LICENSEE EVENT REPORT (LER) Form Rev. 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Quad Cities Unit 1	0 5 0 0 0 2 5 4	1 of 0 6

Title (4) A Technical Specification Surveillance for Primary Containment Isolation Valves was Not Met when Three Spare Manual Isolation Valves were Inappropriately Deleted from the Surveillance Procedure due to Inadequate Procedure Revision Review

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 7	1 5	1997	1999	0 0 1	0 0	0 5	1 2	1999		0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
1						
POWER LEVEL (10) 1 0 0	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)(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
Wally Beck, Acting Regulatory Affairs Manager, ext. 3609	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 EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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:

On April 13, 1999, three spare valves were determined to require monthly verification in accordance with Technical Specification (TS) Surveillance Requirement 4.7.A.2. TS 4.7.A.2 requires monthly verification of accessible primary containment penetration valves. These valves were not included in revision 2 of QCOS 1600-33, "Monthly Primary Containment Integrity Surveillance," implemented on June 20, 1997. The change that resulted in revision 2 of QCOS 1600-33 removed a number of valves from the procedure that did not require monthly verification. The revision was inadequate in that it also deleted the verification of three spare valves that did require monthly verification.

The cause of this event was an inadequate review of a procedure revision. A contributing cause was the fact that these spare valves were not shown in controlled drawings and were not listed in the Updated Final Safety Analysis Report (UFSAR). Corrective actions included immediately verifying the valves were lock-wired closed, revising the surveillance to ensure continued compliance, implementing additional reviews for TS related procedure revisions, revising drawings, revising the UFSAR, and training on the event. The review for events involving previously reported inadequate TS procedures identified that corrective actions from these previous events were not yet in place when this procedure error occurred. This event was not safety significant because the spare valves were identified to be lock-wired closed with threaded pipe caps installed. There was no impact to the health and welfare of the public or onsite personnel.

PLANT AND SYSTEM IDENTIFICATION:

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

EVENT IDENTIFICATION:

A Technical Specification Surveillance for Primary Containment Isolation Valves was not met when three spare manual isolation valves were inappropriately deleted from the surveillance procedure due to inadequate procedure revision review.

A. CONDITIONS PRIOR TO EVENT:

Unit:	1	Event Date:	July 15, 1997	Event Time:	0000
Reactor Mode:	1	Mode Name:	Power Operation	Power Level:	100%

This report was initiated by Licensee Event Report 254/99-001

Power Operation (1) - Mode switch in the RUN position with average reactor coolant temperature at any temperature.

B. DESCRIPTION OF EVENT:

On April 30, 1996, Operations implemented a new procedure, QCOS 1600-33, "Monthly Primary Containment Integrity Surveillance." QCOS 1600-33 was developed to satisfy Technical Specification (TS) Surveillance Requirement 4.7.A.2, and was scheduled for implementation in September of 1996 with the planned implementation of the Upgraded Technical Specifications.

TS 4.7.A.2 states:

> Primary containment integrity shall be demonstrated at least once per 31 days by verifying that all primary containment penetrations [(b)] not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed, except for valves that are open under administrative control as permitted by Specification 3.7.D.
>
> (b) – Except valves, blind flanges, and deactivated automatic valves which are located inside the containment. Valves and blind flanges in high radiation areas may be verified by use of administrative controls. These penetrations shall be verified closed during each COLD SHUTDOWN except such verification need not be performed when the primary containment has not been de-inerted since the last verification or more often than once per 92 days.

QCOS 1600-33, Attachment A, revision 0, listed Primary Containment isolation components that would be checked monthly, and used a selection process that identified valves [V], blank flanges, hatches, and pipe caps associated with penetrations [PEN] that communicated with primary containment [NH]. Attachment A, revision 0, included components regardless of size, function, or whether the penetration would be open or closed following an accident and included a number of components that were not required to meet the TS surveillance requirement. Attachment A included verification of all seven instrument line valves at Unit 1 penetration X-106B. Three of the valves at penetration X-106B, "BR valve," "BL valve," and "CL valve," were identified in the procedure as spares. None of

these three spare valves were included on the Piping and Instrumentation Diagrams (P&ID's). The other four spare instrument lines at Unit 1 penetration X-106B were shown on P&ID M-24, sheet 13, for the instrument air system [LD].

