

Commonwealth Edison Company  
Quad Cities Generating Station  
22710 206th Avenue North  
Cordova, IL 61242-9740  
Tel 309-654-2241



February 18, 2000

SVP-00-015

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Units 1 and 2  
Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

Subject: Relief Requests for the Third Ten-Year Interval Inservice Testing Program for Pumps and Valves

Reference: NRC Letter from Robert A. Capra to D. L. Farrar (ComEd), dated November 1, 1995, "Relief Requests for Revision 5 of the Third 10-Year Interval Inservice Testing program for Pumps and Valves (TAC Nos. M92353 and M92354)".

Commonwealth Edison (ComEd) Company has completed a project that developed a scope bases document for the Inservice Testing (IST) program. The purpose of this bases document is to provide the necessary justification to determine those components that are to be included in or excluded from the scope of the IST program.

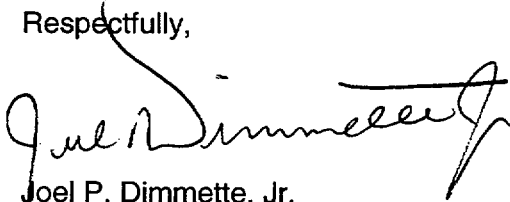
The Essential Service System (ESS) Keep Fill pump was included among those components added to the scope of the IST program. Due to the piping arrangement of the ESS Keep Fill system, the testing of this pump can not meet all of the ASME/ANSI OMa-1988, Part 6 testing requirements. Therefore, in accordance with 10CFR50.55a ComEd is requesting relief from ASME/ANSI OMa-1988, Part 6. This request for relief is contained in Attachment A.

During 1998 and 1999, we conducted an initiative to improve the IST program. We validated the boundaries of the systems covered by the IST program. This effort identified a need to incorporate minor revisions to previously approved relief requests in the referenced letter to reflect the change in components covered by these relief requests. These minor revisions do not change the original intent of the relief requests. Attachment B is provided for your information.

February 18, 2000  
U.S. Nuclear Regulatory Commission  
Page 2

Should you have any questions concerning this letter, please contact Mr. C.C. Peterson at (309) 654-2241, extension 3609.

Respectfully,

A handwritten signature in black ink, appearing to read "Joel P. Dimmette, Jr.", with a stylized flourish at the end.

Joel P. Dimmette, Jr.  
Site Vice President  
Quad Cities Nuclear Power Station

Attachment A Quad Cities IST Program Relief Request Number RP-14A  
Attachment B: Quad Cities IST Program Relief Request Revisions

cc: Regional Administrator – NRC Region III  
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

**ATTACHMENT A, Quad Cities Nuclear Power Station  
IST Program Relief Request Number RP-14A, Page 1 of 3**

<b>Revision Summary</b>		
<b>Relief Request Number Affected Section(s)</b>	<b>Change Summary</b>	<b>Reason for Change</b>
RP-14A	New Relief Request	Essential Service System Keep Fill Pump added to IST Program scope. Relief Request written to address the impracticality and hardships involved with flow rate testing.

**ATTACHMENT A, Quad Cities Nuclear Power Station  
IST Program Relief Request Number RP-14A, Page 2 of 3**

**RELIEF REQUEST: RP-14A**

<b><u>Component Number</u></b>	<b><u>System</u></b>	<b><u>Code Class</u></b>
1-1402-57	Core Spray	2
2-1402-57	Core Spray	2

**Component Function(s)**

The Emergency Core Cooling System (ECCS) keep fill pump is a motor-driven centrifugal pump. This pump must operate to pump water from the suppression chamber to the Core Spray and LPCI pump discharge lines to maintain these lines full to prevent water hammer damage during pump starting. The ECCS keep fill system is also connected to the HPCI and RCIC pump discharge but valves in these lines are normally closed. The ECCS keep fill system pump has a capacity of 50 gpm.

