



Commonwealth Edison  
Quad-Cities Nuclear Power Station  
Post Office Box 216  
Cordova, Illinois 61242  
Telephone 309/854-2241

NJK-76-102

March 12, 1976

J. Keppler, Regional Director  
Office of Inspection and Enforcement  
Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

- References: 1) Quad-Cities Nuclear Power Station  
Docket No. 50-254, DPR-29, Unit One  
Appendix A, Sections 4.7.A.2.e and 6.6.B.2.b
- 2) Reportable Occurrence Report No. RO 50-254/76-2  
submitted February 2, 1976.

The purpose of this report is to provide you with additional information regarding the determined causes and corrective actions taken related to excessive leakages from primary containment isolation valves. These eight occurrences were reported to you previously in Reportable Occurrence Report No. RO 50-254/76-2. To date, all repairs to these valves have been completed and subsequent local leak rate tests have been successfully performed. The following table summarizes the corrected leakages covered in this supplemental report:

<u>SYSTEM</u>	<u>VALVES TESTED</u>	<u>MEASURED LEAKAGE</u>	<u>CORRECTED LEAKAGE</u>
Main Steam Isolation Valves	A0-1-203-1C	70.9 SCFH	1.74 SCFH
Oxygen Analyzer Valves	A0-1-8802B	25.9 SCFH	0.017 SCFH
Feedwater Check Valves	CV-1-220-58B	3026 SCFH	5.376 SCFH
	CV-1-220-62A	3040 SCFH	0.834 SCFH
	CV-1-220-62B	378 SCFH	14.46 SCFH
HPCI Steam Exhaust Check Valve	CV-1-2301-45	84.4 SCFH	12.86 SCFH
Main Steam Drains	MO-1-220-162	47.7 SCFH	5.75 SCFH

0139

In accordance with Technical Specification 4.7.A.2, an Integrated Primary Containment Leak Test was performed during this refueling outage following completion of the local leak test repairs reported herein. The IPCLT was conducted according to the requirements of 10CFR50 Appendix J. Representatives of the Region III NRC office observed the performance of the test and verified the resulting leakage rates. Since the as-found condition of the Primary Containment is based upon the as-left IPCLT test result plus the difference between the as-left and as-found condition of the local leak test items, the as-found condition of the Primary Containment exceeded the Technical Specification limits. The as-found condition exceeded the limits because of the local leak test failures being described in this report. The as-left test of the Primary Containment resulted in a 24 hour test statistical leakage rate of  $.495 + .061\%$  per day. This leakage was within the Technical Specification limits and was verified by a supplemental test that satisfied the supplemental test criteria. The complete details of the IPCLT will be described in a future report to be submitted in accordance with 10CFR50 Appendix J.

Main Steam Isolation Valve (MSIV) A0-1-2-3-1C was disassembled by maintenance personnel. It was observed that the valve body seat had experienced extensive washing. Uneven heating produces warpage which eventually leads to a slight erosion of the stellite material. This warpage resulted in the leakage being excessive. The valve seat was machined to eliminate the slight warpage which was present. The MSIV was then re-assembled and tested for leakage. The resulting leak rate was measured to be 1.74 SCFH, which was below the Technical Specification limitation of 11.5 SCFH for any one MSIV.

Oxygen Analyzer Valve A0-1-8802B was taken out of service and disassembled. The seating surfaces were found to be in poor condition. The seat was lapped by maintenance personnel and re-assembled. A subsequent local leak rate test was performed and a leakage of 0.017 SCFH was measured.

The cause of the excessive measured leakage through Feedwater Check Valves CV-1-220-58B, 62A, and 62B has been traced to the deterioration of the viton "O" rings which are located between the valve body and trim assembly. These "O" rings fit in a groove cut in the valve trim and when the trim is bolted into place the rings form a trim-to-valve body seal. Maintenance personnel cleaned the check valves and new "O" rings were installed. Under the recommendations of the C.E.Co. Station Nuclear Engineering Department, the "O" ring seals on the outboard check valves, CV-1-220-62A and CV-1-220-62B, were replaced with viton rings supplied by the Packing Seal and Engineering Company. Check valve CV-1-220-58B was fitted with "O" rings supplied by the Apex Company. Leak rate tests were performed on these check valves following completion of all repairs. The measured leakages from CV-1-220-58A, 62A, and 62B were 5.376 SCFH, 0.834 SCFH, and 14.46 SCFH, respectively.