On September 9, 1996, a procedure change was submitted for QCOS 1600-33. The purpose of the change was to reduce the number of valves that were verified each month, thereby reducing personnel radiation exposure. This change was based on a review of Updated Final Safety Analysis Report (UFSAR) Table 6.2-7 and the P&ID's and incorporated criteria provided by Engineering for determining which manual valves were required to be closed for Primary Containment integrity. This procedure change reduced the number of valves required to be verified closed by approximately half.

As part of the change to QCOS 1600-33, the three spare Unit 1 valves at penetration X-106B (the "BR," "BL," and "CL" valves) were removed from the procedure. Removal of these three valves was not in accordance with the criteria developed by Engineering. The X-106B penetration is a spare penetration with lines for Unit 1 only. The Unit 2 X-106B penetration is an electrical penetration. UFSAR Table 6.2-7, "Penetrations of Primary Containment and Associated Isolation Valves," which is not a unit-specific table, identifies penetration X-106B as an electrical penetration and lists no valves, referencing drawing B-22. Drawing B-22 (which is specific to Unit 1) describes penetration X-106B as containing drywell cooling [VB] sensing lines.

On September 23, 1996, Quad Cities implemented upgraded TS. This included the new monthly surveillance requirement of TS 4.7.A.2 to verify closed the applicable primary containment valves. At this point, QCOS 1600-33 revision 1 was still in effect, which met all of the requirements of this TS including verification that the three spare valves located at penetration X-106B on Unit 1 were closed.

On October 29, 1996, the independent technical review (ITR) of QCOS 1600-33, revision 2, was performed. There is no documentation to identify that the three spare valves needed to be included in the surveillance and no documentation as to why they were removed. However, the expectations for an ITR required by QCAP 1100-04, "Procedure Revision, Review and Approval," would have required an identification of whether the removal was appropriate. No cross-discipline reviews particular to TS compliance were assigned to the procedure revision as none were required by the procedure revision process at that time.

On June 7, 1997, QCOS 1600-33 revision 1 was performed for the last time on Unit 1 and all seven of the valves at penetration X-106B were verified closed. On June 20, 1997, revision 2 of QCOS 1600-33 became effective. On July 15, 1997, 125% of the assigned surveillance interval was exceeded for the three spare valves at Unit 1 penetration X-106B and Quad Cities Nuclear Power Station was not in compliance with TS 4.7.A.2.

On February 15, 1999, the Operations TS Coordinator was reviewing QCOS 1600-33 and other primary containment related procedures in response to a concern raised at another station associated with implementation of TS 4.7.A.2. Due to apparent discrepancies among the procedures, the TS Coordinator performed in-plant walkdowns of every valve in question. In March 1999, as part of this walkdown, the TS Coordinator identified the three spare valves at penetration X-106B as being a potential discrepancy. (At the completion of the walkdown, these three valves were the only discrepancies identified for either unit.) The TS Coordinator immediately verified that the valves were lock-wired closed. The three valves at penetration X-106B were then included in the next scheduled performance of QCOS 1600-33, on March 19, 1999, by the use of Procedure Field Change (PFC) 4543.

As it was not known if the spare pipes had been sealed inside the drywell, the Station scheduled an inspection of Unit 1 penetration X-106B for the next Unit 1 drywell entry, scheduled for April 10, 1999. The drywell entry inspection determined that the pipes were in direct communication with the drywell and PIF Q1999-01332 was initiated. On April 13, 1999, the Shift Manager determined that the event was reportable.

C. CAUSE OF THE EVENT:

The root cause of this event is an inadequate procedure revision. The review of the procedure revision did not ensure that each of the valves included in the previous revision was either included in revision 2, or was appropriate for exclusion. Therefore, the ITR was inadequate, as it did not identify that three of the valves being deleted were required for the surveillance. The inadequate ITR constitutes a procedural non-compliance with QCAP 1100-04. Although the reasons for the inadequate ITR are unknown, interviews with other individuals determined that a review of the removed components is a known expectation.