**Code Requirements**

O&M Part 6 Paragraph 5.2, "Test Procedure"

- ◆ The test parameters shown in Table 2 shall be determined and recorded as directed in this paragraph.

O&M Part 6 Paragraph 5.2(d)

- ◆ "Pressure, flow rate, and vibration (displacement or velocity) shall be determined and compared with corresponding reference values.

O&M Part 6 Table 2, "Inservice test Parameters"

**Basis For Relief**

10CFR50.55a(g) (6) (i), "impractical"

10CFR50.55a(a) (3) (ii), "hardship"

Instrumentation is not installed for measuring flow rates. Pump flow varies with system operation and system leakage; therefore, establishing flow rates for testing purposes is not practical. The primary purpose of these pumps is to maintain the Core Spray and LPCI pump discharge lines filled to limit the potential for water hammer upon initiation. System modification to provide test-measuring locations places undue burden on the utility without demonstrating any increase in the level of plant safety. These pumps are in continuous operation and the main ECCS pump discharge headers each have a low-pressure alarm, which continuously monitor the operability of the respective ECCS keep fill system pump. Station Technical Specifications also verify operability of the ECCS keep fill system pumps by verifying flow through a high point vent on a monthly basis.

**ATTACHMENT A, Quad Cities Nuclear Power Station  
IST Program Relief Request Number RP-14A, Page 3 of 3**

**RELIEF REQUEST: RP-14A**

**Proposed Alternate Testing**

Vibration measurement will be obtained under normal operating conditions and evaluated in accordance with OMa-1988, Part 6. Quad Cities Nuclear Power Station verifies operability of these pumps by pressure maintenance of the ECCS pump discharge lines within allowable pressure limits. In addition, Quad Cities Nuclear Power Station monitors the subject pumps for degradation by measuring and recording pump inlet pressure, discharge pressure, differential pressure, and vibration with the differential pressure and vibration data trended. These measurements are taken quarterly and provide satisfactory indication of operational readiness as well as the ability to detect potential degradation.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 1 of 20**

<b>Revision Summary</b>		
<b>Relief Request Number Affected Section(s)</b>	<b>Change Summary</b>	<b>Reason for Change</b>
RV-00A Component Identification	Added Valves: 1(2)-1001-143A 1(2)-1001-143B 1(2)-2399-064 1(2)-2399-065 1(2)-2399-066 1(2)-2399-067	Non-intrusive methods can not verify open capability.
RV-00A Component Identification	Removed Valves: 1(2)-1001-142A 1(2)-1001-142B 1(2)-1001-142C 1(2)-1001-142D 1(2)-1402-013A 1(2)-1402-013B 1(2)-2301-034 1(2)-2301-071 1(2)-2499-022A 1(2)-2499-022B	Valves were removed from the scope of this Relief Request because non-intrusive testing methods were developed to verify the open capability of the check valves.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 2 of 20**

**RELIEF REQUEST: RV-00A**

<b><u>Component Number</u></b>	<b><u>System</u></b>	<b><u>Code Class</u></b>	<b><u>Category</u></b>
1-0301-122	CRD	NS	C
1-0302-026	CRD	NS	C
1-1001-143A	RHR	NS	C
1-1001-143B	RHR	NS	C
1-1301-027	RCIC	2	C
1-1301-047	RCIC	2	C
1-1399-102	RCIC	NC	C
1-1399-103	RCIC	NC	C
1-2301-039	HPCI	2	C
1-2301-040	HPCI	2	C
1-2301-050	HPCI	2	C
1-2301-075	HPCI	2	C
1-2399-064	HPCI	NC	C
1-2399-065	HPCI	NC	C
1-2399-066	HPCI	2	C
1-2399-067	HPCI	2	C
1-5299-003	DG Fuel Oil Transfer	NS	C
2-0301-122	CRD	NS	C
2-0302-026	CRD	NS	C
2-1001-143A	RHR	NS	C
2-1001-143B	RHR	NS	C
2-1301-027	RCIC	2	C
2-1301-047	RCIC	2	C
2-1399-102	RCIC	NC	C
2-1399-103	RCIC	NC	C
2-2301-039	HPCI	2	C
2-2301-040	HPCI	2	C
2-2301-050	HPCI	2	C
2-2301-075	HPCI	2	C
2-2399-064	HPCI	NC	C
2-2399-065	HPCI	NC	C
2-2399-066	HPCI	2	C
2-2399-067	HPCI	2	C
2-5299-003	DG Fuel Oil Transfer	NS	C

