Edwin I Hatch Nuclear Plant

Technical Requirements Manual

Unit 2

HATCH UNIT 2 TECHNICAL REQUIREMENTS MANUAL

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T 1.0 USE AND APPLICATION

T 1.1 GENERAL OVERVIEW

The Technical Requirements Manual (TRM) contains Specifications and operational conveniences, such as lists, cross references, acceptance criteria, and drawings.

The TRM Specifications are contained in Section 3.0 and include operational requirements, Surveillances, and Required Actions for nonfunctional equipment. Instructions for the use and application of TRM Specifications are included at the beginning of Section 3.0.

Operational conveniences provide a ready reference to setpoints, lists, and other helpful tools described in plant procedures and programs.

Other plant documents, such as Fire Hazards Analysis (FHA) Appendix B, CORE OPERATING LIMITS REPORT (COLR), and Offsite Dose Calculation Manual (ODCM), are not considered part of the TRM, but are included with the TRM as Appendices, and either contain their own rules of usage or are covered by other plant documents.

The TRM is a licensing document and changes to this manual are governed by Procedure NMP-AD-009, Licensing Document Change Requests.

T 1.2 DEFINITIONS

Channel - An arrangement of components and modules that are required to generate a single protective action signal when the associated setpoint is reached. A channel ends where it combines with other single protective action signals or enters a logic system composed of relays, via a bistable trip device. If there is only one input from a channel to an end device, the channel is usually considered to end at the input terminals for the control logic of the end device.

The above definition may be applied to instrument surveillances required in the Technical Requirements Manual. For Technical Specifications required surveillance, the following definition from ANSI/IEEE Std 279-1971 applies:

An arrangement of components and modules as required to generate a single protective action signal when required by a generating station condition. A channel loses its identity where single action signals are combined.

Channel Functional Test Scope - The CHANNEL FUNCTIONAL TEST normally includes the components and modules of a channel, as defined above, except as follows. The test signal should be injected as close as possible to the sensor except when specifically stipulated in a licensing document. Each output (e.g., contact) of the channel should be tested with the following exception. If an alarm function is the sole function of the channel, the alarm output of the channel must be tested up to the point where it loses its identity. If this does not apply, the alarm function is not required to be tested. Figure 1.2-1 shows the typical configuration for a protective action logic system and the divisions between trip system, channels, trip logic, and actuation logic. This drawing shows two channels in a trip system; however, a trip system may include more than two channels. As seen in the Figure 1.2-1, channel A1 and A2 end at the contacts for relays K1 and K2, respectively. Consequently, a CHANNEL FUNCTIONAL TEST for each of the channels normally includes these contacts. Where a positive indication of bistable trip status is provided, as in the Analog Transmitter Trip System, the trip status indication may be considered the channel end point, provided the bistable is utilized as the initiating device for the actuation logic in the LOGIC SYSTEM FUNCTIONAL TEST. This will ensure the appropriate overlap in testing. In this case, the trip output logic switch within the bistable takes the place of the K1 and K2 relays, as shown in Figure 1.2-1.

When a channel involves two functions, one supplied by the master trip unit and the other supplied by the slave trip unit, the 6 hour Allowed Outage Time (AOT) for surveillance testing applies to the total time the channel is removed from service for testing both functions.

The above definition of channel functional test scope may be used for Technical Requirements Manual surveillances. For Technical Specifications surveillances, the definition of channel functional test as provided in the Technical Specifications Section 1.1, applies.

FUNCTIONAL – Functionality is a concept similar to Operability. Systems, structures, and components (SSCs) in the Technical Requirements Manual are either Functional or Nonfunctional, as opposed to Operable or Inoperable. The term "Operable" is reserved solely for Technical Specifications SSCs.

Similar to the definition of Operable, an SSC is Functional when it is capable of performing its specified function, and when all attendant equipment required for the SSC to perform its specified function, is capable of performing its support functions.

In-Place Qualitative Assessment - The observation and/or comparison of a resistance temperature detector (RTD) or thermocouple sensor indication and status to other indication or status derived from similar instrument channels measuring the same parameter. It is based on the assumption that instrument channels monitoring the same parameter should read reasonably close and track the same value.

Operations with the Potential to Drain the Reactor Vessel (OPDRV) - This is a self-defined phrase, only applicable with fuel in the reactor vessel. The following activities are examples of OPDRVs. Note that this is not an all inclusive listing.

- Failure to maintain operability of the RHR suction valve interlocks (F004A, B, C, & D and F006A, B, C, & D) while in Operational Condition 4 or 5. An exception is that, while in Condition 4 or 5, the interlocks may be defeated provided that the RPV is isolated from the shutdown cooling suction piping by a manual valve via an approved procedure.

- Failure to maintain OPERABILITY of Reactor Water Cleanup primary containment isolation valves 2G31-F001 and F004 while in MODE 4 or 5.

    a. If one of these valves is in the isolated position, deactivated, and controlled via the clearance procedure, this does not apply; or

    b. If (1) the integrity of the RWCU system is intact and no maintenance is being performed on RWCU that has the potential for draining the reactor vessel through this flowpath; (2) the reactor pressure vessel water level-Low Low, Level 2 isolation instrumentation is OPERABLE for 2G31-F001 or 2G31-F004, (3) the valve being relied upon is fully OPERABLE, and (4) system pressure remains below 200 psig, the necessary automatic controls are in place to prevent unexpected loss of inventory via this flowpath such that this does not apply. NOTE: The limitation on system pressure ensures there is no driving pressure (pipe break, crack, or leak) that could create a condition that could lead to an OPDRV.

- Failure to maintain RHR primary containment isolation valves 2E11-F008 and 2E11-F009 OPERABLE per Unit 2 Technical Specifications LCOs 3.3.6.1 and 3.6.1.3 while in MODE 4 or 5. If Required Actions of Unit 2 Technical Specifications LCOs 3.3.6.1 and 3.6.1 are satisfied, this does not apply.

