LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
QUAD-CITIES, NUCLEAR POWER STATION, UNIT ONE	0 5 0 0 0 2 5 4	1 of 0 5

Title (4) PRIMARY CONTAINMENT ATMOSPHERE GREATER THAN 4 PERCENT DUE TO LACK OF NITROGEN

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)
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OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
POWER LEVEL (10)	0 7 4	___ 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 (Specify in Abstract below and in Text)
		___ 20.405(a)(1)(iii)	X 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	
		___ 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	TELEPHONE NUMBER
	AREA CODE
David Hoogheem, Engineering Assistant Ext. 2276	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 November 17, 1986, Unit One was in the RUN mode at approximately 74 percent of core thermal power. The reactor mode switch had been placed in RUN at 1314 hours on November 16, 1986. Technical Specification 3.7.A.5.b. requires the primary containment to be inerted to less than 4 percent oxygen within 24 hours of placing the mode switch to RUN following a shutdown. Since this specification could not be satisfied, Technical Specification 3.0.A. was entered at 1314 hrs on November 17, 1986. Technical Specification 3.0.A. requires that Unit One be placed in at least HOT SHUTDOWN within 12 hours unless the LCO could be met. At 0040 hours on November 18, 1986, the primary containment was adequately inerted and therefore corrective measures were completed to satisfy the LCO.

The reason that primary containment was not adequately inerted with nitrogen within the required 24 hours was attributed to the station's nitrogen supplier not delivering the nitrogen in a timely manner. The nitrogen had been promised by the morning of November 17. Due to delays, the nitrogen delivery was not made until 2220 hours that night.

Discussions have been held with the nitrogen supplier and there should be fewer nitrogen delivery problems in the future. This report is submitted to comply with 10CFR50.73(a)(2)(i)(B).

IE22

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 MWt rated core thermal power. Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION: Unit One Primary Containment was not inerted within 24 hours of placing the mode switch to RUN due to lack of nitrogen.

A. CONDITIONS PRIOR TO EVENT:

Unit: One | Event Date: November 17, 1986 | Event Time: 1314
Reactor Mode: 4 | Mode Name: RUN | Power Level: 74%

This report was initiated by Deviation Report D-4-1-86-121

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 November 17, 1986, at 0030 hours, nitrogen inerting of Unit One primary containment [NH] atmosphere began. This is required, per Technical Specification 3.7.A.5.b., to be completed within 24 hours of placing the reactor in the RUN mode following a shutdown. The reactor mode switch had been placed in RUN on November 16, 1986, at 1314 hours. At 0812 hours on November 17, 1986, the drywell [NH] oxygen concentration was at 3.8 percent, which is below the requirement of 4 percent, and therefore inerting of the suppression chamber [NH] began. The inerting process is addressed in QOP 1600-20, "Nitrogen Inerting of Unit 1 or Unit 2 Primary Containment Using Both Electric Vaporizers." At 1055 hours, inerting of the suppression chamber was stopped with an oxygen concentration greater than 4 percent due to a low nitrogen tank level. Efforts were then made to establish a differential pressure (dp) of 1.2 psid or greater between the drywell and suppression chamber. This is a requirement of Technical Specification 3.7.A.6.a. At 1400 hours, a satisfactory dp of 1.22 psid was established between the drywell and suppression chamber.

Nitrogen is supplied to the station from Liquid Air Corporation. Station personnel had contacted Liquid Air at 1200 hours on November 16, 1986, requesting a load of nitrogen. Delivery was promised by the morning of November 17, 1986. Additional contact with the vendor during this event led the station to believe that nitrogen arrival was forthcoming. Due to circumstances out of the station's control, nitrogen delivery was not made until 2220 hours on November 17, 1986. Therefore, the nitrogen supply was exhausted due to the required inerting and establishment of the drywell-suppression chamber dp.

Due to the lack of nitrogen, the suppression chamber oxygen concentration remained above 4 percent beyond the 24 hour Technical Specification requirement. Thus a Limiting Condition for Operation (LCO) was entered based on Technical Specification 3.0.A. which states, "in the event a Limiting Condition for Operation cannot be satisfied because of circumstances in excess of those addressed in the specification, the unit shall be placed in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours unless corrective measures are completed that satisfy the Limiting Conditions for Operations." At 1515 hours a Generating Station Emergency Plan (GSEP) Unusual Event was declared per Emergency Action Level (EAL) No. 13 (A Limiting Condition for Operation requires a shutdown). The NRC was notified (via the Emergency Notification System) at 1540 hours to satisfy the requirements of 10 CFR 50.72.

Because the station's nitrogen supply was still depleted, at 1815 hours the drywell to suppression chamber dp drifted below 1.2 psid to 1.19 psid. Normal dp control is maintained by an air compressor that takes suction from the suppression chamber and discharges to the drywell. The compressor could not be used in this situation because the suppression chamber oxygen concentration was 8.9 percent while the drywell was still at less than 4 percent. It was deemed best to not use the compressor to prevent dilution of the drywell atmosphere with the suppression chamber atmosphere. It was also not possible to vent the suppression chamber to a lower pressure via Standby Gas Treatment or the Reactor Building Ventilation System because the Reactor Core Isolation Cooling (RCIC) [BN] pump operability surveillance (QOS 1300-1) was being performed. Procedure prerequisites require a new air sample for release rate calculations be obtained if a system such as RCIC that releases steam to the suppression pool is used.

