



Commonwealth Edison

Quad Cities Nuclear Power Station
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RLB-92-237

November 3, 1992

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) 92-028, Revision 00, for Quad Cities Nuclear Power Station.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(ii)(B). Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers being seriously degraded or that resulted in the nuclear plant being in a condition that was outside the design basis of the plant.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD CITIES NUCLEAR POWER STATION

R. L. Bax
Station Manager

RLB/TB/plm

Enclosure

cc: J. Schrage
T. Taylor
INPO Records Center
NRC Region III

STMQR 483

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Quad Cities Unit One Title (4)
 Docket Number (2) 0 | 5 | 0 | 0 | 0 | 2 | 5 | 4 | 1 | of | C | 4
 Page (3) 1 of C 4

SBGT Design Deficiency Due To Reliance On Instrument Air

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
1	0	1	6	9	2	9	2	0	2
0	2	8	0	0	1	1	0	6	9
									Unit Two
									0 5 0 0 0 2 6 5
									0 5 0 0 0 1 1

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

OPERATING MODE (9)	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(x)	73.71(b)	73.71(c)	Other (Specify in Abstract below and in Text)
1																
POWER LEVEL (10)																
0	0	0	0													

LICENSEE CONTACT FOR THIS LER (12)

Name Rachel Leubbe, Ext. 2119
 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

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) Month | Day | Year
 Yes (If yes, complete EXPECTED SUBMISSION DATE) X | NO

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

ABSTRACT:

On October 16, 1992 at 1639 hours, Unit One was in a refueling outage, with all fuel removed from the core, and Unit Two was in the run mode at 26% rated core thermal power. During a review of a Standby Gas Treatment (SBGT) Tech Spec revision, it was revealed that on a loss of instrument air (IA) the Control Room Dose would exceed General Design Criteria (GDC)-19 limits. This conclusion was made assuming that the pneumatically controlled SBGT heaters would fail to start, the air operated flow control valve would fail open, flow would increase to 5100 cfm, and the Control Room Air Filtration Unit (CR AFU) is started in 110 minutes. However, assuming a 60 minute initiation time addressed in procedures, GDC-19 limits are not exceeded.

The apparent cause of the event is an inadequate design for SBGT. The SBGT components rely on IA, a non-safety related system, to function properly.

The immediate corrective actions include maintaining the 60 minute initiation time for the CR AFU and placing both trains of SBGT in the Primary mode. The follow-up corrective actions include interim charcoal tests and a modification to replace the pneumatic switches with electric switches.

This report is being submitted in accordance with 10CFR50.73(a)(2)(II)(B).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION											Form Rev 2.0												
FACILITY NAME (1)		DOCKET NUMBER (2)				LER NUMBER (5)				Page (3)													
						Year	Sequence Number	Revision Number															
Quad Cities Unit One		0	5	0	0	0	2	5	4	9	2	-	0	2	8	-	0	0	0	2	OF	0	4
TEXT: Energy Industry Identification System (EIIIS) 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: SBT Design Deficiency due to reliance on Instrument Air.,

A. CONDITIONS PRIOR TO EVENT:

Unit: One Event Date: October 16, 1992 Event Time: 1639
Reactor Mode: 1 Mode Name: SHUTDOWN Power Level: 00%

This report was initiated by Deviation Report D-4-01-92-113.

SHUTDOWN Mode (1) - In this position, a reactor scram is initiated, power to the control rod drives is removed, and the reactor protection trip systems have been deenergized for 10 seconds prior to permissive for manual reset.

