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June 11, 1987

50-237

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Dresden Station Units 2 and 3
Quad Cities Station Units 1 and 2
Zion Station Units 1 and 2
LaSalle County Station Units 1 and 2
Byron Station Units 1 and 2
Braidwood Station Unit 1
Response to Generic Letter No. 87-06 -
Periodic Verification of Leak Tight Integrity
of Pressure Isolation Valves
NRC Docket Nos. 50-237/249; 50-254/265,
50-295/304; 50-373/374; 50-454/455 and 50-456

Reference: Generic Letter 87-06 dated March 13, 1987.

Dear Sir:

The referenced Generic Letter 87-06 requested each operating reactor licensee to verify the method by which they assure the leak tight integrity of all pressure isolation valves as independent barriers against abnormal leakage, rapidly propagating failure, and gross rupture of the reactor coolant pressure boundary.

Pressure isolation valves (PIVs) are defined for each interface as any two valves in series within the reactor coolant pressure boundary (RCPB) which separate the high pressure reactor coolant system (RCS) from an attached low pressure system. These valves are normally closed during power operation.

Due to a number of events in the industry involving leakage past pressure isolation valves, failures of the valves and inadvertent actuation or mispositioning of the valves, the NRC is seeking assurances that the RCPB is being protected. As a result, Commonwealth Edison has been requested to submit a list of all PIVs in each station. For each valve we have been asked to describe the periodic test or other measures performed to assure the integrity of the valve as an independent barrier at the RCPB along with the acceptance criteria for leakage, if any, operational limits, if any, and frequency of test performance.

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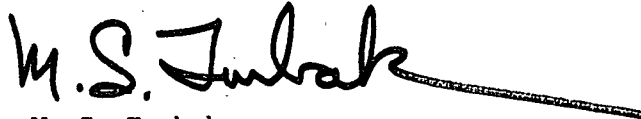
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June 11, 1987

The attachments to this letter provide the requested information for each station. Attachments A, B, C, and D provide the information for Dresden, Quad Cities, Zion and LaSalle County/Byron/Braidwood Stations, respectively. The station listings do not include valves that form a boundary between the RCS and high pressure systems. The listings also do not include numerous small drain, vent, and leak off lines that form part of the RCS boundary. Leakage from these lines within containment is monitored by trending sump volumes and air samples in accordance with Technical Specification requirements.

Please direct any questions regarding this matter to this office.

Sincerely,



M. S. Turbak
Operating Plant Licensing Director

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Attachments (As stated)

cc: A. B. Davis - RIII
Resident Inspector - Dresden
Resident Inspector - LaSalle
Resident Inspector - Quad Cities
Resident Inspector - Byron
Resident Inspector - Braidwood
Resident Inspector - Zion

SUBSCRIBED AND SWORN to
before me this 11th day
of June, 1987



Notary Public

ATTACHMENT A

DRESDEN STATION UNITS 2 and 3
REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

<u>VALVE NO.</u>	<u>SYSTEM</u>	<u>DESCRIPTION</u>
AOX-1402-9A (C.V.) MOX-1402-25A	Core Spray	A-loop Injection
AOX-1402-9B (C.V.) MOX-1402-25B	Core Spray	B-loop Injection
AOX-1501-25A (C.V.) MOX-1501-22A	Low Pressure Coolant Injection	A-loop Injection
AOX-1501-25B (C.V.) MOX-1501-22B	Low Pressure Coolant Injection	B-loop Injection
MOX-1001-1A MOX-1001-1B MOX-1001-2A MOX-1001-2B MOX-1001-2C	Shutdown Cooling	Suction
MOX-1001-5A MOX-1001-5B	Shutdown Cooling	Discharge
AOX-0220-44 AOX-0220-45	Primary Sample	Recirculation Loop Sample Line

C.V. = Check Valve

All of the PIVs listed above except for the AOX-1402-9A and AOX-1402-9B check valves are also primary containment isolation (PCI) valves that are tested in accordance with Dresden Technical Staff Surveillance (DTS) 1600-1, Local Leak Rate Testing of Primary Containment Isolation Valves. The acceptance criteria is $0.6L_A$; these PCI valves are tested using DTS 1600-1 every refueling outage (or less than two years) and after valve maintenance. Other testing or measures for the PIVs listed above are summarized below.