At 1900 hours, a Unit One reactor shutdown at 120 megawatts electric (MWe) per hour was initiated.

At 2220 hours, the Liquid Air Corporation nitrogen truck arrived onsite and by 2250 hours the drywell-suppression chamber dp was reestablished greater than 1.2 psid using the new supply of nitrogen. Efforts were then made to improve the suppression chamber oxygen concentration using QOP 1600-20. At 2335 hours, Unit One was holding load at 145 MWe prepared to manually scram the reactor to be in HOT SHUTDOWN if required. Inerting of the suppression chamber was still in progress and it was confirmed that the primary containment was inerted to less than 4 percent oxygen content at 0040 hours on November 18. Therefore, Technical Specifications 3.7.A.5.b. and 6.a. were satisfied and the unit did not have to be placed in HOT SHUTDOWN. The GSEP Unusual Event was terminated at 0415 hours on November 18, 1986.

The GSEP unusual event remained in effect past the time that containment oxygen and dp were in specification due to an unrelated problem with the High Pressure Coolant Injection System (HPCI) [BJ] as reported in Licensee Event Report (LER) 86-034.C.

C. APPARENT CAUSE OF EVENT:

The root cause of the failure to have the required oxygen concentration in the suppression chamber on November 17, 1986 by 1314 hours, can be attributed to Liquid Air not delivering the nitrogen in a timely manner. Liquid Air was notified at noon on November 16, 1986, and promised delivery on the morning of November 17, 1986. They did not supply the nitrogen in a timely manner, nor did they notify Edison that they could not supply the nitrogen on time.

If the nitrogen supply had been available as promised, the primary containment would have been inerted within the 24 hour Technical Specification limit. Additionally, adequate dp between the drywell and suppression chamber could have been maintained.

D. SAFETY ANALYSIS OF EVENT:

The 4 percent oxygen concentration requirement is provided to minimize the possibility of hydrogen combustion following a loss of coolant accident (LOCA). Hydrogen could be generated in the reactor core during a LOCA if adequate core cooling is not maintained. To prevent possible hydrogen combustion following a LOCA, the primary containment is inerted with nitrogen. Technical Specification 3.7.A.5.b. requires the containment oxygen concentration to be less than 4 percent within 24 hours subsequent to placing the mode switch to RUN following a shutdown. Since this requirement could not be met, Technical Specification 3.0.A. required Unit One to be in HOT SHUTDOWN within the following 12 hours unless corrective measures were completed to satisfy the LCO. The LCO was satisfied within 12 hours (at 0040 hours on November 18). The actual safety consequences of this event were minimized by the fact that the drywell was inerted during the time the LCO was exceeded, and that the LCO was subsequently satisfied for the entire containment, well within the action statement.

E. CORRECTIVE ACTION:

Based on this problem with Liquid Air Corporation, a discussion was held between station management and Liquid Air. The results of this discussion should result in fewer nitrogen delivery problems in the future. Discussion with the nitrogen supplier resulted in the following corrective actions:

1. The nitrogen supplier assured the station that delivery will occur within 12 hours following the order unless specifically postponed to a later time by the station.

2. The nitrogen supplier replaced the existing 615,000 cubic feet liquid nitrogen storage tank with a 918,000 cubic feet tank. This provides a 50 percent increase in tank capacity.

No further corrective action is considered necessary at this time.

F. PREVIOUS EVENTS:

Deviation Reports: D-4-1-78-63 and D-4-1-80-35

Licensee Event Report: 254/83-37/03L

G. COMPONENT FAILURE DATA:

There were no component failures in this event. All systems functioned as designed.

Commonwealth Edison
Quad Cities Nuclear Power Station
22710 206 Avenue North
Cordova, Illinois 61242
Telephone 309/654-2241

RLB-87-27

February 4, 1987

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 please find Licensee Event Report (LER) 86-039, Revision 00, for Quad-Cities Nuclear Power Station. This report is submitted to you in accordance with the requirements of the Code of Federal Regulations, Title 10, Parts 50.73(a)(2)(i)(B).

This event was originally classified as a non-reportable occurrence. It has recently been brought to the attention of Quad Cities Station personnel that any time plant operation enters the requirements of 3.0.A. (hot shutdown in 12 hours) of the Technical Specifications, the occurrence is reportable regardless of whether the condition is corrected before shutdown is required. For this reason, this event was upgraded as a reportable occurrence and is being submitted beyond the 30 day reporting requirement.

Respectfully,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

R. L. Bax
Station Manager

RLB/MSK/clr

Enclosure

cc: I. Johnson
A. Morrongiello
INPO Records Center
NRC Region III

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