B. DESCRIPTION OF EVENT:

On October 16, 1992 at 1639 hours, Unit One was in a refueling outage with all fuel removed for the core and Unit Two was in the run mode at 26% rated core thermal power. In the review of the Standby Gas Treatment (SBGT) [BH] Design Basis for a Technical Specification revision it was discovered that upon a loss of Instrument Air (IA) that the SBGT pneumatic flow transmitters [FIT] would indicate zero. With the flow instrumentation, 1/2-7541-6A(B), indicating zero flow, the flow control valve [FVC], 1/2-7510A(B), would fail open increasing flow to a maximum of 5100 cfm and the heater would not operate. The efficiency of the charcoal adsorbers [ADS] would be reduced because of higher relative humidity caused by loss of the heater and reduced hold up time caused by the failed open flow control valve. Section 15.6 of the UFSAR requires initiation of the Control Room Air Filtration Unit (CR AFU) [VI] within 110 minutes of a Loss of Coolant Accident (LOCA) to maintain Control Room dose below General Design Criteria (GDC)-19 limits. With the 110 minute initiation time and a loss of IA, the GDC-19 limit for 30 day thyroid dose may be exceeded. Present procedures require a CR AFU initiation with 60 minutes of a LOCA. With a 60 minute initiation time and a loss of IA, the GDC-19 limit for 30 day thyroid dose would be 27.3 rem, which is below the 30 rem limit of GDC-19.

A one hour Emergency Notification System (ENS) phone call was made at 1711 hours on October 16, 1992 for the nuclear power plant being in a condition that was outside the design basis of the plant.

C. APPARENT CAUSE OF EVENT:

This event is being reported in accordance with 10CFR50.73(a)(2)(11)(B), the licensee shall report any event or condition that results in the nuclear power plant being in a condition that was outside the design basis of the plant.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION											Form Rev 2.0	
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Quad Cities Unit One	0 5 0 0 0 2 5 4	9 2	-	0 2 8	-	0 0	0 3	Of	0 4			
TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]												

The apparent cause of the event is an inadequate design for the Standby Gas Treatment System. The pneumatic flow instruments and the Flow Control Valve relay on IA, a non-safety related system, to function properly. The operation of these components upon a loss of IA was not thoroughly evaluated.

D. SAFETY ANALYSIS OF EVENT:

The safety significance of this event is minimal. Current procedures require the start of the Control Room Air Filtration Unit within 60 minutes of a Loss of Coolant Accident. If a 60 minute initiation time is maintained then GDC-19 limits for control room dose and 10CFR100 limits for off-site dose would not be exceeded, despite a loss of instrument air.

E. CORRECTIVE ACTIONS:

The immediate corrective actions for this event were to temporarily revise several SBT operating procedures (Temporary Procedures #8105-8110) to require placing both trains in Primary mode. In the event of a design basis accident both trains would start up and neither would trip on the low flow condition caused by loss of IA. Operation of one train would have to be shut down as soon as possible but within 30 minutes of the start of the accident. This is also reflected in the temporary procedures.

The follow-up corrective actions to this event are first to revise the procedures that address the 60 minute CR AFR initiation time to add a reference to this Licensee Event Report. This revision will ensure the 60 minute initiation time is not changed at a later date (NTS# 2542009211301). Second, Modification M4-0-92-013 to install electrical instruments in place of the pneumatic instruments has been approved by the Station Modification Revision Committee (SMRC) and will be installed (NTS# 2542009211302).

As a verification that the charcoal adsorber efficiency is not degraded, the charcoal adsorber canister lab test will be performed at a temperature of 30 C and 95% relative humidity. The 95% relative humidity assumes there is no operating heater (NTS# 2542009211303).

F. PREVIOUS EVENTS:

There have been two previous events of design basis deficiencies on the Standby Gas Treatment System. These events are listed below.

LER 1-91-14 SBT heater failure logic missing due to inadequate review of original SAR.

LER 1-92-13 Design Deficiency in the Standby Gas Train Logic upon the loss of Bus 19 (LER 92-013).

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Quad Cities Unit One	0 5 0 0 0 2 5 4	9 2	-	0 2 8	-	0 0	0 4	OF	0 4			
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]												

These design deficiencies were discovered during design basis reconstitution programs such as the Master Equipment List upgrade, and safety-related contact testing. Design basis reconstitution programs will continue to look at the design of safety-related systems to ensure such deficiencies are identified and addressed.

G. COMPONENT FAILURE DATA:

There was no component failure identified during this event.