possible. There is no specific guidance in the OOS procedure that requires checking existing fire protection LCOs for impact on SSD paths.

4. CHANGE MANAGEMENT

QCAP 1500-2 became effective on 10/93 but the personnel required to use the procedure had not been formally trained prior to its' issuance.

D. SAFETY ANALYSIS OF EVENT:

The probability of a fire occurring in areas requiring automatic fire suppression is reduced by using procedures that control transient combustibles and the use of ignition sources. Hourly (and periodic) tours of the degraded automatic FP system areas were performed by FP and Operations personnel. Because of the early physical detection probability and the reduced probability of a fire in the MG set area, the safety significance was low and overall risk was not appreciably elevated.

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E. CORRECTIVE ACTIONS:

Corrective Actions to be Completed

1. Formal training with support of the FP System Engineer will be conducted for Shift Engineers, Unit Supervisors and Shift Foremen to work through specific scenarios for taking safe shutdown equipment and FP equipment OOS. This training will be incorporated into initial and requalification licensed Operator training. In addition a requirement for Shift Engineers and Unit Supervisors to review QCAP 1500-2 with the FP System Engineer, will be added to the Shift Engineer Training Program (NTS# 2541809400301).
2. In advance of the formal training, the FP System Engineer will provide interim training to all Unit Supervisors, Shift Engineers and Shift Foremen on the use of QCAP 1500-2 (NTS# 2541809400302).
3. FP and SSD administrative procedures, and associated procedures, will be reviewed by Operating, FP System Engineer, and Fire Marshall to enhance the procedures from a human factors standpoint (NTS# 2541809400303).
4. Revise the OOS procedure to provide detailed guidance regarding review of OOSs for impact on SSD paths. This action was planned prior to this LER and is in the process of being implemented (NTS# 2541809400304).
5. Review the process for line management review of specialty training to ensure that the training given meets the intent of the training requested (NTS# 2541809400305).
6. Evaluate the process for determining the appropriate training required prior to issuance of a new or revised procedure (NTS# 2541809400306).

F. PREVIOUS EVENTS:

- LER 92-032, Administrative Requirements For Fire Protection Not Met.
- LER 1-93-015, Safe Shutdown Makeup Pump Inoperable Due To Room Cooler Inoperable; Compensatory Actions Initiated 20 Days Later Due to Inadequate Management.
- LER 1-93-016, Operability Concern Based Upon Problems With QARP's and the Safe Shutdown Analysis.
- LER 2-93-017, Ineffective Safe Shutdown Compensatory Measure Identified Due to Inadequate Firewatch Inspection.
- LER 2-93-020, Continuous Fire Watch Missed For The U-2 Hydrogen Seal Oil and Turbine Oil Tank Deluge System.

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The Station has taken corrective actions in the past to prevent occurrences such as this event. The actions have included the development of procedures to provide administrative controls for FP and SSD equipment and training (which is still in progress) on the administrative requirements for SSD and FP equipment. The previous actions have been ineffective in preventing recurrence. The Station has actions planned to enhance the procedures and training to upgrade the Stations' performance regarding Appendix R compliance.

G. COMPONENT FAILURE DATA:

There were no equipment failures directly involved in this event. This report is not NPRDS reportable.