Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

February 22, 1985

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: LaSalle County Station Unit 1
Environmental Qualification of
Electrical Equipment
NRC Docket No. 50-373

References (a): September 4, 1981 letter from L. O. DelGeorg to A. Schwencer.

(b): Section 3.11, SER (March 1981), SSER #1, (June 1981), SSER #2 (February 1982).

(c): January 8, 1985 letter from J. G. Marshall to H. R. Denton.

Dear Mr.Denton:

In accordance with a request made by Mr. A. Bournia during a telecon of January 22, 1985, the following information is provided. It is intended to supplement the Reference (c) submittal regarding an extension on the schedular requirements of 10CFR 50.49 (g).

Provided as Attachment A is a table which identifies by equipment number each application for which an extension is being sought. Also identified is the manufacturer and model number of the pertinent item. This table corresponds directly to the report provided in Reference (c) which broadly reviews the actions required to attain a qualified status and proposes a schedule for implementation. Further, in the column headed "Reference", the page number is identified from the LaSalle County Assessment to Justify Interim Operation, VOL II, QUAD-1-81-852 (Rev. 3, June 1982) compiled by Quadrex Corporation, where the item was individually reviewed by function, failure mode and effects, and whether operator action was required for the needed safety function. For your convenience, copies of the pertinent pages are provided in Attachment B.

Recall that the main volume of the report was transmitted to the Commission per Reference (a) and followed-up by explanatory FMEA's via letter of October 22, 1981; the commission's acceptance was provided in Reference (b) following the field audit of October 1981. The up-dated revision of the JIO report which included the Component Application

A048
1/1

Statements was transmitted to the Commission as a part of the 90-day response to the SER in June 1982. Although this study was undertaken prior to issuance of the rule, it is our judgement that all provisions of 10CFR 50.49 (i) are adequately addressed.

Should you need any further information regarding this matter, please contact this office.

Very truly yours,

J. G. Marshall

J. G. Marshall
Nuclear Licensing Administrator

lm

cc: A. Bournia - via Federal Express
Resident Inspector - LSCS
G. J. Diederich

Attachments A: Environmental Qualification - Request for Extension Unit 1

B: Assessment to Justify Interim Operation

C: Additional Justifications for Interim Operation

9795N

Attachment A

Environmental Qualification - Request for Extension
LaSalle County Station, Unit 1
Identification of Applications for Which an
Extension is Requested

Namco Limit Switches — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1B21-F022A-D	EA-740	See Attachment C	b				b,d
1B21-F028A-D	EA-740	See Attachment C	b				b,d

SOR, Inc. Pressure Switches — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1B21-N015A-D	BIT (1)	M.5-2.8a	b			d	b,d
1B21-N020A-D	BIT (1)	M.5-2.8b	b			d	b,d
1B21-N023A-D	BIT (1)	M.5-2.8c	b			d	b,d
1B21-N039A-H	BIT (1)	See Attachment C	d				b,d
1B21-N039J-N,P, R,S,U,V	BIT (1)	See Attachment C	d				b,d
1B21-N045A-D	BIT (1)	M.5-2.8e					b,d
1B21-N056A-D	DIT (1)	M.5-2.15a	b				b,d
1B21-N048A,C	12N	M.5-2.30b				c	b,c
1B21-N048B,D	12N	M.5-2.30c				c	b,c
1C71-N002A-D	12N	M.5-2.30d				d	b,d

Note (1): The presently installed switches are manufactured by Barksdale.

Limitorque Valve Motor Operators — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1E22-F012	SB-0-25	M.5-2.79a					b,d
1E22-F001	SMB-00-25	M.5-2.81a	b				b,d
1E22-F015	SMB-2-60	M.5-2.83a	b			d	b,d
1E22-F011	SMB-3-80	M.5-2.85a	b			d	b,d
1E22-F010	SMB-4-100	M.5-2.87a	b			d	b,d
1E22-F023	SMB-4-150	M.5-2.89a	b			d	b,d
1E12-F003 A,B	SMB	M.5-1.99f	d			d	b,d
1E12-F006 A,B	SMB	M.5-1.99h					b,d
1E12-F011 A,B	SMB	M.5-1.99j					b,d
1E12-F021	SMB	M.5-1.99m				d	b,d
1E12-F024 A,B	SMB	M.5-1.99n				d	b,d
1E12-F026 A,B	SMB	M.5-1.99p	b				b,d
1E12-F027 A,B	SMB	M.5-1.99q	b			d	b,d
1E12-F047 A,B	SMB	M.5-1.99t					b,d
1E12-F048 A,B	SMB	M.5-1.99u	b			d	b,d
1E12-F049 A,B	SMB	M.5-1.99v	b			d	b,d
1E12-F064 A,B,C	SMB	M.5-1.99y				d	b,d
1E12-F068 A,B	SMB	M.5-1.99z				d	b,d

*Refer to LaSalle County Station Assessment to Justify Interim Operation, Quadrex Report No. QUAD-1-81-852, Rev. 3, Appendix F.

Limitorque Valve Motor Operators (Cont'd)			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1E12-F092	SMB	M.5-1.99ad					b,d
1E12-F094	SMB	M.5-1.99ae					b,d
1E21-F011	SMB	M.5-1.99ai				d	b,d
1E21-F012	SMB	M.5-1.99aj				d	b,d
1E51-F010	SMB	M.5-1.99as	b				b,d
1E51-F059	SMB	M.5-1.99az	b				b,d
1E51-F068	SMB	M.5-1.99bb	b				b,d
1VP053 A,B	SMB	M.5-1.99bq	b			d	b,d
1VP063 A,B	SMB	M.5-1.99br	b			d	b,d
1VQ029	SMB	M.5-1.99bu				d	b,d

Valcor Solenoid Valves			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1IN100	V526	M.5-1.86d					b,d
1IN101	V526	M.5-1.86d					b,d

SOR, Inc. Differential Pressure Switches			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1E31-N007 A,B	288 (2)	M.5-2.17c				d	b,d
1E31-N008 A-D	288 (2)	M.5-2.17d					b,d
1E31-N009 A-D	288 (2)	M.5-2.17e				d	b,d
1E31-N010 A-D	288 (2)	M.5-2.17f				d	b,d
1E31-N011 A-D	288 (2)	M.5-2.17g				d	b,d
1E31-N012 A,B	288 (2)	M.5-2.17h				d	b,d
1E31-N013 A,B	288 (2)	M.5-2.17i	b			d	b,d
1B21-N024 A-D	288 (2)	M.5-2.19a	b,d			d	b,d

Note (2): The presently installed switches are manufactured by Barton.

Siemens Blower-Motor			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1E32-C001	2CH6	M.5-2.75a				d	b,d
1E32-C002B,F	2CH6	M.5-2.75a				d	b,d

S&K Flow Element			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1E32-N006A,E,J,N	20-9651-8550	M.5-2.43a	b				b,d

*Refer to LaSalle County Station Assessment to Justify Interim Operation, Quadrex Report No. QUAD-1-81-852, Rev. 3, Appendix F.

Delphi Hydrogen - Oxygen Analyzer Panel — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1PL76J	K-IV	M.5-1.56a		d			b,d
1PL77J	K-IV	M.5-1.56a		d			b,d

Atomics International Hydrogen Recombiner — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1HG01A	#N116000024-03	M.5-1.75a	b	d			b,d

Systems Control DC Motor Control Center — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1DC06E	Custom	M.5-1.6a	c				b,d

Klockner-Moeller AC Motor Control Center — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1AP71E	Series 170	M.5-1.4a	c	d			b,d
1AP75E	Series 170	M.5-1.4d	c	d			b,d
1AP76E	Series 170	M.5-1.4g	c	d			b,d
1AP78E	Series 170	M.5-1.4j	c	d			b,d
1AP82E	Series 170	M.5-1.4l	c	d			b,d
1AP83E	Series 170	M.5-1.4o	c	d			b,d

Magnetrol Level Switch — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1C11-N013 A-D	751	M.5-2.26a				d	b,d
1E22-N001 A,B	751	M.5-2.26c	d				b,d
1E22-N002 A,B	751	M.5-2.26c	d				b,d

General Electric Terminal Board — Conformance to 10CFR50.49(i)

Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1PL32J	EB-5	M.5-1.105a	b			d	b,d
1PL33J	EB-5	M.5-1.105b	b			d	b,d
1PL34J	EB-5	M.5-1.105c	b			d	b,d
1PL35J	EB-5	M.5-1.105d	b			d	b,d
1H22-P018	EB-5	M.5-2.71a				d	b,d
1H22-P021	EB-5	M.5-2.71a				d	b,d

*Refer to LaSalle County Station Assessment to Justify Interim Operation, Quadrex Report No. QUAD-1-81-852, Rev. 3, Appendix F.

General Electric Terminal Board (Cont'd)			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1H22-P022	EB-5	M.5-2.71a				d	b,d
1H22-P024	EB-5	M.5-2.71a				d	b,d
1H22-P025	EB-5	M.5-2.71a				d	b,d
1H22-P026	EB-5	M.5-2.71a				d	b,d
1H22-P027	EB-5	M.5-2.71a				d	b,d
1H22-P030	EB-5	M.5-2.71a				d	b,d
1H22-P031	EB-5	M.5-2.71a				d	b,d
1H22-P032	EB-5	M.5-2.71a				d	b,d
1H22-P033	EB-5	M.5-2.71a				d	b,d
1H22-P041	EB-5	M.5-2.71a				d	b,d
1H22-P042	EB-5	M.5-2.71a				d	b,d
1H22-P055	EB-5	M.5-2.71a				d	b,d

Barton Level Transmitter/Switch			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1B21-N026 A-D	760	M.5-2.23a				d	b,d

General Electric Sensor & Converter			Conformance to 10CFR50.49(i)				
Equipment No.	Model No.	Reference *	(1)	(2)	(3)	(4)	(5)
1D18-N009 A-D	194X927	M.5-2.67a				d	b,d
1D18-N015 A-D	194X927	M.5-2.67b				d	b,d

Attachment B

The following pages are excerpted from the report entitled, LaSalle County Station Assessment to Justify Interim Operation, Report No. QUAD-1-81-852, Rev. 3, Appendix F, prepared by Quadrex Corporation

The main volume of the report was transmitted to the Commision via the September 4, 1981 letter from L.O. DelGeorge to A. Schwencer. An up-dated revision of the report which included the attached Component Application Statements was transmitted as a part of the 90-day response to the SER in June 1982.

4975L-12

m) COMPONENT APPLICATION STATEMENT

Component AP-71E

This component is located in the Reactor Building, elevation 761', in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides motive and control power to the components shown in the reference key diagram - 480 volts MCC 135X-1 (Division 1).

(b) Effect of Component Failure

The failure of this component due to the Instrument Line Break Event in the Reactor Building or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of this component for this event will not affect the other 480 volt components in the electrical power distribution system.

(c) Impact on Other Systems

The components in the following systems are affected by the failure of this component; however, their operation is not required for this event.