- Opening a greater than 1 inch penetration to the RPV or RPV cavity. Exceptions to this are:

a. Penetrations that are isolated from the RPV or RPV cavity by at least one closed, deactivated valve, manual valve, or blank flange.

b. Penetrations that are isolable from the RPV or RPV cavity by a functional isolation system provided RPV water cannot be diverted to other sources.

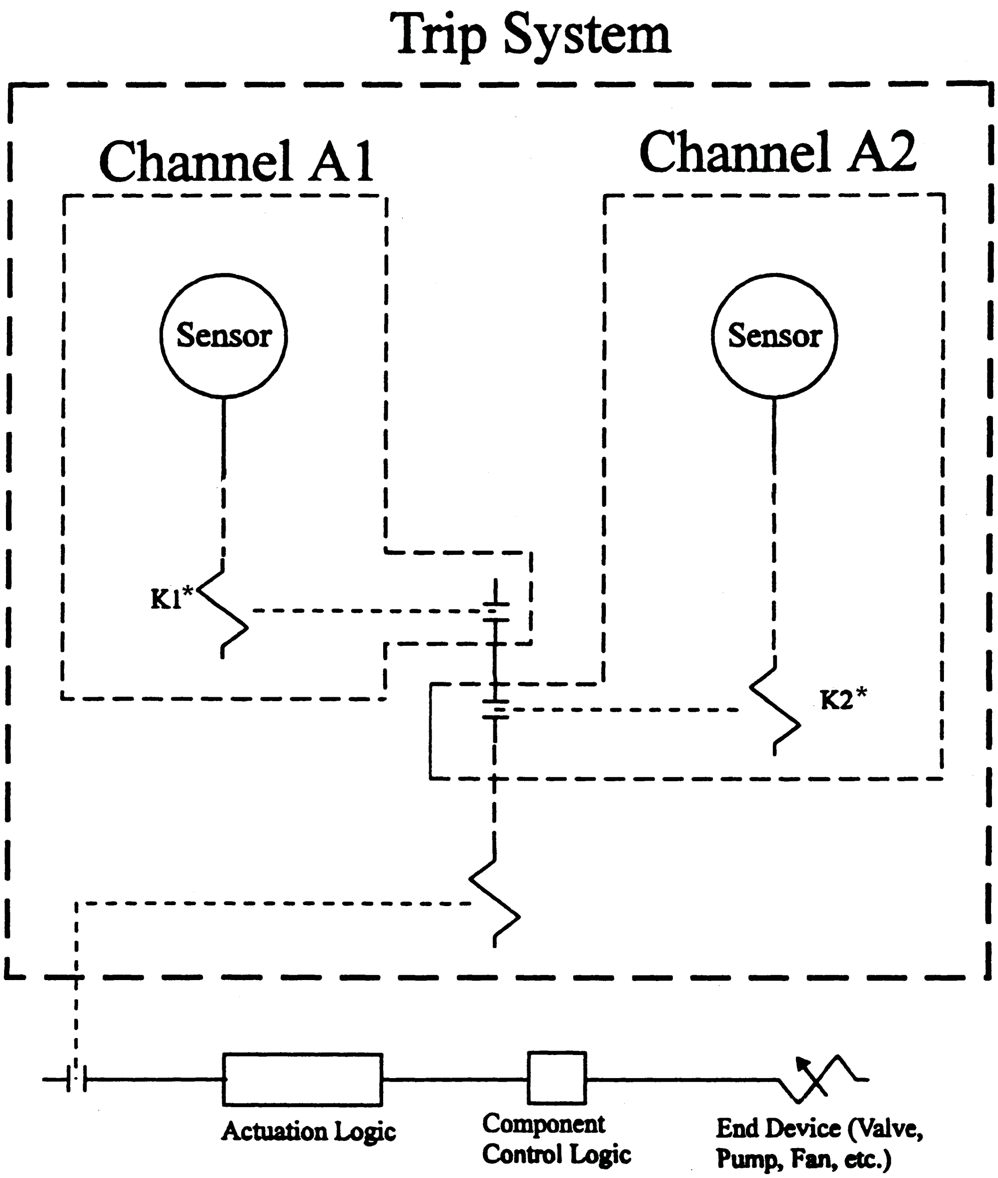
c. Penetrations that are isolated from the RPV or RPV cavity by another barrier (such as plugs, freeze seals, etc.) utilized via an approved procedure.

d. Lines above the Main Steam Line elevation of 196 feet - 10 inches (if no movement of irradiated fuel is in progress).

e. Any RPV penetration which is at an elevation above the RPV, or RPV cavity, water level.

- Evolutions associated with the following systems/components, if not isolated by at least one boundary: Reactor Water Cleanup, Reactor Recirculation, Residual Heat Removal, Control Rod Drive (removal), Standby Liquid Control, Reactor Coolant Sampling, Main Steam Isolation Valves, Safety Relief Valves, Main Steam, Feedwater, Core Spray, High Pressure Coolant Injection, Reactor Core Isolation Cooling, RPV Instrumentation, and RPV Cavity Drains.

System Functional Test - The injection of an actual or simulated actuation signal, overlapping with a LOGIC SYSTEM FUNCTIONAL TEST as appropriate, to verify that system components perform the system's specified safety function. Where required, Bases provide additional test description.



*Where a positive indication of bistable trip status is provided, as in the Analog Transmitter Trip System, the trip output logic switch within the bistable takes the place of the K1 and K2 relays, provided the bistable is utilized as the initiating device for the actuation logic in the LOGIC SYSTEM FUNCTIONAL TEST.