ATTACHMENT A
(Cont'd)

<u>SYSTEM/VALVE NOS.</u>	<u>TESTING OR OTHER MEASURES</u>	<u>ACCEPTANCE CRITERIA/ OPERATING LIMIT</u>	<u>FREQUENCY</u>
Core Spray			
AOX-1402-9A AOX-1402-25A AOX-1402-9B AOX-1402-25B	1. Continuously monitor core spray pump discharge pressure. Excessive leakage will result in high pressure alarms.	1. 100 psig pump discharge pressure setpoint. (Alarm 90X-3, H-13).	1a. Continuous monitoring. 1b. Pressure transmitters are calibrated every 12 months.
	2. Continuously monitor core spray header pressure. Excessive leakage will result in high pressure alarms.	2. 350 psig header pressure setpoint. (Alarm 90X-3, G-5/H-5)	2. Continuous monitoring.
	3. Relief valves for pump discharge piping.	3. 500 psig relief valve setpoint.	3. N/A
Low Pressure Coolant Injection			
AOX-1501-25A MOX-1501-22A AOX-1501-25B MOX-1501-22B	1. Continuously monitor pump discharge pressure. Excessive leakage will result in high pressure alarm.	1. 100 psig header pressure setpoint (Alarm 90X-3, H-13)	1a. Continuous monitoring. 1b. Pressure transmitters are calibrated every 12 months.
	2. Continuously monitor header pressure. Excessive leakage will result in high pressure alarm.	2. 350 psig header pressure setpoint. (Alarm 90X-3, D-6)	2. Continuous monitoring.
	3. Relief valve for header piping.	3. 375 psig relief valve setpoint.	3. N/A

ATTACHMENT A

(Cont'd)

<u>SYSTEM/VALVE NOS.</u>	<u>TESTING OR OTHER MEASURES</u>	<u>ACCEPTANCE CRITERIA/ OPERATING LIMIT</u>	<u>FREQUENCY</u>
Shutdown Cooling			
MOX-1001-1A MOX-1001-1B MOX-1001-2A MOX-1001-2B MOX-1001-2C MOX-2001-5A MOX-1001-5B	<ol style="list-style-type: none">1. Continuously monitor shutdown cooling heat exchanger temperature. Excessive leakage will result in high temperature alarm.2. Continuously monitor suction temperature. Excessive leakage will result in high temperature alarm.	<ol style="list-style-type: none">1. 200°F setpoint for A and B heat exchangers; 100°F setpoint for C heat exchangers. (Alarm 90X-4, A-23)2. 350°F setpoint for suction temperature. (Alarm 90X-4, B-23)	<ol style="list-style-type: none">1. Continuous monitoring.2a. Continuous monitoring. 2b. Temperature instrumentation and switch is calibrated and functionally tested every 18 months.

ATTACHMENT B

QUAD CITIES STATION UNITS 1 and 2

Reactor Coolant System
Pressure Isolation Valves

<u>Valve Nos.</u>	<u>System</u>	<u>Description</u>
AOX-1402-9A(C.V.) MOX-1402-25A	Core Spray	A-loop Injection
AOX-1402-9B(C.V.) MOX-1402-25B	Core Spray	B-loop Injection
AOX-1001-68A(C.V.) MOX-1001-29A	LPCI (RHR)	A-loop Injection
AOX-1001-68B(C.V.) MOX-1001-29B	LPCI (RHR)	B-loop Injection
MOX-1001-47 MOX-1001-50	RHR	Shutdown Cooling Suction
MOX-1001-60 MOX-1001-63	RHR	Head Spray
AOX-0220-44 AOX-0220-45	Primary Sample	Reactor Water Sampling Isolation Valves

C.V. = check valve

ATTACHMENT B

(Cont'd)