A contributing cause of this event is the inaccuracy of P&ID M-24, sheet 13. The three spare lines containing the valves "BR," "BL," and "CL" are not shown. The inaccuracy of the drawings made the procedure review more difficult.

Another contributing cause of this event is the inaccuracy of UFSAR Table 6.2-7. The table erroneously identified the X-106B instrumentation penetration as an electrical penetration.

D. SAFETY ANALYSIS:

This event was not safety significant. The valves in question were found closed, with a lock-wire installed. The pipes that the valves are on have threaded caps on one end (outside the drywell). No procedures have been identified that manipulate these spare valves. There is no indication that these valves were ever open. Since the valves were found to be lock-wired closed, there are threaded caps installed on the pipes, there are no procedural requirements to manipulate the valves, and there is no indication that these valves were ever open, there was no increase in the risk to the health and welfare of the public or onsite personnel.

E. CORRECTIVE ACTIONS:

Corrective Actions Completed:

- On January 30, 1998, Operations revised QCAP 1100-04 to implement a required TS compliance cross-discipline review for the revision of procedures that implement TS requirements. This additional review provides another barrier to ensure TS compliance is maintained when procedures are revised.

- As part of the investigation of this issue, a walkdown was performed of all valves with potential discrepancies concerning monthly verification in accordance with QCOS 1600-33.

- The spare valves "BR," "BL," and "CL" at Unit 1 penetration X-106B were verified lock-wired closed during the plant walkdown when the potential discrepancy was identified.

- On March 19, 1999, at 0310 hours, the spare valves "BR," "BL," and "CL" at X-106B penetration were verified closed with PFC 4543 of QCOS 1600-33.

- On April 14, 1999, QCOS 1600-33 was revised to permanently implement monthly verification of the spare valves "BR," "BL," and "CL" at X-106B penetration.

Corrective Actions to be Completed:

- A revision to UFSAR Table 6.2-7 will be submitted to ensure the penetrations are properly identified. (Engineering, AR#00006415, assignment # 11, due June 17, 1999)

- Awareness training on the lessons learned from this event will be conducted for on-site ITR qualified personnel. (Training, AR#00006415, assignment # 09, due July 23, 1999)

- P&ID M-24 sheet 13 will be revised per ER9900539 to include the three Unit 1 spare valves on penetration X-106B. (Engineering, AR#00006415, assignment # 10, due October 12, 1999)

F. PREVIOUS OCCURRENCES:

A review of previous LERs for the past two years related to inadequate TS procedures was performed. The review focused on events caused by failures to establish adequate procedures and processes to support implementation of TS rather than incidents where the TS were misinterpreted. The following reports were identified.

- LER 254/97-018 - Surveillance Was Not Properly Performed Due To Inadequate Procedure Development And Review During Implementation Of Upgraded Technical Specifications.

- LER 254/97-023 - A Required Technical Specification (TS) Surveillance Was Not Performed Prior To Reactor Mode Change On Four Occasions Due To Inadequate Procedures Associated With Implementation Of The TS Upgrade Program.

- LER 254/97-026 Revision 1 - Technical Specification (TS) Required Instrument Channel Checks Were Not Documented Prior to Entering the Applicable Mode Due to Inadequate Procedure Development and Review.

- LER 265/98-001 - Technical Specification (TS) Surveillance for Source Range Monitors [IG] (SRM) Was Not Performed Within the Required Interval for Unit 1 and Unit 2 Due to Inadequate Identification of the TS Requirements for the Surveillance.

Corrective actions for the events listed above were not implemented prior to the event discussed in this LER, and therefore could not have prevented this event. Although the events listed above and the event discussed in this LER are all procedure change errors associated with TS, they involve different departments, time frames, and reasons for the revisions. Nonetheless, the corrective actions implemented for these events and for the event discussed in this LER are sufficient to preclude recurrence.

G. COMPONENT FAILURE DATA:

There were no component failures associated with this event.