Figure 1.2-1

PROTECTIVE ACTION LOGIC SYSTEM

Table T2.1-1 (Sheet 1 of 3)

OPERABILITY DETAILS FOR
LCO 3.7.4, MCREC SYSTEM, AND LCO 3.7.5, CONTROL ROOM AC SYSTEM

Given: AHU Configuration[a]	, and 1R24-S029 aligned to 1R24	, then declare inoperable MCREC subsystem for LCO 3.7.4[b]	, and declare inoperable control room air conditioning subsystem for LCO 3.7.5[c]
A - OPERABLE-AUTO B - OPERABLE-AUTO C - OPERABLE-AUTO	S002	NONE	NONE
	S003	NONE	NONE
A - OPERABLE-AUTO B - OPERABLE-AUTO C - OPERABLE-OFF	S002	NONE	NONE
	S003	NONE	NONE
A - OPERABLE-AUTO B - OPERABLE-OFF C - OPERABLE-AUTO	S002	A <u>OR</u> B	NONE
	S003	NONE	NONE
A - OPERABLE-OFF B - OPERABLE-AUTO C - OPERABLE-AUTO	S002	NONE	NONE
	S003	A <u>OR</u> B	NONE
A - OPERABLE-AUTO B - OPERABLE-OFF C - OPERABLE-OFF	S002	A <u>OR</u> B	NONE
	S003	A <u>OR</u> B	NONE
A - OPERABLE-OFF B - OPERABLE-AUTO C - OPERABLE-OFF	S002	A <u>OR</u> B	NONE
	S003	A <u>OR</u> B	NONE
A - OPERABLE-OFF B - OPERABLE-OFF C - OPERABLE-AUTO	S002	A <u>OR</u> B	NONE
	S003	A <u>OR</u> B	NONE
A - OPERABLE-AUTO B - OPERABLE-AUTO C - Inoperable	S002	NONE	C
	S003	NONE	C
A - OPERABLE-AUTO B - Inoperable C - OPERABLE-AUTO	S002	A <u>OR</u> B	B <u>AND</u> if $\leq$ 65°F, C[d]
	S003	NONE	B
A - Inoperable B - OPERABLE-AUTO C - OPERABLE-AUTO	S002	NONE	A
	S003	A <u>OR</u> B	A <u>AND</u> if $\leq$ 65°F, C[d]

Table T2.1-1 (Sheet 2 of 3)

OPERABILITY DETAILS FOR
LCO 3.7.4, MCREC SYSTEM, AND LCO 3.7.5, CONTROL ROOM AC SYSTEM

Given: AHU Configuration[a]	, and 1R24-S029 aligned to 1R24	, then declare inoperable MCREC subsystem for LCO 3.7.4[b]	, and declare inoperable control room air conditioning subsystem for LCO 3.7.5[c]
A - OPERABLE-AUTO B - OPERABLE-OFF C - Inoperable	S002	A OR B	C
	S003	A OR B	C
A - OPERABLE-OFF B - OPERABLE-AUTO C - Inoperable	S002	A OR B	C
	S003	A OR B	C
A - OPERABLE-AUTO B - Inoperable C - OPERABLE-OFF	S002	A OR B	B AND if ≤ 65°F, C [d]
	S003	A OR B	B
A - OPERABLE-OFF B - Inoperable C - OPERABLE-AUTO	S002	A OR B	B AND if ≤ 65°F, C [d]
	S003	A OR B	B
A - Inoperable B - OPERABLE-AUTO C - OPERABLE-OFF	S002	A OR B	A
	S003	A OR B	A AND if ≤ 65°F, C [d]
A - Inoperable B - OPERABLE-OFF C - OPERABLE-AUTO	S002	A OR B	A
	S003	A OR B	A AND if ≤ 65°F, C [d]
A - OPERABLE-AUTO B - Inoperable C - Inoperable	S002	A OR B	B AND C
	S003	A OR B	B AND C
A - Inoperable B - OPERABLE-AUTO C - Inoperable	S002	A OR B	A AND C
	S003	A OR B	A AND C
A - Inoperable B - Inoperable C - OPERABLE-AUTO	S002	A OR B	A AND B
	S003	A OR B	A AND B

Table T2.1-1 (Sheet 3 of 3)

OPERABILITY DETAILS FOR
LCO 3.7.4, MCREC SYSTEM, AND LCO 3.7.5, CONTROL ROOM AC SYSTEM

NOTES:

a. OPERABLE-AUTO defined as control switch in RUN, EMERGENCY RUN, or STANDBY with automatic start and/or post-LOSP restart capability.

OPERABLE-OFF defined as control switch position in OFF with the capability for the Operator to manually start the AHU (and, for AC subsystem OPERABILITY, associated condenser/compressor) from the control room.

b. For each OPERABLE AHU, it is assumed that its associated condenser/compressor cooling functions are also OPERABLE to ensure loop seal is maintained.

c. Optional allowances for inoperable subsystems do not preclude changing the declared inoperable subsystem to best accommodate other plant circumstances; e.g., inoperable diesel generators (DGs), Safety Function Determination Program. However, in these instances, the Condition for one inoperable MCREC subsystem shall not be evaluated for Completion Time extensions, in accordance with Section 1.3.

d. When the outside air temperature was > 65°F, the loss of one of the three control room AC subsystems results in a loss of redundancy, **REGARDLESS** of the power supply alignment, requiring entry into an Action Statement commensurate with such a loss (i.e., CONDITION B of TS LCO 3.7.5).

However, if the temperature was ≤ 65°F continuously for the previous 24 hours, inoperability of one of the three control room AC subsystems does not result in a loss of redundancy **UNLESS** the remaining two subsystems are powered from the same power supply. Since TS LCO 3.7.5 does not address the loss of redundancy when the remaining subsystems are powered from the same power supply, an inappropriate Condition (i.e., CONDITION A of TS LCO 3.7.5) would be entered UNLESS a penalty is taken for the power supply alignment. Therefore, to force entry into the Condition that is appropriate for a loss of redundancy (i.e., CONDITION C of TS LCO 3.7.5), a second subsystem must be declared inoperable.

Taking the penalty when the temperature was ≤ 65°F continuously for the previous 24 hours appears to be inappropriate; however, given the format of TS LCO 3.7.5, taking the penalty is the proper action for one to enter the proper TS Condition.

T 3.0 TRM SPECIFICATIONS

The Technical Requirements Manual (TRM) Specifications are formatted in a manner consistent with the Technical Specifications (TS) (Appendix A to the Operating License).