**Component Function(s)**

These check valves must open to pass the maximum required accident flow.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 3 of 20**

**RELIEF REQUEST: RV-00A**

**Code Requirement(s)**

OM Part 10 Paragraph 4.3.2.4(c), "Valve Obturator Movement"

- ♦ "As an alternative to the testing in 4.3.2.4(a) or 4.3.2.4(b) above, disassembly of check valves may be used."

**Basis For Relief**

10CFR50.55a(g)(6)(i), "impractical"

Quad Cities has conducted a detailed evaluation of the testability of each of the subject valves. We have concluded that there is no direct or reliable indirect means of verifying that the subject check valves have been exercised to the open position by passing the maximum required accident flow through the valve. Disassembly of every check valve during every refueling outage presents a burden to the station without a compensating increase in quality and safety.

**Proposed Alternate Testing**

The operability of the subject check valves will be verified by disassembly. Due to the scope of this testing (specifically, the personnel hazards involved and system operating restrictions), disassembly and inspection will be performed during reactor refueling outages or specific system work windows. Since it would be burdensome to disassemble and inspect all of the subject check valves during each refueling outage/work window, a sample disassembly and inspection plan for groups of identical valves in similar applications will be employed.

Non-intrusive methods (such as acoustic indication) have been explored in conjunction with the efforts in progress in response to SOER 86-03 to enable quantitative evaluation of check valve disk exercising. Such non-intrusive methods are currently being qualified and implemented. Each check valve listed will continue to be identified for disassembly until enough qualitative data is collected for each valve to determine, on an individual basis, the ability of the non-intrusive method assess the operational readiness of the valve.

Check valves will be disassembled to the extent necessary to assess the condition of the valve and to allow manual exercising of the disk. During the visual examination, full stroke capability will be verified. Any loose, corroded, or otherwise degraded parts will be evaluated and appropriate corrective action will be taken, if required.



**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 4 of 20**

**RELIEF REQUEST: RV-00A**

**Proposed Alternate Testing (Cont'd)**

If possible a partial stroke test will be performed after disassembly and inspection. Each check valve will be part stroke exercised open quarterly if possible. If system conditions do not permit partial stroke exercising quarterly, it will be performed during Cold Shutdown or Reactor Refueling if possible.

The population of check valves listed in this Relief Request has been broken down into sample groups that contain no more than four (4) valves. All of the valves in a given sample group are of identical design (manufacturer, size, model number, and materials of construction) and have the same service conditions including valve orientation. All valves within each group will be disassembled and inspected at least once every six years.

This Relief Request complies with NRC Generic Letter 89-04, Attachment 1, Position 2. See the October 25, 1989, Minutes of Public Meetings on Generic Letter 89-04, responses to questions concerning Position 2, Questions 9 through 20, pages 11 through 20.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 5 of 20**

<b>Revision Summary</b>		
<b>Relief Request Number Affected Section(s)</b>	<b>Change Summary</b>	<b>Reason for Change</b>
RV-00B Component Identification	Corrected Valve Number From: "1(2)-0302-122" To: "1(2)-0301-122"	Editorial Change Only.
RV-00B Component Identification	Removed Valves: 1(2)-1001-142A 1(2)-1001-142B 1(2)-1001-142C 1(2)-1001-142D 1(2)-1301-023 1(2)-1402-013B 1(2)-1301-055 1(2)-1301-063 1(2)-1301-064 1(2)-2301-020 1(2)-2301-051 1(2)-2301-071 1(2)-2301-076 1(2)(0)-5299-158	Valves were removed from the scope of this Relief Request because non-intrusive testing methods were developed to verify the open capability of the check valves.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 6 of 20**