1. Switchgear Heat Removal System

   VX-02C, VX-03C battery room exhaust fan

2. Hydrogen Recombiner System

   HGO-01B, HGO-02B, HGO-05B, HG-06B recombiner inlet and discharge valves.

3. Containment Monitoring System

   CM-02PA, CM-03PA sample pumps.

The components in the following systems are affected, but their six safety objective functions can be accomplished by the redundant components or alternate systems powered from redundant MCC's located in widely separated areas of the building. Physical obstructions, massive heat sinks, and limited discharge through the small line would limit the extent of the harsh environment such that failure of one is highly unlikely and if one were to fail the others would continue to provide the function.

TABLE M.5-1 (Cont.)

1. Nuclear Boiler System

B21-F019 (Containment isolation function)

The redundant valve B21-F016 is powered from MCC 136Y-2 located at elevation 740'

B21-F067A, B, C & D (Containment isolation function) main steam line drain

The redundant valves are B21-F022A, B, C & D are powered from RPS MG sets.

2. Primary Containment Purge System

VQ-029, VQ-040, VQ-026 (Containment isolation function)

The redundant valves VQ-027, VQ-030, VQ-031 are powered from Division 2 MCC 136X-2 located outside the harsh environment.

VQ-038 (Containment isolation function)

The redundant valve VQ-037 is powered from Division 2 MCC 136X-1 located at elevation 820'-1"

3. Reactor Core Isolation Cooling System

E51-F008, E51-F064 (Safe shutdown and core coverage functions)

The redundant system HPCS is powered from Division 3 MCC 143-1 located outside the harsh environment.

E51-F008, E51-F064 (Containment isolation function)

The redundant valve E51-F063 is powered from Division 2 MCC 136Y-2 located at elevation 740'.

4. Residual Heat Removal

E12-F008 (Containment isolation function)

The redundant valve E12-F009 is powered from Division 2 MCC 136Y-1 located at elevation 710'-6".

E12-F023 (Containment isolation function)

The redundant valves are check valves in the RCIC system.

E12-F008 (Shutdown cooling function)

The redundant valves E12-F004B and C (suppression pool cooling) are powered from Division 2 MCC 136Y-1, 136Y-2 located at elevations 710'-6" and 740'. E12-F312A is not required for H_2 recombiner cooling.

5. Reactor Water Clean-up System

G33-F004 (Containment isolation function)

The redundant valve G33-F001 is powered from Division 2 MCC 136Y-1 located at elevation 710'-6". G33-F040 is not required.

6. Primary Containment Ventilation System

VP-053A, B; VP-063A, B (Containment isolation function)

The redundant valves VP-113A, B; VP-114A, B are powered from Division 2 MCC 136Y-1 located at elevation 710'-6"

(d) Operator Action

Essential safety systems are maintained on separate divisional power. Safe shutdown is accomplished with any one entire division failing. Consequently, no operator action is required to meet the six safety objectives for the Instrument Line Break. With respect to LOCA radiation, interim operation with this equipment is justified by the successful testing already completed and documented.

References:

Schematic: 1E-1-4000CT

m) COMPONENT APPLICATION STATEMENT

Component AP-75E

This component is located in the Reactor Building, 740' elevation in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides motive and control power to the components shown in the references key diagram - 480 volts MCC 135Y-1 (Division 1).

(b) Effect of Component Failure

The failure of this component due to the Instrument Line Break Event in the Reactor Building or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of this component for this event will not affect the other 480 volt components in the electrical power distribution system.

(c) Impact on Other Systems

The components in the following systems are affected by the failure of this component; however, their operation is not required for this event.

1. Reactor Recirculation System:

B33-F023A	Reactor recirculation suction
B33-F067A	Reactor recirculation discharge
B33-D003A	Hydraulic control unit

2. Standby Liquid Control System:

C41-C001A	SLC pump
C41-F001A	SLC storage tank outlet
C41-D002	SLC tank heater

3. Control Rod Drive Hydraulic System:

C11-F003	CRD cooling water pressure

4. Reactor Water Cleanup System:

G33-F101	Drain Valve
G33-F100	Recirculation loop line to RWCU

5. Residual Heat Removal System

E12-F064A	Minimum flow bypass

6. Nuclear Boiler System

B21-F065A	Feedwater isolation

7. MSIV - Leakage Control System:

E32-F001A,E,J,N	MSIV inboard valves
E32-F002A,E,J,N	MSIV inboard valves

The components in the following systems are affected by the failure of this component but their six safety objective functions can be accomplished by the redundant components or alternate systems powered from redundant MCC's which are located in widely separated areas of the building. Physical obstructions, massive heat sinks, and limited discharge through the small line would limit the extent of the harsh environment such that failure of any one is highly unlikely and if one were to fail the others would continue to provide the function.

1. Primary Containment Purge System:

VQ-042, VQ-043 (Containment isolation function)

The redundant valves VQ-027, VQ-030, are powered from Division 2 MCC 136X-2 located outside harsh environment.

VQ-036, VQ-048, VQ-051 (Containment isolation function)

The redundant valves VQ-034, VQ-035, VQ-047, VQ-050 are powered from Division 2 MCC 136Y-1 located at 710'-6" elevation.

VQ-041 (Containment isolation function)

The redundant valve VQ-037 is powered from Division 2 MCC 136X-1 located at 820'-6" elevation

2. Residual Heat Removal System:

E12-F052A, E12-F087A (Residual heat removal function)

The redundant valves E12-F052B and E12-F087B are powered from MCC 136Y-2 located at 740' elevation.

E12-F040A, B (Containment isolation function)

The redundant valves E12-F049A, B are powered from Division 2 MCC 136Y-1 located at 710'-6" elevation.

3. Reactor Building Closed Cooling Water System:

WR-029, WR-040 (Containment isolation function)

The redundant valves WR-179 and WR-180 are powered from Division 2 MCC 136Y-2 located at 740' elevation.

4. CSCS-ECWS

DG-035 (Core coverage function)

The redundant system HPCS is powered from Division 3 MCC 143-1 which is located outside the harsh environment.

(d) Operator Action

Essential safety systems are maintained on separate divisional power. Safe shutdown is accomplished with any one entire division failed. Consequently, no operator action is required to meet the six safety objectives for the instrument line break. With respect to LOCA radiation, interim operation with this equipment is justified by the successful testing already completed and documented.

References:

Schematic: IE-1-4000DU

m) COMPONENT APPLICATION STATEMENT

Component AP-76E

This component is located in the Reactor Building, 710'-6" elevation in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides motive and control power to the components shown in the reference key diagram - 480 volt, MCC 135Y-2 (Division 1).

(b) Effect of Component Failure

The failure of this component due to the Instrument Line Break Event in the Reactor Building or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of this component for this event will not affect the other 480 volt components in the electrical power distribution system.

(c) Impact on Other Systems

The components in the following systems are affected by the failure of of this component; however, their operation is not required for this event.

1. Residual Heat Removal:

E12-F073A, F074A	Heat Exchanger Vent
E12-F024A	RHR test, containment spray to suppression pool
E12-F016A, F017A F027A	Containment spray

2. Low Pressure Core Spray:

E21-F012	LPCS test bypass to suppression pool
E21-F011	LPCS minimum flow bypass

3. Reactor Building Equipment Drain System:

RE-08PA	N.E. reactor building equipment drain sump pump
RE-07PA	N.W. reactor building equipment drain sump pump

4. Diesel Fuel Oil System:

0D001P	Diesel generator fuel transfer pump

5. MSIV Leakage Control System

E32-C001	Inboard system blower
E32-B001A,E,J,N	Pipe heaters
E32-F002A,E,J,N	Inboard valves

The components in the following systems are affected by the failure of this component. But the six safety objective functions can be accomplished by the redundant components or alternate systems powered from redundant MCC's which are located in widely separated areas of the building. Physical obstructions, massive heat sinks, and limited discharge through the small line would limit the extent of the harsh environment such that failure of any one is highly unlikely and if one were to fail, the others would continue to provide the function.

1. Residual Heat Removal System:

   E12-F053A, B (Containment isolation function)

   The redundant valves E12-F050A, B are testable check valves. The redundant valves E12-F099A, B are powered from Division 2 MCC 1364-2 located at 740' elevation

   E12-F004A, F047A, F048A, F003A, F026A, F068A, F011A, F006A (Residual heat removal function)

   The redundant valves E12-F004B, F047B, F048B, F003B, F026B, F068B, F011B, F006B are powered from Division 2 MCC 1364-1 located at 710'-6" elevation.

   E12-F042A (Core coverage function)

   The redundant valve E12-F042B is powered from MCC 136Y-1 located at 710'6" elevation. The alternate system HPCS (also available) is powered from Division 3 MCC 143-1 located outside the harsh environment.

2. Low Pressure Core Spray:

   E21-F001, F005, C002 (Core coverage function)

   The alternate system HPCS is powered from Division 3 MCC 143-1 which is located outside the harsh environment.

3. Core Standby Cooling System:

   VY04C RCIC/LPCS pumps cooler fan (LPCS - core coverage, RCIC - safe shutdown functions)

   The redundant fan VY02C for HPCS is powered from Division 3 MCC 143-1 which is located outside the harsh environment.

   VY01C, (Core coverage function)

   The redundant fan VY02C for HPCS is powered from Division 3 MCC 143-1 which is located outside the harsh environment.

   VY01C, VY05C (Residual heat removal function)

   The redundant fans VY03C, VY06C (RHR B/C) are powered from MCC 136Y-1 located at 710'-6" elevation.

4. Reactor Core Isolation Cooling System:

   E51-C003 (Safe shutdown and core coverage).

   The alternate system HPCS is powered from Division 3 MCC 143-1 which is located outside the harsh environment.

(d) Operator Action

Essential safety systems are maintained on separate divisional power. Safe shutdown is accomplished with any one entire division failed. Consequently, no operator action is required to meet the six safety objectives for the instrument line break. With respect to LOCA radiation, interim operation with this equipment is justified by the successful testing already completed and documented.

References:

Schematic: 1E-1-4000CV

m) COMPONENT APPLICATION STATEMENT

Component AP-78E

This component is located in the Reactor Building, elevation 820'-6" in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation for the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides motive and control power to the components shown in the reference key diagram - 480 volts MCC 136X-1 (Division 2).

(b) Effect of Component Failure

The failure of this component due to the Instrument Line Break Event in the Reactor Building or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will not affect the other 480 volt components in the electrical power distribution system.

(c) Impact on Other Systems

The components in the following systems are affected by this component failure; however, their failure will not affect achieving the six safety objectives.

1. Reactor Protection MG set room (1) battery room exhaust fan (1VX08C and 1VX06C)

2. Refueling platform (1F21-E003)

The following components are affected by the failure of this MCC, but their six safety objective functions can be accomplished by the redundant components found in the same or other systems powered from redundant MCC's located in widely separated areas of the building. Physical obstructions, massive heat sinks, and limited discharge through the small line would limit the extent of the harsh environment such that failure of any one is highly unlikely and if one were to fail the others would continue to provide the function.