The Definitions contained in Technical Specifications Section 1.1, "Definitions," apply to the TRM Specifications. Defined terms are shown in all capital letters, consistent with the Technical Specifications.

The rules of usage for the TRM Specifications are the same as those for the Technical Specifications. These rules are found in Technical Specifications Sections 1.2, "Logical Connectors;" 1.3, "Completion Times;" and 1.4, "Frequency."

Technical Specifications Section 3.0, "Limiting Condition for Operation (LCO) Applicability and Surveillance Requirement (SR) Applicability," applies with the following exception:

> **LCO 3.0.6, regarding support/supported system ACTIONS, is not applicable to TRM Specifications. However, when an inoperable TS support system, structure, or component (SSC) provides support to a TRM SSC, which, in turn, supports a supported SSC addressed in the TS, LCO 3.0.6 remains applicable.**
>
> **LCO 3.0.7, regarding allowances to change specified Technical Specifications, is not applicable to TRM Specifications.**

While the TRM Specifications are to be treated like Technical Specifications from an implementation viewpoint, the TRM Specifications are essentially procedures. Therefore, unless specifically stated in the TRM Specification, entry into or violation of a TRM Required Action, or violation of a Surveillance Requirement is not reportable per 10 CFR 50.72 or 10 CFR 50.73. Likewise, power reductions and/or plant shutdowns required to comply with TRM ACTIONS are not reportable per 10 CFR 50.72 or 10 CFR 50.73.

Failure to comply with TRM Specifications requirements shall be treated as a failure to follow procedure.

T 3.3.1 REACTOR PROTECTION SYSTEM (RPS) SHORTING LINKS

TLCO 3.3.1 — The shorting links shall be removed from the Reactor Protection System (RPS) circuitry.

APPLICABILITY: MODE 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies and SDM not demonstrated per 42CC-ERP-010-0S, Shutdown Margin Demonstration, for current core configuration.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shorting links not removed from RPS circuitry.	A.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>	
	A.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.1.1	Verify shorting links removed.	Once within 30 minutes prior to entering Applicability
TSR 3.3.1.2	Perform LOGIC SYSTEM FUNCTIONAL TEST of RPS non-coincidence trip.	24 months

T 3.3.2 CONTROL ROD BLOCK INSTRUMENTATION

TLCO 3.3.2 The control rod block instrumentation for each Function in Table T3.3.2-1 shall be FUNCTIONAL.

APPLICABILITY: According to Table T3.3.2-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels nonfunctional.	A.1 Initiate Reactor Manual Control System rod withdrawal block.	1 hour

SURVEILLANCE REQUIREMENTS

-----NOTE-----

1. Refer to Table T3.3.2.1-1 to determine which TSRs apply for each control rod block Function.

2. When a channel is placed in a nonfunctional status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

	SURVEILLANCE	FREQUENCY
TSR 3.3.2.1	-----NOTES----- 1. For Function 1, not required to be performed when entering the MODE 2 IRM range Applicability from a higher IRM range until 12 hours after entering the MODE 2 IRM range Applicability. 2. For Function 2, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	7 days
TSR 3.3.2.2	-----NOTE----- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ---------- Perform CHANNEL FUNCTIONAL TEST.	184 days
TSR 3.3.2.3	-----NOTES----- 1. Neutron detectors are excluded. 2. For Function 4, withdrawal of control rods is not permitted during the CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	24 months

Table T3.3.2-1 (Page 1 of 2)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. SRM				
a. Detector Not Full In	2[(a)]	3	TSR 3.3.2.1	NA
	5[(e)]	2[(b)]	TSR 3.3.2.1	NA
b. Upscale	2[(c)]	3	TSR 3.3.2.1 TSR 3.3.2.3	$\leq 10^5$ cps
	5	2[(b)]	TSR 3.3.2.1 TSR 3.3.2.3	$\leq 10^5$ cps
c. Inoperative	2[(c)]	3	TSR 3.3.2.1	NA
	5	2[(b)]	TSR 3.3.2.1	NA
d. Downscale	2[(a)]	3	TSR 3.3.2.1 TSR 3.3.2.3	$\geq$ 3 cps
	5	2[(b)]	TSR 3.3.2.1 TSR 3.3.2.3	$\geq$ 3 cps
2. IRM				
a. Detector Not Full In	2, 5[(e)]	4[(f)]	TSR 3.3.2.1	N/A
b. Upscale	2, 5	4[(f)]	TSR 3.3.2.1 TSR 3.3.2.3	$\leq$ 108/125 of full scale
c. Inoperative	2, 5	4[(f)]	TSR 3.3.2.1	NA
d. Downscale	2[(d)]	4[(f)]	TSR 3.3.2.1 TSR 3.3.2.3	$\geq$ 5/125 of full scale

(continued)

(a) With IRMs on Range 2 or below.

(b) Only one SRM is required to be FUNCTIONAL during spiral offload or reload when the fueled region includes only that SRM detector.

(c) With IRMs on Range 7 or below.

(d) With IRMs on Range 2 or above.

(e) This function is not required if the detector is verified to be in the fully inserted position and the drive motor is deactivated.

(f) One channel in each quadrant of the core must be FUNCTIONAL whenever the IRMs are required to be FUNCTIONAL.

Table T3.3.2-1 (Page 2 of 2)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. APRM				
a. Simulated Thermal Power Upscale	1	3	TSR 3.3.2.2 TSR 3.3.2.3	(i)
b. Simulated Thermal Power Upscale (Setdown)	2, 5[(h)]	3	TSR 3.3.2.2 TSR 3.3.2.3	(i)
c. Inoperative	1, 2, 5[(h)]	3	TSR 3.3.2.2	NA
d. Neutron Flux Downscale	1	3	TSR 3.3.2.2 TSR 3.3.2.3	(i)
e. Low LPRM Count	1, 2, 5[(h)]	3	TSR 3.3.2.2	(i)
f. Reactor Recirculation Flow Upscale	1	3	TSR 3.3.2.2 TSR 3.3.2.3	(i)
4. Scram Discharge Volume Water Level-High	1, 2, 5[(g)]	1	TSR 3.3.2.3	≤ 36.2 gallons

(g) With any control rod withdrawn from a core cell containing one or more fuel assemblies, except control rods withdrawn under the provisions of Technical Specification LCO 3.10.5 or 3.10.6.