**RELIEF REQUEST: RV-00B**

<b><u>Component Number</u></b>	<b><u>System</u></b>	<b><u>Code Class</u></b>	<b><u>Category</u></b>
0-3999-085	DG Cooling Water	3	C
<b>1-0301-122</b>	CRD	NS	C
1-0302-026	CRD	NS	C
1-1301-047	RCIC	2	C
1-1399-102	RCIC	NC	C
1-1399-103	RCIC	NC	C
1-3999-086	DG Cooling Water	3	C
2-0301-122	CRD	NS	C
2-0302-026	CRD	NS	C
2-1301-047	RCIC	2	C
2-1399-102	RCIC	NC	C
2-1399-103	RCIC	NC	C
2-3999-086	DG Cooling Water	3	C

**Component Function(s)**

These check valves must close.

**Code Requirement(s)**

OM Part 10 Paragraph 4.3.2.4(c), "Valve Obturator Movement"

- ♦ "As an alternative to the testing in 4.3.2.4(a) or 4.3.2.4(b) above, disassembly of check valves may be used."

**Basis For Relief**

10CFR50.55a(g)(6)(i), "impractical"

Quad Cities has conducted a detailed evaluation of the testability of each of the subject valves. We have concluded there is no direct or indirect means of verifying that the subject check valves have been exercised to the closed position by either a reverse flow or "seat leakage" type test. A variety of pressure tests, vacuum tests, special system alignments, monitoring of other system parameters, etc. were evaluated, and no conclusive test is possible. Disassembly of every check valve during every refueling outage/system work window presents a burden to the station without a compensating increase in quality and safety.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 7 of 20**

**RELIEF REQUEST: RV-00B**

**Proposed Alternate Testing**

The operability of the subject check valves will be verified by disassembly. Due to the scope of this testing (specifically, the personnel hazards involved and system operating restrictions), disassembly and inspection will be performed during reactor refueling outages or specific system work windows. Since it would be burdensome to disassemble and inspect all of the subject check valves during each refueling outage/work window, a sample disassembly and inspection plan for groups of identical valves in similar applications will be employed.

Non-intrusive methods (such as acoustic indication) have been explored in conjunction with the efforts in progress in response to SOER 86-03 to enable quantitative evaluation of check valve disk exercising. Such non-intrusive methods are currently being qualified and implemented. Each check valve listed will continue to be identified for disassembly until enough qualitative data is collected for each valve to determine, on an individual basis, the ability of the non-intrusive method assess the operational readiness of the valve. Check valves will be disassembled to the extent necessary to assess the condition of the valve and to allow manual exercising of the disk. During the visual examination, full stroke capability will be verified. Any loose, corroded, or otherwise degraded parts will be evaluated and appropriate corrective action will be taken, if required.

The population of check valves listed in this Relief Request has been broken down into sample groups that contain no more than four (4) valves. All of the valves in a given sample group are of identical design (manufacturer, size, model number, and materials of construction) and have the same service conditions including valve orientation. All valves within each group will be disassembled and inspected once every six years.

This Relief Request complies with NRC Generic Letter 89-04, Attachment 1, Position 3. See the October 25, 1989, Minutes of Public Meetings on Generic Letter 89-04, response to Question 17, page 15.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 8 of 20**

<b>Revision Summary</b>		
<b>Relief Request Number Affected Section(s)</b>	<b>Change Summary</b>	<b>Reason for Change</b>
RV-00C Component Identification	Corrected Valve Class for Valve 1(2)-1001-132  From: "2" To: "NS"	Editorial Change (typographic) There was no change of intent.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 9 of 20**

**RELIEF REQUEST: RV-00C**

(Page 1 of 2)