VALVE NO.	TESTING OR OTHER MEASURES	ACCEPTANCE CRITERIA/ OPERATING LIMIT	FREQUENCY
AOX-1402-9A	<ol style="list-style-type: none"> 1. Continuously monitor Core Spray pump discharge pressure. Excessive leakage will result in high system pressure alarm. 2. (Same as 1 above) 3. Relief valves for pump discharge piping protect the discharge piping from over pressurization. 	<ol style="list-style-type: none"> 1. Alarm setpoint is for pressure less than 45 psig or greater than 85 psig. Tech Spec LCO 3.5.G. sets limits of 40 and 90 psig. (Alarm 90X-3, G-16) 2. Alarm setpoint is for pressure greater than 260 psig. (Alarm 90X-3, G5/H5) 3. Relief valve setpoint is 475 psig \pm 2%. 	<ol style="list-style-type: none"> 1.a. Continuous monitoring 1.b. Pressure switches are calibrated and functionally tested every 3 mos. per T.S. 2. Continuous monitoring 3. Bench tested at least every 3rd refuel outage per QMS 800-T3.
AOX-1402-9B	(Same as 9A valve above)	(Same as above)	(Same as above)
MOX-1402-25A	<ol style="list-style-type: none"> 1. Continuously monitor Core Spray pump discharge pressure. Excessive leakage will result in high system pressure. 2. (Same as 1 above) 3. Relief valves for pump discharge piping from over pressurization. 4. Pressure permissive to prevent inadvertent opening of the valve. 	<ol style="list-style-type: none"> 1. Alarm setpoint is for pressure less than 45 psig or greater than 85 psig. Tech Spec LCO sets limits of 40 and 90 psig. (Alarm 90X-3, G-16) 2. Alarm setpoint is for pressure greater than 260 psig. (Alarm 90X-3, G5/H5) 3. Relief valve set point is 475 psig \pm2%. 4. Pressure switches set at 300-350 psig per T.S. 	<ol style="list-style-type: none"> 1.a. Continuous 1.b. Pressure switches are calibrated and functionally tested every 3 mos. 2. Continuous monitoring 3. Bench tested at least every 3rd refuel outage per QMS 800-T3. 4.a. Continuous 4.b. Switches calibrated and functionally tested every 3 mos.

ATTACHMENT B

(Cont'd)

VALVE NO.	TESTING OR OTHER MEASURES	ACCEPTANCE CRITERIA/ OPERATING LIMIT	FREQUENCY
MOX-1402-25B	(Same as 25A valve above)	(Same as above)	(Same as above)
AOX-1001-68A	<ol style="list-style-type: none"> 1. Continuously monitor RHR pump discharge pressure. Excessive leakage will result in high system pressure alarm. 2. Relief valves for pump discharge piping protect the discharge piping from over pressurization. 	<ol style="list-style-type: none"> 1. Alarm setpoint is for pressure less than 45 psig or greater than 75 psig. Tech Spec LCO 3.5.G. sets limit of 40 and 90 psig. (Alarm 90X-3, C-8) 2. Relief valve set point is 408 psig \pm 2%. 	<ol style="list-style-type: none"> 1.a. Continuous monitoring 1.b. Pressure switches are calibrated and functionally tested every 3 mos. per T.S. 2. Bench tested at least every 3rd refuel outage per QMS 800-T3.
AOX-1001-68B (Check Valve)	(Same as 68A valve above)	(Same as above)	(Same as above)
MOX-1001-29A	<ol style="list-style-type: none"> 1. Considered Primary Containment Isolation (PCI) valve in Tech Specs Type C test performed per 10CFR50, App. J. 2. Continuously monitor RHR pump discharge pressure. Excessive leakage will result in high system pressure alarm. 3. Relief valves for pump discharge piping protect the discharge piping from over pressurization. 4. Pressure permissive to prevent inadvertent opening of the valve. 	<ol style="list-style-type: none"> 1. 0.6 L_A for all Type B and C tests. 2. Alarm setpoint is for pressure less than 45 psig or greater than 75 psig. Tech Spec LCO 3.5.G. sets limit of 40 and 90 psig. (Alarm 90X-3, C-8) 3. Relief valves setpoint is 408 psig \pm 2%. 4. Pressure switches set at 300-350 psig per T.S. 	<ol style="list-style-type: none"> 1.a. Every refuel outage or less than 2 yrs. 1.b. After maintenance per 10CFR50, App. J. 2.a. Continuous monitoring 2.b. Pressure switches are calibrated and functionally tested every 3 mos. per T.S. 3. Bench tested at least every 3rd refuel outage per QMS 800-T3. 4. Switches are calibrated and functionally tested every 3 mos.
MOX-1001-29B	(Same as 29A valve above)	(Same as above)	(Same as above)

ATTACHMENT B (Cont'd)