(h) During SDM demonstrations in accordance with Technical Specification LCO 3.10.8.

(i) Allowable value controlled by the Setpoint Index.

T 3.3.3 NON-TYPE A, NON-CATEGORY 1 POST ACCIDENT MONITORING INSTRUMENTATION

TLCO 3.3.3 The instrumentation for each Function in Table T3.3.3-1 shall be FUNCTIONAL.

APPLICABILITY: MODES 1 and 2

ACTIONS

--NOTE--
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. For Functions 1, 2, 6, and 7, one or more Functions with one or more required channels nonfunctional.	A.1	Restore required channel(s) to FUNCTIONAL status.	30 days
B. For Functions 1, 2, 6, and 7, one or more Functions with two required channels nonfunctional. OR For Functions 4 and 5, one or more Functions with the required channel nonfunctional.	B.1	Initiate action to monitor associated parameter by alternate means.	72 hours
	AND		
	B.2	Restore one required channel to FUNCTIONAL status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. For Function 3, one or more S/RVs with one or more required channels nonfunctional.	C.1	------------NOTE----------- With both primary and secondary channels for an S/RV nonfunctional, monitor S/RV position using low-low set logic position indicators. -------------------------------	
		Monitor S/RV position by observing suppression pool water temperature for any unexplained temperature increase which might be indicative of an open S/RV.	Once per 12 hours
D. For Function 3, two or more S/RVs with two required channels nonfunctional.	D.1	Restore required channels to FUNCTIONAL status.	7 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1	Submit report to SRB, detailing interim compensatory measures, cause for nonfunctionality, and schedule for restoration to FUNCTIONAL.	7 days

SURVEILLANCE REQUIREMENTS

---NOTE---
1. Refer to Table T3.3.3.1-1 to determine which TSRs apply for each Non-Type A, Non-Category 1 Post Accident Monitoring Function.

2. When a channel is placed in a nonfunctional status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
TSR 3.3.3.1	Perform CHANNEL CHECK.	31 days
TSR 3.3.3.2	Perform CHANNEL FUNCTIONAL TEST.	184 days
TSR 3.3.3.3	Perform CHANNEL CALIBRATION.	24 months

Table T3.3.3-1 (Page 1 of 1)
Non-Type A, Non-Category 1 Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS PER FUNCTION[(a)]	SURVEILLANCE REQUIREMENTS
1.	Suppression Chamber Pressure	2	TSR 3.3.3.1 TSR 3.3.3.3
2.	Post-LOCA Gamma Radiation	2	TSR 3.3.3.1 TSR 3.3.3.3
3.	Safety/Relief Valve Position	2[(b)]per S/RV	TSR 3.3.3.1 TSR 3.3.3.3
4.	Main Stack Effluent Monitor	1[(c)]	TSR 3.3.3.2 TSR 3.3.3.3
5.	Reactor Building Vent Plenum Effluent Monitor	1[(c)]	TSR 3.3.3.2 TSR 3.3.3.3
6.	Drywell Oxygen Concentration	2	TSR 3.3.3.1 TSR 3.3.3.3
7.	Drywell Hydrogen Concentration	2	TSR 3.3.3.1 TSR 3.3.3.3

(a) For Function 3, each S/RV is considered a separate Function.

(b) One channel consists of a primary indicator, and the other channel consists of a secondary indicator.

(c) This channel consists of two detectors: one for mid-range noble gas and one for high-range noble gas.

T 3.3.4 TRAVERSING INCORE PROBE (TIP) SYSTEM

TLCO 3.3.4 Four TIP subsystems shall be FUNCTIONAL.

APPLICABILITY: During recalibration of LPRMs,
During monitoring of APLHGR, LHGR, AND MCPR.

ACTIONS

--NOTE--

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE------------ Separate Condition entry is allowed for each measurement location. ------------------------------- One or more TIP subsystems with one or more measurement locations nonfunctional.	A.1 --------------NOTE------------------ Only applicable if total TIP uncertainty < 8.7%, and rod pattern is octant symmetric. --- Substitute data for measurement location from FUNCTIONAL octant-symmetric location.	As needed
	<u>OR</u>	
	A.2 ------------NOTE-------------------- Only applicable to ≤ 8 measurement locations. --- Substitute data for measurement location from process computer normalized with available measurements.	As needed

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more TIP subsystems nonfunctional for reasons other than Condition A.	B.1 Restore TIP subsystems to FUNCTIONAL status.	1250 effective full power hours from last performance of TSR 3.3.4.1
C. Required Action and associated Completion Time of Condition B not met.	C.1 Suspend use of the TIP System for monitoring and calibration functions.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.4.1	Normalize each TIP detector output to each of the remaining TIP detectors.	1000 effective full power hours

T 3.3.5 HPCI AND RCIC TURBINE TRIPS (and RCIC Min-Flow)

TLCO 3.3.5 The HPCI and RCIC instrumentation for each Function in Table T3.3.5-1 shall be FUNCTIONAL.

APPLICABILITY: MODE 1,
MODES 2 and 3 with reactor steam dome pressure > 150 psig.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel nonfunctional in one trip system.	A.1 Restore channel to FUNCTIONAL status. OR A.2 -----------NOTE------------ Not applicable to Function 7. ------------------------------- Place channel in trip.	12 hours 12 hours
B. One or more Functions with one channel nonfunctional in both trip systems.	B.1 Restore one channel to FUNCTIONAL.	1 hour
C. Required Action and associated Completion Time not met.	C.1 Declare associated System nonfunctional.	Immediately

SURVEILLANCE REQUIREMENTS

--NOTES--
1. Refer to Table T3.3.5.1-1 to determine which TSRs apply for each Function.