<b><u>Component Number</u></b>	<b><u>System</u></b>	<b><u>Code Class</u></b>	<b><u>Category</u></b>
1-1001-131	RHR	2	C
1-1001-132	RHR	NS	C
1-1001-136A	RHR	2	C
1-1001-136B	RHR	2	C
1-1001-137A	RHR	NS	C
1-1001-137B	RHR	NS	C
1-1001-139	RHR	2	C
1-1001-140	RHR	NS	C
1-1402-064A	Core Spray	2	C
1-1402-064B	Core Spray	2	C
1-1402-065A	Core Spray	2	C
1-1402-065B	Core Spray	2	C
2-1001-131	RHR	2	C
2-1001-132	RHR	NS	C
2-1001-136A	RHR	2	C
2-1001-136B	RHR	2	C
2-1001-137A	RHR	NS	C
2-1001-137B	RHR	NS	C
2-1001-139	RHR	2	C
2-1001-140	RHR	NS	C
2-1402-064A	Core Spray	2	C
2-1402-064B	Core Spray	2	C
2-1402-065A	Core Spray	2	C
2-1402-065B	Core Spray	2	C

**Component Function(s)**

These Core Spray and RHR check valves must close to prevent diversion of injection flow.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 10 of 20**

**RELIEF REQUEST: RV-00C**

(Page 2 of 2)

**Code Requirement(s)**

OM Part 10 Paragraph 4.3.2.4(a), "Valve Obturator Movement"

- "The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat on cessation or reversal of flow, or opens to the position required to fulfill its function..."

OM Part 10 Paragraph 4.3.2.6, "Corrective Action"

- "If a check valve fails to exhibit the required change of obturator position it shall be declared inoperable."

**Basis For Relief**

10CFR50.55a(a)(3)(i), "acceptable level of quality and safety"

10CFR50.55a(g)(6)(i), "impractical"

Quad Cities has conducted a detailed evaluation of the testability of each of the subject valves. We have concluded that there is no direct or indirect means of verifying that each individual check valve has been exercised to the closed position by either a reverse flow or "seat leakage" type test.

However, these are close coupled check valves in series. Each series can be verified to prevent backflow as a unit. Only one valve in each pair is required to close to perform the intended safety function.

**Proposed Alternate Testing**

The backflow prevention capability of the subject check valves will be verified by testing each close coupled pair as a unit. If the unit fails the backflow prevention acceptance criteria, **both** valves in the series pair will be repaired or replaced.

This testing follows the guidelines of Draft NUREG-1482, paragraph 4.1.1.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 11 of 20**

<b>Revision Summary</b>		
<b>Relief Request Number Affected Section(s)</b>	<b>Change Summary</b>	<b>Reason for Change</b>
RV-02A Relief Request Number	Revised Relief Request Number From: "RV-02A" To: "RV-30C"	For Administrative Purposes only.
RV-30C Basis for Relief Proposed Alternate Testing	Revised upper MSIV Stroke Time Limit From: "< 5 seconds" To: "≤ 5 seconds"	Change made to reflect same change that was made to Technical Specifications
RV-30C Basis for Relief Proposed Alternate Testing	Removed reference to specific Technical Specification paragraphs. Now makes generic reference to "Technical Specifications"	Change made for administrative purposes. There is no change in intent since the testing is still being performed in accordance with the Technical Specifications.



**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 12 of 20**

**RELIEF REQUEST: RV-30C**

<b><u>Component Number</u></b>	<b><u>System</u></b>	<b><u>Code Class</u></b>	<b><u>Category</u></b>
1-0203-001A-AO	Main Steam	1	A
1-0203-001B-AO	Main Steam	1	A
1-0203-001C-AO	Main Steam	1	A
1-0203-001D-AO	Main Steam	1	A
1-0203-002A-AO	Main Steam	1	A
1-0203-002B-AO	Main Steam	1	A
1-0203-002C-AO	Main Steam	1	A
1-0203-002D-AO	Main Steam	1	A
2-0203-001A-AO	Main Steam	1	A
2-0203-001B-AO	Main Steam	1	A
2-0203-001C-AO	Main Steam	1	A
2-0203-001D-AO	Main Steam	1	A
2-0203-002A-AO	Main Steam	1	A
2-0203-002B-AO	Main Steam	1	A
2-0203-002C-AO	Main Steam	1	A
2-0203-002D-AO	Main Steam	1	A

**Component Function(s)**

The main steam isolation valves open to admit reactor steam to the turbine. They close to provide containment and reactor isolation.