1. Primary Containment Vent Exhaust to Purge Train Isolation Valve (IVQ-037).

   The redundant valve is IVQ-038 which is powered by Division 1 MCC 135X-1 located in elevation 761'.

2. Control Room HVAC Supply Fans (0VC-01CA and 0VC-02CA).

   The redundant control room HVAC supply fans (0VC-01CB and 0VC-02CB) are powered by Division 2 MCC 236X-1 located in Unit 2.

3. Standby Gas Treatment Isolation Valves (1VG-001 and 1VG-003), auxiliary relay power for 1VG-01C, 1VG-02C and 1VG-001, standby gas treatment equipment train cooling fan (WG-02C), heating coil (1VG-01A) and supply fan (1VG-01C) will fail should this MCC fails. Unit 2 can be used as a backup for Unit 1 provided isolation valve 1VG-001 can be opened manually by plant personnel.

(d) Operator Action

Essential safety systems are maintained on separate divisional power. Safe shutdown is accomplished with any one entire division failing. Consequently, no operator action is required to meet the six safety objectives for the Instrument Line Break Event. With respect to LOCA radiation, interim operation with this equipment is justified by the successful testing already completed and documented.

References:

Schematic: 1E-1-4000CV

m) COMPONENT APPLICATION STATEMENT

Component AP-82E

This component is located in the Reactor Building, elevation 710'-6", in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside the Containment and high radiation from the LOCA inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

This component provides motive and control power to the components shown in the reference key diagram - 480 volts MCC 136Y-1 (Division 2).

(b) Effect of Component Failure

The failure of this component due to the Instrument Line Break Event in the reactor building or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of this component for this event will not affect the other 480 volt components in the electrical power distribution system.

(c) Impact on Other Systems

The components in the following systems are affected by this component failure, however, their failure will not affect achieving the six safety objectives.

1. Main steam line drain valve B21-F020 is not required for containment isolation.

2. RHR Loop B pump minimum flow bypass valve E12-F064B to the suppression pool is not required to operate for this event. RHR system operation is not affected by the failure of this component.

3. RHR B/C water leg pump E12-C003. Failure of this valve does not affect operation of RHR Loop A for this event. LPCS, HPCS and RCIC are available as backup.

4. RHR system emergency make up water cross-tie valve E12-F093. Failure of this valve has no effect in the operation of the RHR system.

5. RHR pump E12-C002B test return line discharge to the suppression pool (E12-F021). This valve is not required for RHR system operation

6. S. E. reactor building sump pump 1A (RE-03PA) and south reactor floor drain sump 1A (RF-02PA) are NON-ESS, therefore, it is not required to function during this event.

7. Diesel generator fuel transfer pump (1DO-01P).

8. Hydrogen recombiner valves 1E12-F312B, 1HG-001A, 1HG-002A, 1HG-006A, 1HG-009, 1HG-003 and 1HG-018 are not required to operate for this event.

9. MSIV-LCS outboard blowers E32-C002B & F are not required to operate for this event.

10. Residual Heat Removal:

E12-F073B, F074B	Heat exchanger vent
E12-F024B	RHR test, containment spray to suppression pool
E12-F016B, F017B, F027B	
E12-F016B, F017B, F027B	Containment spray

The following components are affected by the failure of this MCC, but their function can be accomplished by the redundant components found in the same or other systems powered from redundant MCC's which are located in widely separated areas of the building. Physical obstructions, massive heat sinks, and limited discharge through the small line would limit the extent of the harsh environment such that failure of any one is highly unlikely and if one were to fail the others would continue to provide the function.

1. RHR pump suction valve E12-F004B from the suppression pool.

   The redundant valve is E12-F004A which is located in Division 1 MCC 135Y-2 located at elevation 710'-6".

2. RHR suction cooling inboard isolation valve E12-F009

   The redundant valve for this function is RHR suction cooling outboard isolation valve E12-F008 which is powered by Division 1 MCC 135X-1 located at elevation 761'.

3. RHR discharge to radwaste inboard isolation valve E12-F049A.

   The redundant valve to be used for isolation function is RHR discharge discharge to radwaste outboard isolation valve E12-F040A, B, which is provided by Division 1, MCC 135Y-1 located at elevation 740'.

4. Reactor water clean up system inboard isolation valve G33-F001.

   The redundant valve for this function is the RWCU system outboard isolation valve G33-F004 which is powered by Division 1 MCC 135X-1 located at elevation 761'.

5. RHR pumps B/C cubicle cooler fan IVY-03C

   Failure can occur to RHR pumps E12-L002 B & C due to high ambient temperature. RHR Pump A is available for Loop A to function since RHR Pump A cubicle cooler (IVY-01C) which is powered by Division 1 MCC 135Y-1 located at elevation 710'-6" is still operable.

6. RHR service water pumps C,D cubicle cooler fan IVY-06C.

   Failure can occur to RHR Loop B service water pumps due to high ambient temperature. RHR Loop A service water pumps A, B cubicle cooler fan IVY-05C powered by Division 1 MCC 135Y-2 located at elevtaion 740' is available to service RHR Loop A operation.

7. Drywell Cooler 1A inlet inboard isolation valve IVP-113A, B

   The redundant valve to be used for this isolation function is the drywell cooler 1A outlet outboard isolation valve 1VP-063A, B powered by Division 1 MCC 135X-1 located at elevation 761'.

8. Drywell Cooler 1A outlet inboard isolation valve 1VP-114A, B

   The redundant valve to be used for this isolation function is the Drywell Cooler 1A outlet outboard isolation valve 1VP-053A, B powered by Division 1 MCC 135X-1 located at elevation 761'.

9. Residual Heat Removal Function, E12-F004B, F047B, F003B, F026B, F006B, F068B, F011B

   The redundant valves E12-F004A, F047A, F048A, F003A, F026A, F006A, F068A, F011A are powered from Division 1 MCC 135Y-2 located at elevation 710'-6".

10. Core Coverage Function E12-F042B

    The redundant valve is powered from Division 1, MCC 135Y-2 located at elevation 710'-6". The alternate system HPCS (also available) is powered from Division 3, MCC 143-1 located outside the harsh environment.

(d) Operator Action

Essential safety systems are maintained on separate divisional power. Safe shutdown is accomplished with any one entire division failed. Consequently no operator action is required to meet the six safety objectives for the Instrument Line Break Event. With respect to LOCA radiation, interim operation with this equipment is justified by the successful testing already completed and documented.

References:

P&ID:

Schematic: 1E-1-4000CX

FCD:

m) COMPONENT APPLICATION STATEMENT

1. Component AP 83E

This component is located in the Reactor Building, 740' elevation, in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside the Containment and high radiation from the LOCA inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

This component provides motive and control power to the components shown in the reference Key Diagram - 480V MCC 1364-Z (Div. 2).

(b) Effect of Component Failure

The failure of this component, due to the Instrument Line Break Event in the reactor building or the LOCA event, will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of this component for this event will nor affect the other 480V components in the electrical power distribution system.

(c) Impact on Other Systems

The components in the following systems are affected by failure of this component; however, their operationg is not required.

1. Reactor Recirculation System:

B33-F023B	Reactor recirculation suction
B33-F067B	Reactor recirculation discharge
B33-D003	Hydraulic control unit

2. Standby Liquid Control System:

C41-C001B	SLC pump
C41-F001B	SLC tank outlet
C41-D003	SLC tank heater

3. Residual Heat Removal System:

E12-F094	RHR service water cross-tie
E12-F064C	RHR pump C minimum flow bypass

4. Reactor Core Isolation Cooling System:

E51-F076	RCIC steam line warm-up
E51-F086	RCIC vacuum breaker isolation

The components in the following systems are affected by the failure of this component but the six safety objective functions can be accomplished by redundant components or alternate systems powered from redundant MCCs which are located in widely separated areas of the building. Physical obstructions, massive heat sinks, and limited discharge through the small line would limit the extent of the harsh environment such that failure of any one is highly unlikely and if one were to fail the others would continue to provide the function.

1. Nuclear Boiler System

   B21-F016 (Containment isolation function)

   The redundant valve B21-F019 (outboard isolation) is powered from Div. 1 MCC 135X-1 located at 761' elevation.

2. Residual Heat Removal System

   E12-F042C (Core coverage function)

   The alternate system HPCS is powered from Div. 3 MCC 143-1 which is located outside the harsh environment.

   E12-F004C (Residual heat removal function)

   The redundant valve E12-F004A (suppression pool cooling Loop A) is powered from Div. 1 MCC 135Y-2 located at 710'-6" elevation.

   E12-F052B, F087B (Residual heat removal function)

   The redundant valves E12-F052A, F087A are powered from Div. 1 MCC 135Y-1 located at 740' elevation.

   E12-F099A, F099B (Containment isolation function)

   The redundant valves E12-F053A, B (outboard isolation) are powered from Div. 1 MCC 135Y-2 located at 710'-6" elevation.

3. Primary Containment Purge System

   VQ-034 & VQ-035, VQ-047, VQ-050 (Containment isolation function)

   The redundant valves VQ-036, VQ-048, VQ-051 are powered from Div. 1 MCC 135Y-1 located at 740' elevation.

4. Reactor Building Closed Cooling Water System

   WR 179, WR 180 (Containment isolation function)

   The redundant valves WR 029, WR 040 are powered from Div. 1 MCC 135Y-1.

5. Reactor Core Isolation Cooling System

E51-F063 (Containment isolation function)

This redundant outboard isolation valves E51-F008 & F064 are powered from Div. 1 MCC 135X-1 located at 761' elevation.

E51-F063 (Safe shutdown & core coverage functions)

The alternate system HPCS is powered from Div. 3 MCC 143-1 which is located outside the harsh environment.

(d) Operator Action

Essential safety systems are maintained on separate divisional power. Safe shutdown is accomplished with any one entire division failed. Consequently, no operator action is required to meet the six safety objectives for the Instrument Line Break Event. With respect to LOCA radiation, interim operation with the equipment is justified by the successful testing already completed and documented.

References:

Schematic: 1E-1-4000CY

m) COMPONENT APPLICATION STATEMENT

Component DC 06E

This component is located in the RCIC/LPCS cubicle in environmental zone H5A. Hence, this component is exposed to a harsh environment only for the Instrument Line Break Event in the RCIC/LPCS cubicle (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

This component provides motive and control power to the components shown in the reference Key Diagram - 250 VDC MCC 121Y (Div. 1).

(b) Effect of Component Failure

The failure of this component due to the Instrument Line Break Event in the RCIC/LPCS cubicle will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of this component for this event will not affect the other 250 VDC or 480V components in the electrical power distribution system.

(c) Impact on Other Systems

The following components in RCIC system are affected by the failure of this component but their operations are not required:

E51-F022	RCIC test bypass to condensate storage tank
E51-F059	RCIC test bypass to condensate storage tank
E51-F080	RCIC vacuum breaker isolation

The following components in the RCIC system are affected; however, the safe shutdown and core coverage functions can be accomplished by HPCS system and the heat removal function can be accomplished by RHR system. The HPCS and RHR systems are powered from 480 V MCCs which are located outside the RCIC/LPCS cubicle and are not powered by separate electrical divisions which are not affected by this event.