2. When a channel is placed in a nonfunctional status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
TSR 3.3.5.1	Perform CHANNEL CHECK.	12 hours
TSR 3.3.5.2	Perform CHANNEL FUNCTIONAL TEST.	92 days on an ALTERNATE TEST BASIS
TSR 3.3.5.3	Perform CHANNEL CALIBRATION.	24 months
TSR 3.3.5.4	Perform LOGIC SYSTEM FUNCTIONAL TEST, and simulated automatic actuation including calibration of required time delay relays and timers.	24 months

Table T3.3.5-1 (Page 1 of 1)
HPCI and RCIC Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. HPCI Turbine Overspeed	1	TSR 3.3.5.3	≤ 5000 rpm
2. HPCI Turbine Exhaust Pressure	1	TSR 3.3.5.1 TSR 3.3.5.2 TSR 3.3.5.3 TSR 3.3.5.4	≤ 146 psig
3. HPCI Pump Suction Pressure	1	TSR 3.3.5.1 TSR 3.3.5.2 TSR 3.3.5.3 TSR 3.3.5.4	≤ 12.6 inches Hg vacuum
4. RCIC Turbine Overspeed			
a. (Deleted)			
b. Mechanical	1	TSR 3.3.5.3	≤ 125% rated speed
5. RCIC Turbine Exhaust Pressure	1	TSR 3.3.5.1 TSR 3.3.5.2 TSR 3.3.5.3	≤ 45 psig
6. RCIC Pump Suction Pressure	1	TSR 3.3.5.1 TSR 3.3.5.2 TSR 3.3.5.3	≤ 12.6 inches Hg vacuum
7. RCIC Pump Discharge Flow			
a. Flow-High	1	TSR 3.3.5.1 TSR 3.3.5.2 TSR 3.3.5.3	≤ 87 gpm
b. Flow-Low	1	TSR 3.3.5.1 TSR 3.3.5.2 TSR 3.3.5.3	> 53 gpm

T 3.3.6 SEISMIC MONITORS

TLCO 3.3.6 The seismic monitoring instrumentation Functions in Table T3.3.6-1 shall be FUNCTIONAL.

---NOTE---
Actuation of seismic monitors during a seismic event shall result in declaring the actuated instrument(s) nonfunctional.

APPLICABILITY: At all times.

ACTIONS

--NOTES--
1. Separate Condition entry is allowed for each Function.

2. LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more seismic monitoring Functions nonfunctional.	A.1 Restore seismic monitoring Function to FUNCTIONAL status.	30 days
B. Required Action A.1 and associated Completion Time not met.	B.1 Submit a Special Report to the SRB outlining the cause of the malfunction and the plans for restoring the instrument to FUNCTIONAL status.	10 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ------------NOTE------------ Required Actions C.1 and C.2 shall be completed if this Condition is entered. -------------------------------- One or more seismic monitoring Functions nonfunctional due to actuation during a seismic event.	C.1	Submit a Special Report to the SRB describing the magnitude, frequency spectrum, and resultant effect on facility features important to safety.	10 days
	<u>AND</u>		
	C.2	Perform TSR 3.3.6.3.	30 days

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table T3.3.6.1-1 to determine which TSRs apply for each seismic monitoring Function.

2. When a channel is placed in a nonfunctional status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
TSR 3.3.6.1	-----NOTE----- For Function 1, CHANNEL CHECK does not include the seismic trigger. ----- Perform CHANNEL CHECK.	31 days
TSR 3.3.6.2	Perform CHANNEL FUNCTIONAL TEST.	184 days
TSR 3.3.6.3	Perform CHANNEL CALIBRATION.	24 months

Table T3.3.6-1 (Page 1 of 2)
Seismic Monitoring Instrumentation

FUNCTION			REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS
1.	Triaxial Time-History Accelerographs			
	a.	Diesel Generator Building EL 130 ft	1[a]	TSR 3.3.6.1 TSR 3.3.6.2 TSR 3.3.6.3
	b.	Reactor Building 87 ft Level on Drywell Pedestal	1[a]	TSR 3.3.6.1 TSR 3.3.6.2 TSR 3.3.6.3
	c.	Drywell - Feedwater Inlet to RPV	1[a]	TSR 3.3.6.1 TSR 3.3.6.2 TSR 3.3.6.3
	d.	Switchyard	1[a]	TSR 3.3.6.1 TSR 3.3.6.2 TSR 3.3.6.3
2.	Triaxial Peak Recording Accelerometers			
	a.	Diesel Generator Base Support	1	TSR 3.3.6.3
	b.	Intake Structure	1	TSR 3.3.6.3
	c.	Control Building Main Control Room Floor	1	TSR 3.3.6.3
	d.	Control Building Floor EL 112 ft	1	TSR 3.3.6.3

(continued)

(a) Also requires main control room indication and annunciation.

Table T3.3.6-1 (Page 2 of 2)
Seismic Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS
2. Triaxial Peak Recording Accelerometers (continued)		
e. Reactor Building Refueling Floor	1	TSR 3.3.6.3
f. Reactor Pedestal Inside Biological Shield	1	TSR 3.3.6.3
g. Reactor Piping - Feedwater Inlet to RPV	1	TSR 3.3.6.3
3. Triaxial Seismic Switches		
a. Reactor Building 87 ft Level on Drywell Pedestal	1[b]	TSR 3.3.6.1 TSR 3.3.6.2 TSR 3.3.6.3
b. Reactor Building 185 ft Level Outside Biological Shield	1[b]	TSR 3.3.6.1 TSR 3.3.6.2 TSR 3.3.6.3
4. Triaxial Response Spectrum Recorder		
a. Hatch - Unit 1 Containment Foundation EL 87 ft	1[a]	TSR 3.3.6.2 TSR 3.3.6.3

(a) Also requires main control room indication and annunciation.

(b) Also requires main control room annunciation.