**Code Requirement(s)**

OM Part 10, Paragraph 4.2.1.8(d), "Stroke Time Acceptance Criteria"

- "Other power-operated valves with reference stroke times less than or equal to 10 sec shall exhibit no more than  $\pm 50\%$  change in stroke time when compared to the reference value."

**Basis For Relief**

10CFR50.55a(a)(3)(i), "acceptable level of quality and safety"

The OM Part 10 Code requirement bases the stroke time acceptance criteria on a fixed reference value taken from a baseline test. However, Technical Specification 3.7.D/4.7.D, "Primary Containment Isolation Valves" and Technical Specification 3.6.M/4.7.M, "Main Steam Isolation Valves" establish an invariable acceptable stroke time range for the MSIVs of  $\geq 3.0$  seconds to  $\leq 5.0$  seconds. This fixed range is more conservative and consistent than that required by OM Part 10, since the range is not dependant on a baseline value that may vary by as much as  $\pm 1$  second.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 13 of 20**

**RELIEF REQUEST: RV-30C**

**Proposed Alternate Testing**

Technical Specifications establish an acceptable stroke time range for the MSIVs of 3.0 seconds  $\leq T_{\text{MSIV}} \leq$  5.0 seconds. Quad Cities will utilize this range for evaluating an acceptable MSIV stroke time in lieu of establishing an acceptance band based on MSIV stroke time reference values. Quad Cities have also established additional limitations on stroke time based on reactor power levels to ensure that the Technical Specification limits are always met. Any MSIV that fails to meet the Technical Specification limits will be considered inoperable and corrective actions will be in accordance with the Technical Specifications.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 14 of 20**

<b>Revision Summary</b>		
<b>Relief Request Number Affected Section(s)</b>	<b>Change Summary</b>	<b>Reason for Change</b>
RV-03A Component Identification	Added Valve: 1(2)-0305-137	Valve added into IST Program Scope
RV-03A Component Function(s)	Added discussion of 1(2)- 0305-137 function and reformatted text	Change made to reflect same change that was made to Technical Specifications
RV-03A Basis for Relief	Removed reference to specific Technical Specification paragraphs. Now makes generic reference to <i>"Technical Specifications"</i>	Change made for administrative purposes. There is no change in intent since the testing is still being performed in accordance with the Technical Specifications.
RV-03A Proposed Alternate Testing	Removed specific frequency discussion and references to specific Technical Specification paragraphs. Now makes generic reference to <i>"Technical Specifications"</i>	Change made for administrative purposes. There is no change in intent since the testing is still being performed in accordance with the Technical Specifications.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 15 of 20**

**RELIEF REQUEST: RV-03A**

<b><u>Component Number</u></b>	<b><u>System</u></b>	<b><u>Code Class</u></b>	<b><u>Category</u></b>
1-0305-114	CRD	2	C
1-0305-117-SO	CRD	NC	B
1-0305-118-SO	CRD	NC	B
1-0305-126-CV	CRD	1	B
1-0305-127-CV	CRD	1	B
1-0305-137	CRD	1	C
2-0305-114	CRD	2	C
2-0305-117-SO	CRD	NC	B
2-0305-118-SO	CRD	NC	B
2-0305-126-CV	CRD	1	B
2-0305-127-CV	CRD	1	B
2-0305-137	CRD	1	C

**Component Function(s)**

The scram discharge check valve (0305-114) opens to discharge reactor coolant from the Control Rod Drive (CRD) above-piston area to the Scram Discharge Volume (SDV).