RCIC	Barometric condenser vacuum pump
RCIC	Barometric condenser vacuum tank condensate pump
E51-F045	RCIC steam to turbine
E51-F010	RCIC pump suction from condensate storage tank
E51-F013	RCIC pump discharge
E51-F046	RCIC turbine cooling water supply
E51-F031	RCIC pump suction from suppression pool

E51-F068	RCIC turbine exhaust
E51-F069	RCIC vacuum pump discharge
E51-C002	RCIC Turbine trip and throttle valve (part of turbine)

The uninterruptible power supply is not required.

(d) Operator Action

For a break in the RCIC cubicle, the RCIC is considered unavailable. This occurs only in one of three ECCS divisions. Therefore, two full divisions are available to mitigate the event. No operator action is required with the unavailable RCIC. Following accident confirmation based on leak detection, emergency procedures are followed for long term core and containment cooling using the remaining two divisions (no action prior to 10 minutes after the event) resulting in meeting all six safety objectives. In the analysis of LOCA and HELB, no credit is given for RCIC. Based on these facts, this component does not require harsh environmental qualification and will be removed from the harsh qualification program. However, this component will be qualified to normal and abnormal environments at a later date.

References:

Schematic: 1E-1-4000EC

m) COMPONENT APPLICATION STATEMENT

Component HG01A

The Atomics International 211A (for unit 1) and 211B (for unit 2), Part No. N116000024-03, Hydrogen Recombiners are located in the Reactor Building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components control the concentration of combustible gases in the primary containment following a LOCA, taking suction from the drywell area and returning the discharge to the suppression pool area in Units 1 or 2.

(b) Effect of Component Failure

The loss of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852).

Failure of these components for these events will affect the operation of the Hydrogen Recombiner in the unit subjected to the harsh environment. The backup unit in the non-accident unit will provide the alternate functional capability.

(c) Impact on Other Systems

The sole function of these components is to control combustible gas concentration in Units 1 and 2. No other systems are affected by their failure.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break Outside Containment exists. For LOCA considerations, the hydrogen recombiner on the unaffected unit serves as a back-up. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-130, Sheets 1 and 2

Schematic: 1E-1-4103AF

FCD: FSAR Figure 6.2-33, Sheets 1 and 2

m) COMPONENT APPLICATION STATEMENT

Component IN100, IN101

These Valcor V52600-5800-1 solenoid valves are located in the reactor building in environmental zone H4A. This component is exposed to a harsh environment for the Instrument Line Break Outside the Containment and the high radiation from the LOCA Inside Containment (see Section 4.4, page 4.32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These solenoid valves are required for isolating the pneumatic system lines serving the drywell for maintenance.

(b) Effect of Component Failure

Failure of these components may disable the drywell pneumatic system but operation of these components is not required to achieve the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

For these events, no other systems are affected by the failure of these components. These components have no electrical interface with components of any other system.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break Outside the Containment and the high radiation from the LOCA inside the containment exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-66, Sheet 7

m) COMPONENT APPLICATION STATEMENT

Component E12-F003A, B

These MOVs are located in the RHR cubicle in environmental zone H6. Hence, these components are exposed to a harsh environment for the Line Break Outside the Containment in the RHR cubicle and high radiation from the LOCA inside containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These motor operated valves control the shell side discharge of the RHR heat exchangers.

(b) Effect of Component Failure

Failure of these components will affect the flow of the RHR system on the output of the shell side of the heat exchanger. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves. The failure of these components due to the Instrument Line Break Outside the Containment will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these components is to provide control for the RHR flow from the outlet of the heat exchanger. No other systems are affected by their failure.

(d) Operator Action

These devices are not required when the harsh environment caused by the line break exists. They are in the position to perform their intended safety function. The RHR heat exchanger in the unaffected loop is available to provide cooling. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID:	M-96, Sheet 4
Schematic:	1E-1-4220AX, AY
FCD:	FSAR Figure 7.3-11

m) COMPONENT APPLICATION STATEMENT

Component E12-F006 A, B

These motor operated valves are located in the Reactor Building in environmental zone H6. Hence, these components are exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of this component failure is considered only for these events.

(a) Component Function

These motor operated valves are required for RHR shutdown cooling.

(b) Effect of Component Failure

These valves are always in the position to perform their intended safety function. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

The failure of these components due to the Instrument Line Break Outside Containment or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.1, page 4-2, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these valves is for RHR shutdown cooling. Failure of these valve motor operators does not affect other systems.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break or LOCA radiation exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96, Sheets 1, 2, Zones A-6, B-6

Schematic: 1E-1-4220-BA, IE-1-4220-BB, IE-1-4220-AH

FCD/FSAR: Figure 7.3-21, Sheet 5

m) COMPONENT APPLICATION STATEMENT

Component E12-F011A&B

These MOVs are located in the RHR cubicles in environmental Zone H6. Hence, these components are exposed to a harsh environment for the Line Break Outside the Containment in the RHR cubicle and high radiation from the LOCA inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These motor operator valves are required for RHR loop A and B heat exchanger discharge to the suppression pool.

(b) Effect of Component Failure

Failure of these components may disable either the RHR Loop A or Loop B steam condensing mode but this mode is not required to meet the six safety objectives as described in Quadrex Report QUAD-1-81-852. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other systems are affected by the failure of these motor operator valves. These valves have no electrical interface with other components of any other systems.

(d) Operation Action

These devices are not required when the harsh environment caused by the Instrument Line Break Outside the Containment and the LOCA radiation harsh environment exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96, Sheet 4, Zone A-3 & A-6

Schematic Diagram: 1E-1-4220BE & BF

FCD: FSAR Figure 7.3-12, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E12-F021

The Limitorque Type SMB is located in the Reactor Building in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component is used for testing the RHR pump (E12-C002C)

(b) Effect of Component Failure

This valve is normally closed and is opened only for test. Failure of this component prevents testing of the RHR pump; however, failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other components or system is affected by the failure of this component. This valve has no electrical interface with other components on this system or any other system, nor does it affect the operation of the RHR system.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96, Sheet 3, Zone E-6

Schematic: 1E-1-4220BH

FCD: FSAR Figure 7.3-12, Sheet 4

m) COMPONENT APPLICATION STATEMENT

Component E12-F024A and B

The Limitorque type SMBs are located in the RHR cubicle in environmental zone H6. Hence, these components are exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components are used for RHR pumps E12-C002A and B test return line to the suppression pool and for suppression pool cooling.

(b) Effect of Component Failure

Failure of these components prevents testing of the RHR pump operation and normal pool cooling. Failure of these components has no affect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other component or system is affected by the failure of these components. These valves have no electrical interface with other components on this system or any other systems.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break exists. They perform their function before they are affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID:	M-96, Sheets 1 and 2, Zones D2 and E1
Schematic:	1E-1-4220BK, BL
FCD:	FSAR Figure 7.3-12, Sheet 3

m) COMPONENT APPLICATION STATEMENT

Component E12-F026A & B

The Limitorque type SMBs are located in the RHR cubicle in environmental zone H6. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components are used for RHR heat exchanger steam condensing mode discharge to RCIC pump suction.

(b) Effect of Component Failure

Failure of these components prevents RHR heat exchanger steam condensing mode flow to RCIC pump suction. Steam condensing is still available through the suppression pool. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of these components has no effect in achieving the six safety objectives as described in Quadrex report QUAD-1-81-852.

(c) Impact on Other Systems

No other component or system is affected by the failure of these components. These valves have no electrical interface with other components on this system or any other systems.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break Event or LOCA Event exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96, Sheet 4, Zones B4 and B5

Schematics: 1E-1-4220BK, BM

FCD: FSAR Figure 7.3-12, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E12-F027A, B

The Limotorque type SMBs are located in the RHR cubicle in environmental zone H6. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components are used for RHR heat exchanger flow to suppression pool spray.

(b) Effect of Component Failure

Failure of these components disable suppression pool spray flow from heat exchanger. The alternate loop at RHR is still available for the Instrument Line Break Event. RHR suppression pool cooling is still available to cool the suppression pool. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of these components has no afeect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

There is no electrical interface with any other systems. Suppression pool cooling is not affected by the failure of these components.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break exists. They perform their function before they are affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96, Sheets 1 & 2, Zones: Sheets 1, C-5; Sheet 2, C-4

Schematic: 1E-1-4220BK, BN

FCD: FSAR Figure 7.3-12, Sheet 3

m) COMPONENT APPLICATION STATEMENT

Component E12-F047A, B

The Limitorque type SMBs are located in the RHR cubicle in environmental zone H6. Hence these components are exposed to a harsh environment for the Instrument Line Break Outside the Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components are used for RHR pump discharge flow to RHR heat exchangers. These are normally opened valves only closed for normal initiation of steam condensing.

(b) Effect of Component Failure

Failure of these components under worst condition will result in the valves remaining in their as-is position which has no effect on this safety function. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of these components has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other component or system is affected by the failure of these components. These valves have no electrical interface with other components on this system or any other systems.

(d) Operator Action

These devices are in the position to perform their intended safety function. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID:	M-96, Sheet 4, Zones E-4 and E-5
Schematic:	1E-1-4220BS, BT
FCD:	FSAR Figure 7.3-12, Sheet 5

m) COMPONENT APPLICATION STATEMENT

Component E12-F048 A, B

The Limitorque Type SMBs are located in the RHR cubicle in environmental zone H6. Hence, this component is exposed to a harsh environment for the Instrument Line Break outside the containment and high radiation from the LOCA event inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components are used for RHR pump discharge to the reactor vessel for core coverage.

(b) Effect of Component Failure

These valves are normally open and aligned for the LPCI mode. Failure of these components under worst condition will prevent diverting LPCI flow through the heat exchangers. RHR pump C002C, LPCS, HPCS and RCIC systems are available to provide core coverage. Failure of these components has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other component or system is affected by the failure of these components. These valves have no electrical interface with other components in this system or any other system.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break exists. They perform their function before they are affected by the LOCA radiation harsh environment. The operator will take action in accordance with the emergency procedures to divert the LPCI flow to the RHR heat exchangers.

References:

P&ID:	M-96, Sheet 4, Zones E-1, D-8
Schematic:	1E-1-4220BS, BU
FCD:	FSAR Figure 7.3-12, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E12-F049 A, B

The Limitorque Type SMBs are located in RHR cubicle in environmental zone H6. Hence this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components are used for RHR heat exchanger warm up discharge to reactor building equipment drain tank during normal shutdown cooling initiation. They are not used in any accident mode.