T 3.3.7 MCREC SYSTEM INSTRUMENTATION

TLCO 3.3.7 The MCREC System Instrumentation for each Function in Table T3.3.7-1 shall be FUNCTIONAL.

APPLICABILITY: According to Table T3.3.7-1.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels nonfunctional.	A.1 Enter the Condition referenced in Table T3.3.7-1 for the channel.	Immediately
B. As required by Required Action A.1 and referenced in Table T3.3.7-1.	B.1 Place MCREC System in the pressurization mode of operation.	1 hour from discovery of loss of MCREC initiation capability in both trip systems
	<u>AND</u>	
	B.2 Place channel in trip.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. As required by Required Action A.1 and referenced in Table T3.3.7-1.	C.1	Place MCREC System in the pressurization mode of operation.	1 hour from discovery of loss of MCREC initiation capability in both trip systems
	AND		
	C.2	Restore channel to OPERABLE status.	7 days
D. As required by Required Action A.1 and referenced in Table T3.3.7-1.	D.1	Place channel in trip.	1 hour
E. Required Action and associated Completion Time not met.	E.1	Place MCREC System in the pressurization mode of operation.	6 hours

SURVEILLANCE REQUIREMENTS

---NOTES---

1. Refer to Table T3.3.7-1 to determine which TSRs apply for each MCREC initiation Function.

2. When a channel is placed in a nonfunctional status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
TSR 3.3.7.1	Perform CHANNEL CHECK.	12 hours
TSR 3.3.7.2	Perform CHANNEL FUNCTIONAL TEST.	92 days on an ALTERNATE TEST BASIS
TSR 3.3.7.3	Perform CHANNEL FUNCTIONAL TEST including instrument alignment using a standard current source.	92 days on an ALTERNATE TEST BASIS
TSR 3.3.7.4	Perform CHANNEL CALIBRATION.	24 months
TSR 3.3.7.5	Perform LOGIC SYSTEM FUNCTIONAL TEST and simulated automatic actuation including calibration of time delay relays and timers.	24 months

Table T3.3.7-1 (Page 1 of 1)
MCREC System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level-Low Low Low, Level 1	1, 2, 3	2	B	TSR 3.3.7.1 TSR 3.3.7.2 TSR 3.3.7.4	≥ -113 inches
2. Drywell Pressure-High	1, 2, 3	2	B	TSR 3.3.7.1 TSR 3.3.7.2 TSR 3.3.7.4	≤ 1.92 psig
3. Main Steam Line Flow-High	1, 2[b], 3[b]	2 per MSL	B	TSR 3.3.7.1 TSR 3.3.7.2 TSR 3.3.7.4	≤ 138% rated steam flow
4. Refueling Floor Area Radiation-High	1, 2, 3[a]	1	C	TSR 3.3.7.1 TSR 3.3.7.3	≤ 20 mr/hr
5. Main Control Room Intake Radiation-Downscale	1, 2, 3[a]	1	D	TSR 3.3.7.1 TSR 3.3.7.3 TSR 3.3.7.5	≥ 0.015 mr/hr

(a) During movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.

(b) With any main steam line not isolated.

T 3.3.8 OFFGAS POST-TREATMENT INSTRUMENTATION

TLCO 3.3.8 The offgas post-treatment instrumentation channels in Table T3.3.8-1 shall be FUNCTIONAL.

APPLICABILITY: MODE 1,
MODE 2 with any main steam line not isolated and steam jet air ejector (SJAE) in operation.

ACTIONS

---NOTES---

1. Separate Condition entry is allowed for each Function.

2. LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel in one or more Functions nonfunctional.	A.1 Place channel in Trip.	1 hour
B. Required Action and associated Completion Time of Condition A not met. OR Two channels in one or more Functions nonfunctional.	B.1 Exit the Applicability. OR B.2 Verify adequate alternative monitoring facilities are available.	24 hours 24 hours

SURVEILLANCE REQUIREMENTS

--NOTES--

1. Refer to Table T3.3.8-1 to determine which TSRs apply for each Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
TSR 3.3.8.1	Perform CHANNEL CHECK.	24 hours
TSR 3.3.8.2	Perform CHANNEL FUNCTIONAL TEST.	31 days
TSR 3.3.8.3	Perform CHANNEL CALIBRATION.	92 days on an ALTERNATE TEST BASIS
TSR 3.3.8.4	Perform LOGIC SYSTEM FUNCTIONAL TEST and simulated automatic actuation including calibration of time delay relays and timers.	24 months

Table T3.3.8-1 (Page 1 of 1)
Offgas Post-Treatment Instrumentation

	FUNCTION	REQUIRED CHANNELS PER FUNCTION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Offgas Post-Treatment Radiation Monitor, Upscale	2	TSR 3.3.8.1 TSR 3.3.8.2 TSR 3.3.8.3 TSR 3.3.8.4	(a)
2.	Offgas Post-Treatment Radiation Monitor, Downscale	2	TSR 3.3.8.1 TSR 3.3.8.2 TSR 3.3.8.3 TSR 3.3.8.4	(a)

(a) Less than or equal to the equivalent limit provided in Technical Specification 5.5.4.g, "Radioactive Effluents Control Program."

T 3.3.9 OFFGAS HYDROGEN

TLCO 3.3.9 One offgas hydrogen monitoring instrument channel shall be FUNCTIONAL.

AND

Offgas hydrogen concentration downstream of the recombiners shall be ≤ 4% by volume.

APPLICABILITY: MODE 1,
MODE 2 with any main steam line not isolated and steam jet air ejector (SJAE) in operation.

ACTIONS

--NOTE--
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The required offgas hydrogen monitoring instrumentation channel nonfunctional.	A.1 Monitor offgas hydrogen concentration downstream of the recombiners by sample/analyses or temporary hydrogen analyzer.	8 hours AND Once per 4 hours thereafter
	AND	
	A.2 Restore required offgas hydrogen monitoring instrumentation channel to FUNCTIONAL status.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1	Submit a Special Report to the SRB explaining why nonfunctionality was not corrected.	14 days
C. Offgas hydrogen concentration not within limit.	C.1	Initiate action to reduce offgas hydrogen concentration and potential for offgas system fire.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---
When a channel is placed in a nonfunctional status solely for performance of required Tests, entry into associated Conditions and Required Compensatory Measures may be delayed for up to 6 hours.