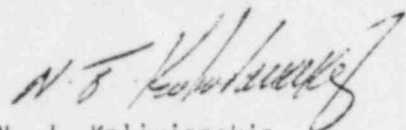
Valve M0-1-220-2 was determined to be the excessively leaking valve when the main steam drain isolation valves were pressurized to 48 psig. Repairs to this valve were initiated when the reactor vessel water level had been lowered below the main steam lines. Upon disassembly of the valve by

maintenance personnel, the valve disc was found not to be seating properly. Corrective action consisted of lapping the valve seat and disc so that the disc would seat properly in the valve body. Following completion of all repairs, a subsequent local leak rate test was performed yielding an acceptable measured leakage of 5.75 SCFH.

HPCI turbine steam exhaust check valve CV-1-2301-45 was disassembled and was found to have a bad seat between the valve body and the check valve disc. The seat and disc were lapped by maintenance personnel. A subsequent local leak rate test was performed by pressurizing the volume between CV-1-2301-45 and manual valve 1-2301-74. Excessive leakage was measured and air bubbles were observed inside the suppression chamber coming from the submerged HPCI steam exhaust piping. From this, it was concluded that manual valve, 1-2301-74 was leaking. Following repairs to the valve seat for 1-2301-74, a local leak test was performed. The measured leakage was 12.86 SCFH, which is below the Technical Specification limit of 18.36 SCFH.

Very truly yours,

QUAD-CITIES NUCLEAR POWER STATION  
COMMONWEALTH EDISON COMPANY



N. J. Kalivianakis  
Station Superintendent

NJK/LFG/lk

cc: G. A. Abrell

UPDATE REPORT  
PREVIOUS REPORT  
FEBRUARY 2, 1976

NOTE:

# LICENSEE EVENT REPORT

CONTROL BLOCK: 

1	2	3	4	5	6
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[PLEASE PRINT ALL REQUIRED INFORMATION]

LICENSEE NAME [01] I L Q A D I [14]						LICENSE NUMBER [15] 00-000000-00 [25]						LICENSE TYPE [26] 41111 [30]				EVENT TYPE [31] 03 [32]	
CATEGORY [01] CONT [7]		REPORT TYPE [57] L [58]		REPORT SOURCE [59] L [60]		DOCKET NUMBER [61] 050-0254 [68]				EVENT DATE [69] 010376 [74]				REPORT DATE [75] 031276 [80]			

## EVENT DESCRIPTION

[02] WHILE PERFORMING LOCAL LEAK RATE TESTS ON THE MAIN STEAM																																																																															
[03] LINE DRAIN VALVES, MO-1-220-1 & MO-1-220-2, IT WAS DETERMINED																																																																															
[04] THAT THE COMBINED LEAKAGE OF THE TWO VALVES WAS 47.7 SCFH,																																																																															
[05] WHICH IS IN EXCESS OF THE 18.36 SCFH LIMIT ALLOWED BY																																																																															
[06] TECHNICAL SPECIFICATION 4.7.A.2.i (2Xb), OF THE TWO VALVES																																																																															

SYSTEM CODE [07] HB [9]		CAUSE CODE [11] E [12]		COMPONENT CODE [13] VALVE [17]				PRIME COMPONENT SUPPLIER [43] N [44]		COMPONENT MANUFACTURER [45] CIG [47]				VIOLATION [48] N [49]	
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## CAUSE DESCRIPTION

[08] THE CAUSE OF THE EXCESSIVE LEAKAGE THROUGH VALVE																																																																															
[09] MO-1-220-2 WAS IMPROPER SEATING OF THE VALVE																																																																															
[10] DISK. 3" GATE VALVE - MOD. # 783-U,																																																																															

FACILITY STATUS [11] H [9]		% POWER [10] 000 [12]		OTHER STATUS [13] NA [14]		METHOD OF DISCOVERY [44] B [45]		DISCOVERY DESCRIPTION [46] SURVEILLANCE TEST [80]			
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FORM OF ACTIVITY RELEASED [12] Z [9]		CONTENT OF RELEASE [10] Z [11]		AMOUNT OF ACTIVITY [13] NA [14]				LOCATION OF RELEASE [45] NA [80]			
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## PERSONNEL EXPOSURES

NUMBER [13] 000 [11]		TYPE [12] Z [13]		DESCRIPTION [14] NA [80]			
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## PERSONNEL INJURIES

NUMBER [14] 000 [11]		DESCRIPTION [12] NA [80]			
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## OFFSITE CONSEQUENCES

[15] NA [80]																																																																															
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## LOSS OR DAMAGE TO FACILITY

TYPE [16] Z [9]		DESCRIPTION [10] NA [80]			
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## PUBLICITY