VALVE NO.	TESTING OR OTHER MEASURES	ACCEPTANCE CRITERIA/ OPERATING LIMIT	FREQUENCY
MOX-1001-47	<ol style="list-style-type: none"> 1. Considered PCI valve in Tech Specs. Type C test performed per 10CFR50, Appendix J. 2. Shutdown Cooling and Head Spray have low pressure permissive to prevent inadvertent opening of the valve. 3. Shutdown Cooling suction line (only) is protected from overpressurization by relief valves. 	<ol style="list-style-type: none"> 1. 0.6 L_A for all Type B and C tests. 2.a. Pressure in reactor must be less than 100 psig to permit opening valve. 2.b. Alarm when pressure permissive is satisfied. (Alarm 90X-3, E15) 3. Relief valve setpoint is 150 psig \pm 2%. 	<ol style="list-style-type: none"> 1.a. Every refuel outage or less than 2 yrs. 1.b. After maintenance per 10CFR50, Appendix J. 2.a. Continuous monitoring 2.b. Pressure switches are calibrated and functionally tested every 3 mos. 3. Bench tested at least every 3rd refuel outage per QMS 800-T3.
MOX-1001-50	(Same as 47 valve above)	(Same as above)	(Same as above)
MOX-1001-60	(Same as 47 valve above)	(Same as above)	(Same as above)
MOX-1001-63	(Same as 47 valve above)	(Same as above)	(Same as above)
AOX-0220-44	<ol style="list-style-type: none"> 1. Considered PCI valve in Tech Specs. Type C test performed per 10CFR50, Appendix J. 2. Automatic closure on Group I isolation. 	<ol style="list-style-type: none"> 1. 0.6 L_A for all Type B and C tests. 2. Valve closure. 	<ol style="list-style-type: none"> 1.a. Every refuel outage or less than 2 yrs. 1.b. After maintenance per 10CFR50, Appendix J. 2. Automatic closure tested each refuel outage.
AOX-0220-45	(Same as 44 valve above)	(Same as above)	(Same as above)

NOTE: In addition to the testing and/or operating limits described above, Quad Cities performs regular in service testing (IST) that strokes motor operated valves and trends valve stroke times. This testing insures a high degree of reliability for these valves.

ATTACHMENT C

ZION STATION UNITS 1 AND 2

The following table contains PIVs representative of both units, their testing procedures, and frequency of test performance.

<u>VALVE NO.</u>	<u>LEAK TEST</u>	<u>FREQUENCY</u>
MOV-RH8701	PT-2J	MONTHLY
MOV-RH8702	PT-2J	MONTHLY
RH-8736A	PT-2P	EVERY COLD SHUTDOWN
RH-8736B	PT-2P	" " "
RH-8949A	PT-2P	" " "
RH-8949B	PT-2P	" " "
SI-8905A	PT-2P	" " "
SI-8905B	PT-2P	" " "
SI-9004C	PT-2P	" " "
SI-9004D	PT-2P	" " "
SI-9012A	PT-2P	" " "
SI-9012B	PT-2P	" " "
SI-9012C	PT-2P	" " "
SI-9012D	PT-2P	" " "
SI-8948A	PT-2K	EVERY REFUELING
SI-8948B	PT-2K	" "
SI-8948C	PT-2K	" "
SI-8948D	PT-2K	" "
SI-8956A	PT-2L	" "
SI-8956B	PT-2L	" "
SI-8956C	PT-2L	" "
SI-8956D	PT-2L	" "
SI-9001A	PT-2P	EVERY COLD SHUTDOWN
SI-9001B	PT-2P	" " "
SI-9001C	PT-2P	" " "
SI-9001D	PT-2P	" " "
SI-9002A	PT-2P	" " "
SI-9002B	PT-2P	" " "
SI-9002C	PT-2P	" " "
SI-9002D	PT-2P	" " "

PT-2J - Residual Heat Removal Pump Test

PT-2P - Safety Injection System Backup Check Valve Leak Check - RHR Cold Leg Injection

PT-2K - ECCS Accumulator Refueling Test

PT-2L - Accumulator Backup Check Valve Leak Check

PT-2M - RHR/SI Cold Leg, SI Hot Leg Injection Check Valves Leak Check

PT-2N - RHR Hot Leg and Cold Leg Injection Check Valves Leak Check

ATTACHMENT C
(Cont'd)

The above valves are leak tested by monitoring flow or pressure buildup on the lower side of the PIVs. The acceptance criteria for leakage of PIVs is specified to be below 5 gpm with exception of MOV-RH8701 and MOV-RH8702. Suction pressure of RHR pumps of less than 200 psig indicates that valves MOV-RH8701 and MOV-RH8702 have acceptable seat leakage in series per PT-2J. PT-2M and PT-2N are performed if the leakage of valves tested in PT-2P exceeds 5 gpm, to identify the source of leakage. All potentially leaking valves are repaired to prevent overpressurization of the lower pressure system and consequently lifting the relief valves. The leakrate test results are documented in Station Procedure TSS 15.6.20V-8, ISI Valve Surveillance.

ATTACHMENT D

LASALLE COUNTY STATION UNITS 1 AND 2

BYRON STATION UNITS 1 AND 2

BRAIDWOOD STATION UNIT 1

The LaSalle County, Byron and Braidwood Station Technical Specifications require leak rate testing of the PIVs.