The scram inlet valve 0305-126-CV opens to discharge the CRD Hydraulic Control Unit (HCU) accumulator into the CRD below-piston area.

The scram outlet valve 0305-127-CV opens to vent the CRD above-piston area and discharge reactor coolant to the SDV.

The scram pilot solenoid valves (0305-117-SO and 305-118-SO) de-energize to stroke the scram inlet and outlet valve to the positions described above.

The drive water check valve (0305-137) closes during a scram to prevent a significant loss of accumulator water to the drive water riser.

A CRD is inserted by creating a DP across the CRD piston with "high" pressure in the below-piston volume and "low" pressure in the above-piston volume. At low reactor pressure ( $\leq 800$  psig), the CRD HCU accumulator is required to insert a CRD within safety analysis time limits.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 16 of 20**

**RELIEF REQUEST: RV-03A**

**Code Requirement(s)**

OM Part 10, Paragraph 4.2.1.1, "Exercising Test Frequency"

- Active Category A and B valves shall be tested nominally every 3 months, except as provided by paragraphs 4.2.1.2, 4.2.1.5, and 4.2.1.7.

OM Part 10, Paragraph 4.2.1.4(b), "Power-Operated Valve Stroke Testing"

- The stroke time of all power operated valves shall be measured to the nearest second.

OM Part 10, Paragraph 4.2.1.9(a), "Corrective Action"

- If a valve fails to exhibit the required change of obturator position or exceeds the limiting values of full stroke time [see paragraph 4.2.1.4(a)], the valve shall be immediately declared inoperable.

OM Part 10, Paragraph 4.3.2.1, "Exercising Test Frequency"

- Check valves shall be exercised nominally every 3 months, except as provided by paragraphs 4.3.2.2, 4.3.2.3, 4.3.2.4, and 4.3.2.5.

OM Part 10, Paragraph 4.3.2.4(a), "Valve Obturator Movement"

- The necessary valve obturator movement shall be demonstrated by exercising the valve and observing that either the obturator travels to the seat upon cessation or reversal of flow, or opens to the position required to fulfill its function, as specified in paragraph 1.1 or both.

OM Part 10, Paragraph 4.2.1.9(a), "Corrective Action"

- If a check valve fails to exhibit the required change of obturator position it shall be declared inoperable.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 17 of 20**

**RELIEF REQUEST: RV-03A**

**Basis For Relief**

10CFR50.55a(g)(6)(I), "impractical"

As noted in TV-03A, the valve listed in the IST Plan is typical of 177 valves, i.e., one for each of the Control Rod Drives. The scram inlet and outlet valves are power operated valves that full stroke in milliseconds. The scram pilot solenoid valves also stroke in milliseconds.

Quarterly exercising of the subject valves would result in the rapid insertion of one or more Control Rod Drives. Quarterly testing would result in more frequent testing than is required by Technical Specifications to verify operability. Proper operation of each of these valves (4 x 177) is demonstrated during Technical Specification scram testing. The acceptance criteria for these tests are based on each CRD's scram insertion time. If the CRD is inserted within the time limits specified in Technical Specifications, these valves are functioning properly.

Trending the stroke times of the scram inlet and outlet valves, and the scram pilot solenoid valves is impractical and unnecessary because these valves are indirectly stroke timed and no meaningful correlation between the scram insertion time and the stroke time can be obtained. Based on the conservative limits established for CRD scram insertion times, it is unnecessary to trend the stroke times.

**Proposed Alternate Testing**

The operability of the subject valves will be verified by an indirect test. If the CRD scram insertion time is less than the limits specified in Technical Specifications, then the associated scram inlet and outlet valves are operable.

The test frequency for the subject valves will be based on the frequency of scram insertion time testing, as specified in Technical Specifications.

This Relief Request complies with NRC Generic Letter 89-04, Attachment 1, Position 7.