[17] NA [80]																																																																															
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## ADDITIONAL FACTORS

[18] EVENT DESCRIPTION (CONT.) - LEAK TESTED, VALVE MO-1-220-2 WAS THE ONLY ONE																																																																															
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[19] LEAKING. AFTER THE VALVE WAS REPAIRED, THE LEAK RATE TEST RESULT WAS 0.932 SCFH.																																																																															
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NAME: LARRY L. HENSON

PHONE: 309-654-2241 (EXT. 247)



LICENSEE EVENT REPORT

CONTROL BLOCK:

1						6

[PLEASE PRINT ALL REQUIRED INFORMATION]

### EVENT DESCRIPTION

SYSTEM CODE CAUSE CODE COMPONENT CODE PRIME COMPONENT SUPPLIER COMPONENT MANUFACTURER VIOLATION

07 XX E VALVEX A C635 N

7 8 9 10 11 12 13 14 15 16 17 43 44 45 46 47 48

CAUSE DESCRIPTION

FACILITY STATUS		% POWER		OTHER STATUS		METHOD OF DISCOVERY		DISCOVERY DESCRIPTION	
11	H	000		NA		B		SURVEILLANCE TEST	
7	8	9	10	11	12	13	14	15	16

FORM OF ACTIVITY RELEASED 1 2 Z CONTENT OF RELEASE Z AMOUNT OF ACTIVITY NA LOCATION OF RELEASE NA

### PERSONNEL EXPOSURES

NUMBER				TYPE	DESCRIPTION
1	3	0	0	2	NA

PERSONNEL INJURIES

NUMBER				DESCRIPTION	
1	4	0	0	0	NA

### OFFSITE CONSEQUENCES

15 1 VA

7 8 9

LOSS OR DAMAGE TO FACILITY

80

LOSS OR DAMAGE TO FACILITY

TYPE			DESCRIPTION
16	3		NA

## PUBLICITY

17 | NA

### ADDITIONAL FACTORS

18	EVENT DESCRIPTION (cont) AND VALUE TESTED SATISFACTORILY
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19 THE LEAKAGE RATE WAS 0.017 SCFH. (R050-254/76-3)

NAME: Donald K. Anderson

PHONE: 309-554-2241 (x248)

UPDATE REPORT  
PREVIOUS REPORT DATE:  
FEBRUARY 2, 1976

# LICENSEE EVENT REPORT

CONTROL BLOCK: 

1	2	3	4	5	6
---	---	---	---	---	---

(PLEASE PRINT ALL REQUIRED INFORMATION)

LICENSEE NAME: 

01	2	3	4	5	6	7	8	9
----	---	---	---	---	---	---	---	---

 I K Q A D I  
LICENSE NUMBER: 

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
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 00-000000-00  
LICENSE TYPE: 

26	27	28	29	30
----	----	----	----	----

 41111  
EVENT TYPE: 

31	32
----	----

 03

CATEGORY: 

57	58
----	----

 01 CONT  
REPORT TYPE: 

59
----

 L  
REPORT SOURCE: 

60
----

 L  
DOCKET NUMBER: 

61	62	63	64	65	66	67	68
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 050-0254  
EVENT DATE: 

69	70	71	72	73	74
----	----	----	----	----	----

 01/10/76  
REPORT DATE: 

75	76	77	78	79	80
----	----	----	----	----	----

 03/12/76

## EVENT DESCRIPTION

02 Local leak rate testing revealed excessive leakage through  
03 Feedwater check valves 1-220-58B, 62A & B. These valves  
04 have leaked in the past, and viton "O" rings were installed  
05 on the valve seating surfaces. The check valves were  
06 cleaned and the seals replace. Leakage was found

SYSTEM CODE: 

7	8	9	10
---	---	---	----

 C4  
CAUSE CODE: 

11
----

 E  
COMPONENT CODE: 

12	13	14	15	16	17
----	----	----	----	----	----

 VAWUEX  
PRIME COMPONENT SUPPLIER: 

43
----

 N  
COMPONENT MANUFACTURER: 

44	45	46	47
----	----	----	----

 C655  
VIOLATION: 

48
----

 N

## CAUSE DESCRIPTION

08 The cause of excessive was deterioration of the  
09 viton seals in the 18" check valve manufactured by  
10 Crane Co. Model # 783-U

FACILITY STATUS: 

7	8	9
---	---	---

 H  
% POWER: 

10	11	12	13
----	----	----	----

 000  
OTHER STATUS: 

44
----

 NA  
METHOD OF DISCOVERY: 