(b) Effect of Component Failure

Failure of these components prevents condensate drainage to the reactor building drain tank. If the accident occurs during warm up the valves could fail to isolate. Isolation can be achieved by closing E12-F049, otherwise the valves are normally closed. Failure of these components has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other component or system is affected by the failure of these components. These valves have no electrical interface with other components in this system or any other system, nor do they affect the operation of the RHR system.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break exists. They perform their function before they are affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96, Sheet 4, Zones C-1, D-8

Schematic: 1E-1-4220BV, BW

FCD: FSAR Figure 7.3-12, Sheet 3

m) COMPONENT APPLICATION STATEMENT

Component E12-F064A, B, C

These motor operated valves are located in the reactor building in environmental zone H6. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These motor operated valves provide minimum flow bypass to the suppression pool.

(b) Effect of Component Failure

Failure of these valve operators under worst condition may prevent the valves from opening and minimum flow bypass to the suppression pool. No failure mechanism at the valve can cause the valves to change position from open to close because the motor control centers are not at the same location as the valves.

Failure of these valves have no impact on other systems and it has no affect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other component or system is affected by failure of these components. These valves have no electrical interference with other components or any other system.

(d) Operator Action

These devices are not required when the harsh environment caused by Instrument Line Break exists. These devices perform their function before it is affected by the LOCA radiation. The operator will take action in accordance with the emergency procedures to achieve core cooling if the valves are inoperable.

References:

P&ID:

Schematic: 1E-1-4220CA

FCD: FSAR Figure 7.3-12, Sheet 4

m) COMPONENT APPLICATION STATEMENT

Component E12-F068A, B

The motor operated valve E12-F068A is located in ECCS equipment cubicle in environmental zone H5E, and E12-F068B is located in RHR cubicle in environmental zone H6. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These motor operated valves are used in the RHR service water heat exchanger discharge.

(b) Effect of Component Failure

Failure of these components under worst condition would prevent opening the valves for RHR service water flow (discharge). No failure mechanism at the valve can cause the valve to change position from open to close because the motor control centers are not at the same location as the valves.

Failure of these valve operators have no affect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other component or system is affected by failure of these components. These valves have no electrical interface with other components.

(d) Operator Action

These devices are not required when the harsh environment caused by Instrument Line Break exists. These devices perform their function before it is affected by the LOCA radiation. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-87, Sheets 1 and 2, Zones F2 and B2

Schematic: 1E-1-4220CB, CC

FCD: FSAR Figure 7.3-12, Sheet 2 (E12-F068A is not shown)

m) COMPONENT APPLICATION STATEMENT

Component E12-F093

This motor operated valve is located in RHR cubicles in environmental zone H6. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This motor operated valve is required for emergency makeup water crosstie.

(b) Effect of Component Failure

Failure of this component may disable emergency makeup function for RHR but this function is not required for core coverage nor residual heat removel. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of this valve operator has no affect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by failure of this valve motor operator. This valve has no electrical interface with components on this system or any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break or LOCA event exits. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96, Sheet 4, Zone F-4

Schematic: 1E-1-4220CG

m) COMPONENT APPLICATION STATEMENT

Component E12-F094

This motor operated valve is located in RHR cubicles in environmental zone H6. Hence, this component is exposed to a harsh environment only for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This motor operated valve is required for emergency makeup water crosstie.

(b) Effect of Component Failure

Failure of this component may disable emergency makeup function of RHR but this function is not required for core coverage nor residual heat removal. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of this valve operator has no affect in achieving the six safety objectives as described in Quadrex Report QUAD-1-91-852.

(c) Impact on Other Systems

No other systems are affected by failure of this valve motor operator. This valve has no electrical interface with other components on this system or any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break or LOCA Event exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-96

Schematic: 1E-1-4220CG

m) COMPONENT APPLICATION STATEMENT

Component E21-F011

The Limitorque type SMB is located in the RCIC/LPCS cubicle in environmental zone H5A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component is used for LPCS pump minimum flow bypass to the suppression pool.

(b) Effect of Component Failure

Failure of this component would slightly reduce LPCS injection flow, and does not significantly affect the LPCS operation. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of this component has no affect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other component or system is affected by the failure of this component. This valve has no electrical interface with other components on this system or any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-94, Sheet 1, Zone C3

Schematic: 1E-1-4221AB

FCD: FSAR Figure 7.3-10, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E21-F012

The Limitorque type SMB is located in reactor building in environmental zone H4A. Hence, this component is exposed to a harsh environment only for the Instrument Line Break Outside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852) and to high radiation following the LOCA event. The impact of component failure is considered only for these events.

(a) Component Function

This component is used for testing LPCS pump (E21-C001) function with pump taking suction from the suppression pool and discharging back to the suppression pool.

(b) Effect of Component Failure

Failure of this component prevents testing of the LPCS pump.

Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other component or system is affected by the failure of this component. This valve has no electrical interface with other components or this system or any other system, nor does it affect the operation of the LPCS.

(d) Operator Action

This system is not required to operate during these events. This valve is normally closed and does not operate for these events. If it is open during a LOCA event, capability to close will be maintained prior to being exposed to high radiation. No operator action is required to meet the six safety objectives.

References:

P&ID: M-94, Sheet 1, Zone C-5

Schematic: 1E-1-4221AC

FCD: FSAR Figure 7.3-10, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Component E51-F010

This motor operated valve is located in the Reactor Building in environmental zone H5A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This motor operated valve is required for RCIC pump suction from the condensate storage tank.

(b) Effect of Component Failure

This valve is normally open, but failure of this valve to close could eventually disable RCIC injection, if low level was experienced in the condensate storage tank. Failure of this component may disable RCIC system; however, the alternate system HPCS is available for shutdown cooling or core coverage and RHR system is available for heat removal. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of this valve operator has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by failure of this valve motor operator. This valve has no electrical interface with other components of any other system.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break Event or LOCA Event exists. It is in the position to perform its intended safety function. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-101, Sheet 2, Zone A5

Schematic: 1E-1-4226AP

FCD: FSAR Figure 7.4-2, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Component E51-F059

This motor operated valve is located in the RCIC/LPCS cubicle in environmental zone H5A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

This motor operated valve is required for RCIC test bypass to condensate storage tank.

(b) Effect of Component Failure

This valve is normally in the closed position performing its safety function. Failure of this component during test may disable RCIC system, however, the alternate system HPCS is available. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other systems are affected by failure of this valve motor operator. This valve has no electrical interface with other components of any other systems.

(d) Operation Action

This device is not required when the harsh environment caused by the Instrument Line Break or LOCA Event exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-101, Sheet 2, Zone E-5

Schematic Diagram: 1E-1-4226AW

FCD: FSAR Figure 7.4-2, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Component E51-F068

This motor operated valve is located in the reactor building in environmental zone H5E. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This motor operated valve is required for RCIC turbine exhaust to suppression pool.

(b) Effect of Component Failure

This valve is normally open which is the position to perform its safety function. Failure of this component may disable RCIC system; however, the alternate system HPCS is available.

No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of this valve operator has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by failure of this valve motor operator. This valve has no electrical interface with other components of any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break or LOCA event exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-101, Sheet 1, zone C-7

Schematic Diagram: 1E-1-4226AY

FCD: FSAR Figure 7.4-2, Sheet 5

m) COMPONENT APPLICATION STATEMENT

Component VP053A, B

These motor operated valves are located in the reactor building in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

These motor operated valves are required for primary containment chilled water outboard isolation.

(b) Effect of Component Failure

Failure of these valve operators in the worst condition will prevent these valves to close upon receiving an isolation signal from the primary containment and reactor vessel isolation system. Containment isolation is achieved by automatically closing inboard isolation valves which are located inside the containment, therefore, they are not affected by the instrument line break. In addition, this is a closed system within primary containment. The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Quadrex Report QUAD-1-81-852).

No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other systems are affected by failure of this motor operator valve. This valve has no electrical interface with other components of any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. This device performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-86, Zones E2 and C2

Schematic: 1E-1-4081AE

FCD: FSAR Figure 7.3-23, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Component VP063A,B

These motor operated valves are located in the reactor building in environmental zone H4A, hence this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These motor operated valves are required for drywell cooler outboard isolation.

(b) Effect of Component Failure

Failure of these valve operators in the worst condition will prevent these valves to close upon receiving an isolation signal from the primary containment and reactor vessel isolation system. Containment isolation is achieved by automatically closing inboard isolation valves which are located inside the containment, therefore, they are not affected by the instrument line break. In addition, this is a closed system within primary containment. The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Quadrex Report QUAD-1-81-852).

No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other systems are affected by failure of this valve motor operator. This valve has no electrical interface with other components of any other systems.

This device is not required when the harsh environment caused by the instrument line break exists. This device performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-86, Zones D2 and B2

Schematic: 1E-1-4081AE, AF

FCD: FSAR Figure 7.3-23, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Component VQ-029

This motor operated valve is located in the Reactor Building in environmental zone H4A. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment. (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This motor operated valve is required for drywell purge line isolation.

(b) Effect of Component Failure

Failure of this component may disable Primary Containment Purge System, but operation of this system is not required to meet the six safety objectives as described in Quadrex Report QUAD-1-81-852. The valves are normally closed and are open only during shutdown. Therefore, this isolation function is assured. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other systems are affected by failure of this valve motor operator. This valve has no electrical interface with other components of any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-92, Sheet 1, Zone D2

Schematic: 1E-1-4082AD

m) COMPONENT APPLICATION STATEMENT

Component PL-32J

This component is located in the basement floors outside ECCS equipment cubicles in environmental zone H5E. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides control and indication for HPCS cubicle ventilation.

(b) Effect of Component Failure

Failure of this component may disable the ventilation system for HPCS cubicle but the ventilation system for RCIC/LPCS cubicle is available for the alternate RCIC and LPCS systems. (The control panel for RCIC/LPCS is in zone H5A).

Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by the failure of this component. This component does not have electrical interface with any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation. Alternate systems are available to provide core coverage and cooling. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

Schematic: 1E-1-4089AA

m) COMPONENT APPLICATION STATEMENT

Component PL-33J

This component is located in the basement floor outside ECCS equipment cubicles in environment zone H5E. Hence, this component is exposed to a harsh environment for the Line Break Outside Containment in the RHR cubicle and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides control and indication for RHR B&C cubicle ventilation.

(b) Effect of Component Failure

Failure of this component may disable the ventilation system for RHR B&C cubicle but the ventilation system for RHR A cubicle is available for RHR system (Division 1). The control panel PL-34J for RHR A cubicle is in zone H5E but widely separated from panel PL 33J.

Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by the failure of this component. This component does not have electrical interface with any other system.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation. Alternate systems are available to provide core coverage and cooling. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

Schematics: 1E-1-4089AA

m) COMPONENT APPLICATION STATEMENT

Component PL-34J

This component is located in the basement floor outside ECCS equipment cubicles in environment zone H5E. Hence, this component is exposed to a harsh environment for the Line Break Outside Containment in the RHR cubicle and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides control and indication for RHR A cubicle ventilation.

(b) Effect of Component Failure

Failure of this component may disable the ventilation system for RHR A cubicle, but the ventilation system for RHR B&C cubicles is available for RHR system (Division 2). The control panel PL33J for RHR B&C is in zone H5E but widely separated from panel PL-34J.

Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by the failure of this component. This component does not have electrical interface with any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation. Alternate systems are available to provide core coverage and cooling. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

Schematic: 1E-1-4089AA

m) COMPONENT APPLICATION STATEMENT

Component PL-35J

This component is located in the RCIC/LPCS cubicle in environmental zone H5A. Hence, this component is exposed to a harsh environment for the Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides control and indication for RCIC/LPCS cubicle ventilation system.

(b) Effect of Component Failure

Failure of this component may disable the ventilation system for RCIC/LPCS cubicle but the ventilation systems for HPCS and RHR cubicles are available for the alternate HPCS and RHR systems. (The control panel for HPCS/RHR cubicles are in zone H5E).

Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by the failure of this component. This component does not have electrical interface with any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation. Alternate systems are available to provide core coverage and cooling. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

Schematic: 1E-1-4089AB

m) COMPONENT APPLICATION STATEMENT

Component B21-N015 A, B, C & D

The Barksdale BIT-M12SS-GE steam line pressure components are located in the accessible area of the Turbine Building in environmental zone H7. These components are exposed to a harsh environment for a Line Break Outside the Containment (see Section 4.3, page 4-23 of Quadrex Report QUAD-1-81-852). The impact of this component failure is considered only for this event.

(a) Component Function

These components sense main steam line pressure just upstream of the turbine stop valves and provide a trip to close the main steam isolation and drain valves.

(b) Effect of Component Failure

The loss or failure of these devices will prevent isolation of the main steam lines and drain lines on loss of pressure in the main steam line. Diverse isolation signals are available that are not affected by the line break outside containment. The loss of these components will not affect safe shutdown, containment isolation, core coverage, RHR, containment integrity, and effluent control as described in Quadrex Report, QUAD-1-81-852.

(c) Impact on Other Systems

The sole function of these components is to initiate main steam line and drain line isolation on loss of pressure in the main steam line.

(d) Operator Action

Due to physical and electrical separation, these devices will perform their function before they are affected by this event. Therefore, no operator action is required to achiee any of the six safety objectives.

References:

P&ID: M-55, Sheet 3

Schematic: 1E-1-4232AB, AC, AD, AE

FCD: FSAR Figure 7.3-13, Sheet 2 (B-5)

m) COMPONENT APPLICATION STATEMENT

Component B21-N020A, B, C, &D

The Barksdale BIT-M12SS-GE reactor pressure measurement components are located in the reactor building in environmental zone H4A. Hence these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-23, of Quadrex Report QUAD-1-81-852). The impact of this component failure is considered only for these events.

(a) Component Function

These components sense vessel pressure and initiate scram on high vessel pressure with MSIVs closed.

(b) Effect of Component Failure

The loss or failure of these devices disables one of the sensing functions which initiate scram on high reactor vessel pressure. Diverse signals are available for scram. Failure of these components has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

The failure of components affects only the reactor protection and the primary containment and reactor vessel isolation systems.

(d) Operator Action

Due to physical and electrical separation, these devices will perform their function before they are affected by this event. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-93, Sheets 4 & 5

Schematic: 1E-1-4215AC, AD, AE, AF; 1E-1-4232, 1E-1-4203

FCD: FSAR Figure 7.3-13, 7.2-1, 7.3-7

m) COMPONENT APPLICATION STATEMENT

Component B21-N023 A, B, C, and D

The Barksdale BIT-M12SS-GE reactor pressure measurement components are located in the Reactor Building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and the high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-23 of Quadrex Report QUAD-1-81-852). The impact of this component failure is considered only for this event.

(a) Component Function

These components sense vessel pressure and initiate reactor scram on high pressure.

(b) Effect of Component Failure

The loss or failure of these devices disables one of the sensing functions which initiate scram on high reactor vessel pressure (half-scram mode). Diverse signals are available for scram. Failure of these components has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

These components affect only the reactor protector system.

(d) Operator Action

Due to physical and electrical separation, these devices will perform their function before they are affected by this event. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-93, Sheets 4 & 5

EC&I: 1E-1-4215

FSAR: 7.2-1, 7.3-7

m) COMPONENT APPLICATION STATEMENT

Component B21-N045A, B, C, and D

These Barksdale BIT-M1255-GE pressure switches are located in the Reactor Building in Environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment. (See Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852.) The impact of component failure is considered only for these events.

(a) Component Function

These components sense reactor vessel pressure and provide a signal to the recirculation system for trip (ATWS) of the recirc pump motors on high reactor pressure.

(b) Effect of Component Failure

The failure of these components due to the Instrument Line Break Event or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for these events will affect the trip (ATWS) of the recirculation pump motors on high reactor pressure. These events will not result in high reactor pressure, or a need for these components to function.

(c) Impact on Other Systems

The sole function of these components is to trip the recirc pump motors on reactor high pressure. No other systems are affected by their failure.

(d) Operator Action

Due to physical separation, failure of one instrument line will not impact the other division components. This device is not required when the harsh environment caused by any break exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-93, Sheet 5

Schematic: 1E-1-4205AB, AM

FCD: FSAR Figure G.A-2, Sheet 6

m) COMPONENT APPLICATION STATEMENT

Component B21-N056A, B, C, and D

The Barksdale DIT Condenser Vacuum components are located in the turbine building in environmental zone H7. Hence, these components are exposed to a harsh environment only for the Line Break Event Outside Containment (see Section 4.3, page 4-23 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

These components sense condenser vacuum and provide a trip to automatically close the main steam line isolation and drain valves.

(b) Effect of Component Failure

The loss of these components due to the Line Break Event Outside Containment will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.3, page 4-23, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will eliminate the condenser low vacuum signal used to automatically initiate the isolation of the main steam line and drain valves only. Manual and automatic MSIV closure on other diverse signals, such as low steam line pressure, are available.

(c) Impact on Other Systems

The sole function of these components is to provide a trip to automatically isolate the main steam line and drain valves on low condenser vacuum. No other systems are affected by their failure.

(d) Operator Action

These devices are not required when the harsh environment caused by the line break event outside containment exists. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-56, Sheets 2 and 3

Schematic: 1E-1-4232AB, AC, AD, AE

FCD: 7.3-B, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E31-N007 A, B

The Barton 288 differential pressure switch components are located in the RCIC/LPCS cubicle in environmental zone H5A. Hence, these components are exposed to a harsh environment for the line break in the cubicle and the high radiation from the LOCA event inside containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered Only for this event.

(a) Component Function

These components sense the differential pressure in the RHR steam condensing supply line and close the isolation valve.

(b) Effect of Component Failure

The valve is normally closed except during steam condensing mode. The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). Diverse signals are available for isolation.

(c) Impact on Other Systems

The sole function of these components is to isolate the RHR steam condensing supply line. No other systems are affected by their failure.

(d) Operator Action

These components are not required when the harsh environment caused by the line break exists. Due to physical and electrical separation, these and other redundant devices will perform their function before they are affected by this event. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: FSAR Figure 7.3-15

Schematic: 1E-4226 AD

FCD: FSAR Figure 7.4-2, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Components E31-N008A, B, C, & D

The Barton 288 differential pressure indicator switch components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense the main steam line flow and initiate Primary Containment and Reactor Vessel Isolation Control System (PCRVICS).

(b) Effect of Component Failure

The failure of these components due to the Instrument Line Break Event in the reactor building will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-181-852).

Failure of these components will affect only the automatic initiation of containment isolation which is not required for the Instrument Line Break Event Outside Containment. These components are not required for the LOCA Event Inside Containment.

(c) Impact on Other Systems

The sole function of these components is to initiate containment isolation (PCRVICS). No other systems are affected by their failure.

(d) Operator Action

These devices are not required when the harsh environment caused by the Instrument Line Break Event and LOCA exists. Therefore, no operator action is required to achieve any of the six safety objectives. Due to physical separation, failure of one instrument line will not impact the components in the other 3 PCRVICS divisions.

References:

P&ID: M-15, Sheet 2, Zone F-2

Schematic: 1E-1-4232AB, AC, AD, and AE

IED: FSAR Figure 7.3-15, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E31-N009A, B, C, and D

The Barton 288, differential pressure indicator switch components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense main stream line high flow and initiate Primary Containment and Reactor Vessel Isolation.

(b) Effect of Component Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these components is to initiate containment isolation (PCRVCS). No other systems are affected by their failure.

(d) Operator Action

These devices are not required when the harsh environment caused by the line break in the tunnel exists. They perform their function before they are affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-155, Sheet 2, Zone F-2

Schematic: 1E-14232AB, AC, AD, AE

FCD: FSAR Figure 7.3-15, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E31-N010A, B, C, D

The Barton 288, differential pressure indicator switch components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense main stream line high flow and initiate Primary Containment and Reactor Vessel Isolation.

(b) Effect of Component Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these components is to initiate containment isolation (PCRVCS). No other systems are affected by their failure.

(d) Operator Action

These devices are not required when the harsh environment caused by the line break in the tunnel exists. They perform their function before they are affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-155, Sheet 2, Zone F-2

Schematic: 1E-14232AB, AC, AD, AE

FCD: FSAR Figure 7.3-15, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E31-N011A, B, C, and D

The Barton 288, differential pressure indicator switch components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense main stream line high flow and initiate Primary Containment and Reactor Vessel Isolation.

(b) Effect of Component Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these components is to initiate containment isolation (PCRVCS). No other systems are affected by their failure.

(d) Operator Action

These devices are not required when the harsh environment caused by the line break in the tunnel exists. They perform their function before they are affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-155, Sheet 2, Zone F-2

Schematic: 1E-14232AB, AC, AD, AE

FCD: FSAR Figure 7.3-15, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E31-N012A, B

The Barton 288 differential pressure switch components are located in the RHR cubicle in environemntal zone H6. Hence, these components are exposed to a harsh environment for the line break in the cubicle and the high radiation from the LOCA event inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense high flow in the RHR shutdown suction line and isolate shutdown cooling flow.

(b) Effect of Component Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these components is to isolate the shutdown cooling flow in RHR. No other systems are affected by their failure.

(d) Operator Action

These components are not required when the harsh environment caused by the line break exists. Due to physical and electrical separation, these and other redundant devices will perform their function before they are affected by this event. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-155, Sheet 2, Zone F-2

Schematic: 1E-1-4232AK

m) COMPONENT APPLICATION STATEMENT

Component E31-N013A, B

The Barton 288 differential pressure switch components are located in the RCIC/LPCS cubicle in environmental zone H5A. Hence, these components are exposed to a harsh environment for the line break in the cubicle and the high radiation from the LOCA event inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The imapct of component failure is considered only for these events.

(a) Component Function

These components sense the RCIC steam flow, isolate the RCIC steam supply (on high flow) and provide annunciation in the main control room.

(b) Effect of Component Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will affect only the RCIC system. HPCS will be available for safe shutdown, core coverage and RHR system will be available for residual heat removal.