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 18 of 20**

<b>Revision Summary</b>		
<b>Relief Request Number Affected Section(s)</b>	<b>Change Summary</b>	<b>Reason for Change</b>
RV-30B Component Identification	Corrected Category for valve 1(2)-0203-003A From: "B/C" To: "C"	Valve Testing to meet requirements of OM-1987, Part 1 for Main Steam Pressure Relief Valves with Auxiliary Actuating Devices.
RV-30B Basis for Relief Proposed Alternate Testing	Removed outdated UFSAR reference and reference to specific Technical Specification paragraphs. Now makes generic reference to " <i>Technical Specifications</i> "	Change made for administrative purposes. UFSAR no longer discusses this testing and the intent has not changed since testing is still being performed in accordance with station Technical Specifications

**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 19 of 20**

**RELIEF REQUEST: RV-30B**

<b><u>Component Number</u></b>	<b><u>System</u></b>	<b><u>Code Class</u></b>	<b><u>Category</u></b>
1-0203-003A	Main Steam	1	C
1-0203-004A	Main Steam	1	C
1-0203-004B	Main Steam	1	C
1-0203-004C	Main Steam	1	C
1-0203-004D	Main Steam	1	C
1-0203-004E	Main Steam	1	C
1-0203-004F	Main Steam	1	C
1-0203-004G	Main Steam	1	C
1-0203-004H	Main Steam	1	C
2-0203-003A	Main Steam	1	C
2-0203-004A	Main Steam	1	C
2-0203-004B	Main Steam	1	C
2-0203-004C	Main Steam	1	C
2-0203-004D	Main Steam	1	C
2-0203-004E	Main Steam	1	C
2-0203-004F	Main Steam	1	C
2-0203-004G	Main Steam	1	C
2-0203-004H	Main Steam	1	C

**Component Function(s)**

Valve 0203-003A is a dual function Safety/Relief valve manufactured by Target Rock. The remaining valves are simple safety valves. These Main Steam Safety Valves are used to terminate an abnormal pressure increase in the Reactor Vessel and the Reactor Coolant Pressure Boundary (i.e., they provide overpressure protection).

**Code Requirement(s)**

OM Part 1, Paragraph 1.3.3.1.e, "Valves Not Meeting Acceptance Criteria"

- For valves which fail ..., additional valves shall be set pressure tested on the basis of two additional valves to be tested for each valve failure ...



**ATTACHMENT B, Quad Cities Nuclear Power Station  
IST Program Relief Request Revisions, Page 20 of 20**

**RELIEF REQUEST: RV-30B**

**Basis For Relief**

10CFR50.55a(a)(3)(ii), "hardship"

In accordance with Technical Specifications, at least half of the subject valves are tested and rebuilt during each refueling outage. This accelerated maintenance schedule provides a high level of assurance that these safety valves will perform their safety function.

Quad Cities does not have the facilities required to perform set-point tests on large relief and safety valves. These valves are unbolted from their mounting flanges, decontaminated, and shipped to an off-site test facility. Because of the lengthy period required for removal, transportation, testing and re-installation, the removal and testing of additional valves due to sample expansion would delay unit start-up from refueling outages by at least several days. This represents a significant hardship.

The sample expansion requirements of OM Part 1 would require two additional valves be tested if one valve failed its set-point test. Since the dual function safety/relief valve is tested each outage, and no less than four of the remaining valves are tested during each outage, the valves already being tested represent an increased sample expansion. Therefore, based on the sample expansion requirements already being met for one valve, and the hardship associated with pulling additional valves, no additional valves will be tested if only one valve fails the set-point test.

**Proposed Alternate Testing**

The dual function safety/relief valve, and at least half of the eight (8) safety valves, will be tested, rebuilt and reset in accordance with Technical Specifications during each reactor refueling outage. If only one of the eight (8) safety valves fails its set-point test, additional safety valves will not be tested. If more than one safety valve fails, the sample expansion criteria of OM Part 1, Paragraph 1.3.3.1.5 will be implemented for every additional failed valve.