45
----

 3  
DISCOVERY DESCRIPTION: 

46	47	48	49	50
----	----	----	----	----

 Surveillance Test

FORM OF ACTIVITY RELEASED: 

7	8	9
---	---	---

 2  
CONTENT OF RELEASE: 

10	11	12	13
----	----	----	----

 2  
AMOUNT OF ACTIVITY: 

44
----

 NA  
LOCATION OF RELEASE: 

45	46	47	48	49	50
----	----	----	----	----	----

 NA

## PERSONNEL EXPOSURES

NUMBER: 

7	8	9	10	11
---	---	---	----	----

 000  
TYPE: 

12
----

 2  
DESCRIPTION: 

13
----

 NA

## PERSONNEL INJURIES

NUMBER: 

7	8	9	10	11
---	---	---	----	----

 000  
DESCRIPTION: 

12
----

 NA

## OFFSITE CONSEQUENCES

15 NA

## LOSS OR DAMAGE TO FACILITY

TYPE: 

7	8	9
---	---	---

 2  
DESCRIPTION: 

10
----

 NA

## PUBLICITY

17 NA

## ADDITIONAL FACTORS

18 Event Description (cont'd) - as follows: 1-220-58B (5.376 scfh)

19 1-220-62A (.834 scfh), 1-220-62B (14.46 scfh), (2050-254/762)

NAME: J.C. Vahrenwald PHONE: 309-654-2241 (Ext. 243)

LICENSEE EVENT REPORT

CONTROL BLOCK:

[PLEASE PRINT ALL REQUIRED INFORMATION]

EVENT DESCRIPTION	DATE	TIME	LOCATION	STATUS
...	...	...	...	...

CAUSE DESCRIPTION

## PERSONNEL EXPOSURES

PERSONNEL INJURIES

### OFFSITE CONSEQUENCES

LOSS OR DAMAGE TO FACILITY

## PUBLICITY

### ADDITIONAL FACTORS

19 NA 89

NAME: Olin M. Hooversen

PHONE: 309-654-2241 (146)

UPDATE REPORT  
PREVIOUS REPORT DATE:  
FEBRUARY 2, 1976

# LICENSEE EVENT REPORT

CONTROL BLOCK: 1 2 3 4 5 6

[PLEASE PRINT ALL REQUIRED INFORMATION]

LICENSEE NAME: 01 I L Q A D 1 14  
LICENSE NUMBER: 15 00-000000-000 25  
LICENSE TYPE: 26 41111 30  
EVENT TYPE: 31 03 32  
CATEGORY: 57 01 CONT 58  
REPORT TYPE: 59 L 60  
REPORT SOURCE: 60 L 61  
DOCKET NUMBER: 81 050-0254 98  
EVENT DATE: 69 010576 74  
REPORT DATE: 75 021276 80

## EVENT DESCRIPTION

02 While performing a Local Leak rate test on the HPCI  
03 exhaust check valve, it was determined that the leakage  
04 through the valve was 84.42 SCFH. This value is in  
05 excess of the 18.36 SCFH Limit allowed by Technical  
06 Specification 4.7.A.2.i(2)(b). After the valve seat and

SYSTEM CODE: 07 SE 10  
CAUSE CODE: 11 E 12  
COMPONENT CODE: 12 VALUEX 17  
PRIME COMPONENT SUPPLIER: 43 A 44  
COMPONENT MANUFACTURER: 46 C502 47  
VIOLATION: 48 N 48

## CAUSE DESCRIPTION

08 The cause of the excessive leakage through valve  
09 CU-1-2301-45 was improper seating of the valve  
10 disk

FACILITY STATUS: 11 H 9  
% POWER: 10 000 12 13  
OTHER STATUS: 44 NA 45  
METHOD OF DISCOVERY: 46 B 47  
DISCOVERY DESCRIPTION: 48 Surveillance Test  
FORM OF ACTIVITY RELEASED: 12 E 9  
CONTENT OF RELEASE: 10 E 11  
AMOUNT OF ACTIVITY: 44 NA 45  
LOCATION OF RELEASE: 48 NA

## PERSONNEL EXPOSURES

13 000 11 12 13 NA

## PERSONNEL INJURIES

14 000 11 12 NA

## OFFSITE CONSEQUENCES

15 NA

## LOSS OR DAMAGE TO FACILITY.

16 2 10 NA

## PUBLICITY

17 NA

## ADDITIONAL FACTORS

18 EVENT DESCRIPTION (CONT.) - disk were repaired, the leak

19 rate test result was 12.86 SCFM. (RO 50-254/76-2)

NAME: Paul R. Farron PHONE: 309/654-2241 (EXT. 252)