(c) Impact on Other Systems

The sole function of these components is to isolate the RCIC steam supply. No other systems are affected by their failure.

(d) Operator Action

Due to physical and electrical separation, these and other redundant devices will perform their function before they are affected by this event. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-155, Sheet 2, Zone F-2

Schematic: 1E-1-4226-AF

FCD/FSAR: Figure 7.4-2, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Components B21-N024A, B, C, and D

The Barton 288A reactor level components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and the high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense reactor vessel water level and trips HPCS and RCIC at Level 8, and reactor scram at low water level (Level 3).

(b) Effect of Component Failure

The loss of these components due to the Instrument Line Break Event Outside Containment will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity, and effluent control (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852).

For the instrument line break in the reactor building open area, there is no automatic scram since the transient effects are not large enough to cause automatic initiation of the RPS. The reactor operator recognizes the situation and manually initiates shutdown, core cooling, and inventory control via the RPS.

Failure of these components for these events will affect the automatic trip logic for RPS and HPCS of Division III only. This does not inhibit manual scram and manual HPCS trip.

(c) Impact on Other Systems

The sole function of these components is to provide a reactor high water level trip to the HPCS and RCIC as well as low water level scram. No other systems are affected by their failure.

(d) Operator Action

Due to physical separation, failure of one instrument line will not impact the components in other ECCS and RPS divisions. These devices are not required when the harsh environment caused by the instrument line break exists and the Level 8 trip function is not required when the LOCA radiation harsh environment exists. They perform their Level 3 function before they are affected by the LOCA radiation and harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-95

Schematic: 1E-1-4215; 4226AF, 4226AC

FCD: FSAR Figure 7.2-1, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component B21-N026A, B, C, & D

The Barton 760 reactor water level components are located in the Reactor Building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense reactor vessel water level and automatically initiate MSIV closure, RWCU isolation, and SGTS at Level 2.

(b) Effect of Component Failure

The loss of these components due to the Instrument Line Break Event Outside Containment or the LOCA Event will not preclude acnieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, Page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will affect the automatic initiation of SGTS, MSIV closure and RWCU isolation valves. Containment isolation and RWCU isolation are not required for this event. Isolation can be achieved by manually initiating MSIV closure.

(c) Impact on Other Systems

The sole function of these components is to provide a low reactor water level initiation signal to the Reactor Water Cleanup isolation valve, SGTS, and Main Steam Isolation Valves. No other systems are affected by their failure.

(d) Operator Action

Due to physical separation, failure of one instrument line will not impact the other divison's components. These devices are not required when the harsh environment caused by the Instrument Line Break Event or LOCA Event exists. These devices perform their function before it is affected by the LOCA radiation. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-93, Sheets 4 & 5

Schematic: Figure 1E-1-4232AB, AC, AD & AE

FCD: 7.3-13

m) COMPONENT APPLICATION STATEMENT

Component C11-N013A, B, C, and D

The Magnetrol 751 reactor water level components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense water level in the scram discharge volume and scram the reactor at high level.

(b) Effect of Component Failure

The loss of these components due to the Instrument Line Break Event Outside Containment or the LOCA will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will prevent the automatic scram function for high scram discharge volume only. It does not affect the other automatic scrams or the manual scram capability.

(c) Impact on Other Systems

The sole function of these components is to sense the high water level in the scram discharge volume and initiate automatic scram. No other systems are affected by their failure.

(d) Operator Action

These devices perform their function before they are affected by the Instrument Line Break Event or LOCA event. Therefore, no operator action is required to achieve any of the six safety objectives. Due to physical separation, failure of one instrument line will not impact the components in the other 3 RPS divisions.

References:

P&ID: FSAR Figure 7.7-2, Sheet 1, M-100, Sheet 2

Schematic: 1E-1-4215AC, AD, AE and AF

IED: FSAR Figure 7.2-1, Sheet 2 of 4

m) COMPONENT APPLICATION STATEMENT

Component E22-N001A, B; E22-N002A, B

The Magnetrol 751 water level components are located in environmental zone H7. Hence, these components are exposed to a harsh environment only for the Line Break Event Outside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

These components sense water levels in the condensate storage tank and the suppression pool, and align the HPSC suppression pool pump suction valve.

(b) Effect of Component Failure

The loss of these components due to the Line Break Event Outside Containment will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will only affect the automatic alignment of the HPCS suppression pool pump suction valve. Suction will still be available from the CST. The manual alignment of the valve will not be affected by the level switches, and other ECCS systems are available.

(c) Impact on Other Systems

The sole function of these components is to provide water level signals for alignment of the suppression pool pump suction valve. No other systems are affected by their failure.

(d) Operator Action

Failure of these components in the worst case could result in the loss of HPCS inventory. However, ADS is available as a backup and would automatically provide adequate inventory makeup. Therefore, no operator action is required to meet the six safety objectives.

References:

Schematic: 1E-1-4222AC

FCD: FSAR Figure 7.3-6, Zone H-7

m) COMPONENT APPLICATION STATEMENT

Component B21-N048A, and C

The Static-O-Ring N12 pressure switches are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4-4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense drywell pressure and initiate Division I RHR, ADS, RCIC and LPCS at high drywell pressure.

(b) Effect of Failure

The loss of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4-4, page 4-32, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these components is to provide a high drywell pressure initiation signal to Division I RHR, ADS, RCIC, and LPCS. No other systems are affected by their failure.

These components are not required when the harsh environment caused by the Instrument Line Break exists. These components perform their function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-93, Sheet 5

Schematic: 1E-4221-AB, 4226-AD, 4220-AJ

FDC: FSAR Figures 7.3-10, Sheet 1 and 7.3-13, Sheet 3

m) COMPONENT APPLICATION STATEMENT

Component B21-N048B, D

The Static-O-Ring N12 pressure switches are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

These components sense drywell pressure and initiate Division II RHR, ADS, and RCIC at high drywell pressure.

(b) Effect of Component Failure

The loss of these components due to the Instrument Line Break Event Outside Containment will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

(c) Impact on Other Systems

The sole function of these components is to provide a high drywell pressure initiation signal to Division II of ADS, RHR, and RCIC. No other systems are affected by their failure.

(d) Operator Action

These components are not required when the harsh environment caused by the Instrument Line Break exists. These components perform their function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID:	M-93, Sheet 4
Schematic:	1E-1-4201-AH, 4220-AK, 4009-AE
FCD:	FSAR Figure 7.3-12

m) COMPONENT APPLICATION STATEMENT

Component C71-N002A, B, C, D

The Static-O-Ring N12 pressure switches are located in the Reactor Building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense drywell pressure, and initiate reactor scram containment isolation except for the MSIV's.

(b) Effect of Component Failure

The loss of these components due to the Instrument Line Break Event Outside Containment or the LOCA Event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this function will affect the drywell pressure automatic scram and automatic isolation of some lines except the main steam line. Manual scram and manual isolation capability is available. This event does not require scram or containment isolation on high drywell pressure so no safety function is affected.

(c) Impact on Other Systems

The sole function of these components is to provide a high drywell pressure scram and isolation function. No other systems are affected by their failure.

(d) Operator Action

Due to physical separation, failure of one instrument line will not impact the other 3 RPS and PCRVICS divisions. This device is not required when the harsh environment caused by the Instrument Line Break exists. This device performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

IED: FSAR Figure 7.2-1, Sheet 3

Elementary: 1E-1-4215AC, AD, AE, AF; 1E-1-4252AF, AM

FCD: FSAR Figure 7.2-1, Sheet 2 and 7.3-12, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Component E32-N006 A, E, J, N

These components are located in the upper basement floor outside of ECCS equipment cubicle in environmental zone H5E. Hence, these components are exposed to a harsh environment for the line break outside the containment and the high radiation from the LOCA event inside containment (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components sense the inboard system flow into the low pressure manifold. This signal is used as a permissive for isolating MSIV-LCS inboard system valves on high leakage flow in the steam lines.

(b) Effect of Component Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32 of Quadrex Report QUAD-1-81-852).

Failure could trip the inboard MSIV-LCS system but the outboard system would remain available.

(c) Impact on Other Systems

The sole function of these components is to provide a high leakage flow signal to isolate MSIV-LCS inboard valves. No other systems are affected by their failure.

(d) Operator Action

This device is not required when the harsh environment caused by the line break exists. For LOCA considerations, the outboard MSIV-LCS would perform the required function in the unlikely event that the inboard MSIV-LCS becomes inoperable later in the event. The operator will take action in accordance with the emergency procedures to control MSIV leakage.

References:

P&ID:	M-55, Sheet 8
Schematic:	1E-1-4225-AG
FCD/FSAR:	Fig. 6.7-3, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component PL76J, PL77J

The Delphi K-IV Hydrogen-Oxygen Analyzer Panel components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components contain the post-LOCA primary containment H_2-O_2 percentage recorders, and also provide inputs to the plant computer.

(b) Effect of Component Failure

The failure of these components due to the Line Break Event Outside Containment or the LOCA event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will affect the capability to sample the H_2-O_2 percentage inside the primary containment. This capability is not required for the Instrument Line Break Outside Containment event.

(c) Impact on Other Systems

The sole function of these components is to sample H_2-O_2 percentage in the containment. No other systems are affected by their failure due to the Instrument Line Break Outside Containment.

(d) Operator Action

These devices are not required when the harsh environment caused by the line break exists. No operator action is required to achieve any of the six safety objectives for the instrument line break event. With respect to LOCA radiation, interim operation with this equipment is justified by the successful testing already completed and documented.

References:

P&ID: M-156, Sheets 1 and 2

Schematic: 1E-14018AH, AJ, and AM

m) COMPONENT APPLICATION STATEMENT

Component Sensors and Convertors D18-N009A, B, C, D are provided by G.E.

These components are located in the turbine building area (inaccessible) in environmental zone H8. Hence, these components are exposed to a harsh environment only for the Line Break Event Outside Containment (see Section 4.3, page 4-23, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

These components isolate secondary containment and initiate SGTS on high radiation in Reactor Building exhaust.

(b) Effect of Failure

The failure of these components due to the Line Break Event Outside Containment will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.3, page 4-23, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will eliminate isolation of secondary containment and initiation of SGTS from high radiation level. Isolation & SGTS occur on diverse signals.

(c) Impact on Other Systems

No other systems are affected by their failure.

(d) Operator Action

This device performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

Schematic: 1E-14218AK, AL, AM and 4232AP

m) COMPONENT APPLICATION STATEMENT

Component Sensors and Convertors D18-N015A, B, C, D are provided by G.E.

These components are located in the reactor building area in environmental zone H4A. Hence, these components are exposed to a harsh environment for the line break outside the containment and the high radiation from the LOCA Event Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components isolate secondary containment and initiate SGTS on high radiation in the fuel pool ventilation exhaust.

(b) Effect of Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components will fail to initiate isolation of secondary containment and initiation of SGTS. Isolation and SGTS occur on diverse signals.

(c) Impact on Other Systems

No other systems are affected by their failure.

(d) Operator Action

This device performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

Schematic: 1E-1-4218AK, AL, AM and 4232AP

m) COMPONENT APPLICATION STATEMENT

Component Terminal Board (EB-5), H22-POXX

This component is located in the reactor building in environmental zone H5. Hence, this component is exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA event inside containment (see Section 5.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for this event.

(a) Component Function

This component provides connections between the wiring in the panels and field wiring or cables.

(b) Effect of Component Failure

Failure of this component for this event on one rack will only affect the operation of those instruments associated with one division and/or logic channel of the safeguard system within the rack. Redundant safeguard system instrument racks are physically separated around the reactor building. These instrument racks are available to perform the functions required for initiating safeguard systems needed to mitigate this event.

Failure of this component will have no affect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

The failure of this component only affects the operation of one rack and will not affect other redundant divisional instrument racks which are electrically and physically separated around the reactor building.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break exists. Back-up ESF systems are available. This device performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

Local rack arrangement drawing and wiring diagram - GE supplied.

m) COMPONENT APPLICATION STATEMENT

Component E32-C001, E32-C002B, F

The Siemens 2CH6, modified General Electric 47A518663, Blower/Motors are located in the Recator Building in environmental zone H5E. Hence, these components are exposed to a harsh environment for the Instrument Line Break Event Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components are manually turned on after LOCA to divert leakage through the MSIV-LCS into the SGTS system for processing in order to maintain offsite dosage to within acceptable leakages.

(b) Effect of Component Failure

The loss of these components due to the Instrument Line Break Event Outside Containment or the LOCA Event will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components for this event will affect the capability to process leakage through the SGTS system after a LOCA. Failure of these components will not prevent achieving the six safety objectives. The MSIV-LCS is not required for the Instrument Line Break Event.

(c) Impact on other Systems

The sole function of these components is to divert leakage through the MSIV-LCS into the SGTS system. No other systems are affected by their failure.

(d) Operator Action

This system normally requires manual initiation about 20 minutes after the LOCA Event. Therefore, no operator action is required to achieve any of the six safety objectives. This device is not required when the harsh environment caused by the Instrument Line Break exists. This device will essentially perform its function before it is affected by the LOCA radiation harsh environment to a significant enough degree to potentially render the component inoperable.

References:

P&ID: M-116, Sheet 8

Schematic: 1E-1-4225AQ

m) COMPONENT APPLICATION STATEMENT

Component E22-F012

This component is located in the HPCS cubicle in environmental zone H6. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides minimum flow bypass to suppression pool.

(b) Effect of Component Failure

Failure of this component prevents minimum flow to the suppression pool. This valve is not required for safe shutdown or core coverage functions. Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

(c) Impact on Other Systems

No other components or systems are affected by the failure of this component. This valve has no electrical interface with other components of this system or any other system.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break and LOCA exits. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-95, Zone C-3

Schematic: 1E-1-4222AE

FCD: FSAR Figure 7.3-6, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E22-F001

This component is located in the Reactor Building in environmental zone H5E. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component is used for HPCS pump suction from the condensate storage tank.

(b) Effect of Component Failure

Failure of this component under the worst condition will prevent closing of this valve and HPCS pump cooling will eventually be lost. RCIC and the other two ECCS divisions are available as backup. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other component or system is affected by the failure of this component. This valve has no electrical interface to any other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-95, Sheet 1, Zone A-4

Schematic: 1E-1-422AD

FCD: FSAR Figure 7.3-6, Sheet 1

m) COMPONENT APPLICATION STATEMENT

Component E22-F015

This component is located in the basement floor outside of the HPCS equipment cubicle in environmental zone H5E. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component is used for HPCS pump suction from suppression pool.

(b) Effect of Component Failure

Failure of this component under the worst condition will prevent opening of this valve and suction from suppression pool to HPCS pump will be lost. RCIC system is available as a backup along with ADS. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves.

Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other system is affected by the failure of this component. This valve has no electrical interface to any other systems. No other systems are affected by their failure.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID:	M-95, Zone B-6
Schematic:	1E-1-4222AE
FCD:	Figure 7.3-6, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E22-F011

This component is located in the basement outside of the HPCS equipment cubicle in environmental zone H5E. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides a test bypass to the condensate storage tank.

(b) Effect of Component Failure

This valve is normally closed and is opened only for test. Failure of this component prevents test bypass to the condensate storage tank and may prevent the opening of valve F015 suction from suppression pool. However, RCIC and ADS are available for safe shutdown and core coverage functions. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves. Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by the failure of this component. This valve has no electrical interface with other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the Instrument Line Break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-95, Zone D-3

Schematic: 1E-1-4222AE

FCD: FSAR Figure 7.3-6, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E22-F010

This component is located in the basement floor outside of the HPCS equipment cubicle in environmental zone H5E. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides a test bypass to the condensate storage tank.

(b) Effect of Component Failure

This valve is normally closed and is opened only for test. Failure of this component prevents test bypass to the condensate storage tank and may prevent the opening of valve F015 suction from suppression pool. However, RCIC and ADS are available for safe shutdown and core coverage functions. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves. Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other systems are affected by the failure of this component. This valve has no electrical interface with other systems.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives

References:

P&ID: M-95, Zone D4

Schematic: 1E-1-4222AD

FCD: FSAR Figure 7.3-6, Sheet 2

m) COMPONENT APPLICATION STATEMENT

Component E22-F023

This component is located in the basement floor area outside of the HPCS equipment cubicle in environmental zone H5E. Hence, this component is exposed to a harsh environment for the Instrument Line Break Outside Containment and high radiation from the LOCA Inside Containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

This component provides a test bypass to the suppression pool.

(b) Effect of Component Failure

This valve is normally closed and is opened only for test. Failure of this component prevents test bypass to the suppression pool. This valve is not required for safe shut-down or core coverage function, and RCIC and ADS are available. No failure mechanism at the valve can cause the valve to change position from open or close because the motor control centers are not at the same location as the valves. Failure of this component has no effect in achieving the six safety objectives as described in Quadrex Report QUAD-1-81-852.

(c) Impact on Other Systems

No other components or other systems are affected by the failure of this component. This valve has no electrical interface with other components of this system or any other system.

(d) Operator Action

This device is not required when the harsh environment caused by the instrument line break exists. It performs its function before it is affected by the LOCA radiation harsh environment. Therefore, no operator action is required to achieve any of the six safety objectives.

References:

P&ID: M-95, Zone C-5

Schematic: 1E-14222AF

FCD: Figure 7.3-6, Sheet 1

Attachment C

The following pages provide the Justification for Interim Operation for those limited items which were not addressed in the Quadrex report, whose qualification is incomplete at present, and for which the proposed date for compliance with 10CFR50.49 is unit operation following November 30, 1985.

Component Application Statement (MSIV Position Switches)

Component: MSIV Position Switches on Main Steam Isolation Valves (1B21-F022A,B,C,D; 1B21-F028A,B,C,D)

The limit switches on these valves track MSIV position. Actuation of the MSIV's is not dependent on these switches, nor does failure of these limit switches affect MSIV operation. These limit switches provide a valve closed signal to the Reactor Protection System logic. This logic provides a scram signal to anticipate the pressure/flux transients associated with MSIV closure. This trip signal is an output of the reactor protection system.

Position switches mounted on the inboard MSIV's (F022A-D) are in environmental zone H2A, hence are potentially exposed to a harsh environment from a LOCA inside containment. Position switches mounted on the outboard MSIV's (F028A-D) are in environmental zone H5, hence are potentially exposed to a harsh environment from an HELB outside containment or the high radiation from a LOCA inside containment.

(a) Component Function

These position switches sense MSIV position and intiate a scram signal when the valves move 8° from their fully open position, during periods when the mode switch is in RUN. (They are bypassed when RPV pressure is less than 824 psig). This scram protects reactor vessel pressure and fuel thermal hydraulic safety limits but this is additional to other protective scrams. The position switches are energized for the normally open state of the MSIV. Movement of the MSIV beyond 8° from the fully open position opens the relay associated with the particular position switch. The logic for scram is 3:4:2 or three of four switches in parallel circuits of two switches in each of two trains.

For the RPS role of the position switches, alternate scram signals on high vessel pressure and flux are available from diverse instruments to provide a backup reactor scram. Additionally, if the inboard position switches fail due to the harsh environment caused by a LOCA, the outboard switches can function as required because they are adequately qualified for high radiation and other accident parameters except for moisture sensitivity over extended time periods, which is currently being addressed but is not fully resolved. Conversely, the inboard position switches are available to provide a scram signal if the outboard switches are described due to HELB environmental conditions.

Loss of these position switches does not affect safe shutdown, containment isolation, core coverage, residual heat removal, containment integrity, nor effluent control.

(b) Impact of Other Systems

The sole function of these position switches is to initiate a scram on MSIV isolation. FSAR Chapter 6 overpressurization analyses indicates that no credit was taken for the anticipatory scram on MSIV closure, hence non-existence of the MSIV position switch scram still falls within the pre-analyzed safe overpressure licensing envelope.

Component Application Statement (MSIV Position Switches) (Cont'd)

(c) Operator Action

Due to physical separation of the inboard and outboard switches, the scram signal can be provided by the group unaffected by the steam/moisture associated with the DBE. Additionally, other instruments monitoring other vessel parameters (pressure and flux) are also available to initiate the scram signal. No operator action is required to meet the six safety objectives.

References

P&ID: M-55, Sheet 2
Schematic: IE-1-4203 AB, AC, AD, AE, AF, AG, AH, AJ

Excerpted from the transmittal
of October 7, 1981 from
W.R. Morgan, Quadrex Corp., to B.R. Shelton, CECo.

m) COMPONENT APPLICATION STATEMENT

Component B21-N039A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, U, V

These Barksdale BIT-M12SS-GE reactor pressure components are located in the reactor building in environmental zone H4A. Hence, these components are exposed to a harsh environment only for the Instrument Line Break Event and high radiation from the LOCA inside containment (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852). The impact of component failure is considered only for these events.

(a) Component Function

These components which are located in Division I of the Auto Depressurization System are used to sense reactor pressure and will initiate the safety/relief valve (N039A, B, F, G, H, J, K, L, M, N, & P) and ADS valve (N039C, D, E, R, S, U, & V) function for vessel depressurization.

(b) Effect of Component Failure

The failure of these components will not preclude achieving the six safety objectives, namely safe shutdown, containment isolation, core coverage, RHR, containment integrity and effluent control (see Section 4.4, page 4-32, of Quadrex Report QUAD-1-81-852).

Failure of these components will affect the operation of a given ADS or SR valve, and disable the Low-Low set arming function.

(c) Impact on Other Systems

The sole function of these components is to initiate opening of an ADS or SR valve and arming of the Low-Low set function. No other systems are affected by their failure.

(d) Operator Action

The safety/relief valve system is not required for these events which are depressurization events. Division II of ADS is available as well as HPCS if necessary. No operator action is required to meet the six safety objectives.

References:

P&ID: M-23, Sheet 5

Schematic: 1E-1-4201