SURVEILLANCE		FREQUENCY
TSR 3.3.9.1	Perform CHANNEL CHECK and verify hydrogen concentration is within limit.	24 hours
TSR 3.3.9.2	Perform CHANNEL FUNCTIONAL TEST of hydrogen monitor.	31 days
TSR 3.3.9.3	Perform CHANNEL CALIBRATION of hydrogen monitor. Include the use of standard gas samples containing a nominal: a. One volume-percent hydrogen with balance nitrogen, and b. Four volume-percent hydrogen with balance nitrogen.	92 days on an ALTERNATE TEST BASIS

T 3.3.10 TURBINE OVERSPEED PROTECTION

TLCO 3.3.10 Turbine Overspeed Protection System shall be FUNCTIONAL.

APPLICABILITY: Main turbine speed > 90 rpm.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The required Turbine Overspeed Protection System NONFUNCTIONAL.	A.1 Isolate the turbine from the steam supply.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.10.1	Exercise and monitor each of the emergency trip devices (ETD) through at least one complete cycle of full travel.	7 days
TSR 3.3.10.2	Cycling each of the following through at least one complete cycle of full travel: a. Turbine main stop valves (TSV); b. Turbine reheat stop valves and intercept valves (CIV).	31 days
TSR 3.3.10.3	Cycling each of the turbine control valves (TCV) through at least one cycle of travel from its open position to full closed.	92 days
TSR 3.3.10.4	Functionally test each channel of the following Overspeed Subsystems: a. Primary Overspeed Trip Relays; and b. Emergency Overspeed Trip Relays.	7 days
TSR 3.3.10.5	Exercise each combination of two ETDs to dump the Emergency Trip Header.	Prior to Turbine start

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
TSR 3.3.10.6	Disassemble one of each type of the Turbine Overspeed Protection System valves (control, stop, combined intercept), performing visual and surface inspection of valve seats, disks, and stems for unacceptable flaws and corrosion.	6 years
TSR 3.3.10.7	Initiate Turbine Overspeed Trip with the following Subsystems: a. Primary Overspeed Trip Subsystem; and b. Emergency Overspeed Trip Subsystem.	24 months

T 3.3.11 MAIN STEAM LINE (MSL) RADIATION INSTRUMENTATION

TLCO 3.3.11 Two channels per trip system of the MSL Radiation - High High Function shall be FUNCTIONAL.

AND

The mechanical vacuum pump trip breaker, the reactor water sample isolation valves, the Drywell-to-Torus Differential Pressure System isolation valves, and the steam packing exhauster trip breaker shall be FUNCTIONAL.

APPLICABILITY: MODES 1 and 2 with reactor power ≤ 20% RTP.

ACTIONS

--NOTE--

Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels nonfunctional.	A.1 Place channel or associated trip system in trip.	24 hours
B. Required Action and associated Completion Time of Condition A not met. OR Isolation capability not maintained (multiple inoperable channels or nonfunctional breaker/valve).	B.1 Isolate affected mechanical vacuum pump, reactor water sample valve(s), Drywell-to-Torus Differential Pressure System isolation valve(s), and steam packing exhauster.	12 hours

SURVEILLANCE REQUIREMENTS

---NOTE---
When a channel is placed in a nonfunctional status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.

SURVEILLANCE		FREQUENCY
TSR 3.3.11.1	Perform CHANNEL CHECK.	12 hours
TSR 3.3.11.2	--------------------------NOTE----------------------------------- Instrument alignment using a standard current source. --- Perform CHANNEL FUNCTIONAL TEST.	7 days
TSR 3.3.11.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 3 x normal full power background.	24 months
TSR 3.3.11.4	Perform LOGIC SYSTEM FUNCTIONAL TEST, including calibration of time delay relays and timers necessary for the proper functioning of the trip system.	24 months

TLCO 3.3.12 (Not utilized in Unit 2 TRM)

T 3.3.13 MAIN TURBINE PRESSURE REGULATOR

TLCO 3.3.13

a. Three throttle pressure transmitters and three processors of the main turbine pressure regulator system shall be FUNCTIONAL,

<u>OR</u>

b. Two throttle pressure transmitters and three processors of the main turbine pressure regulator system shall be FUNCTIONAL with notification to Engineering for condition evaluation and restoration of third throttle pressure transmitter,

<u>OR</u>

c. One throttle pressure transmitter and at least two processors shall be FUNCTIONAL with the following limits applied when the associated Technical Specifications LCO is applicable:

---NOTE---
Appropriate limits may be obtained from either the reactor fuel vendor or Reactor Engineering if the limits are not specified in the current revision of the CORE OPERATING LIMITS REPORT (COLR).
----

(1) LCO 3.2.2, MINIMUM CRITICAL POWER RATIO (MCPR), main turbine pressure regulator system TLCO 3.3.13.c limits specified in the COLR; and

(2) LCO 3.2.3, LINEAR HEAT GENERATION RATE (LHGR), main turbine pressure regulator system TLCO 3.3.13.c limits specified in the COLR.

APPLICABILITY: MODES 1 AND 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. All three throttle pressure transmitters or two processors NONFUNCTIONAL.	A.1 Place the reactor mode switch in the shutdown position.	Immediately
B. Requirements of the TLCO not met for reasons other than Condition A.	B.1 Satisfy the requirements of the TLCO.	24 hours

ACTIONS (continued)

C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.13.1	Perform CHANNEL CHECK.	24 hours
TSR 3.3.13.2	Perform CALIBRATION of three throttle pressure regulator transmitters.	24 months during shutdown

T 3.3.14 CROSSFLOW FEEDWATER MEASUREMENT SYSTEM

TLCO 3.3.14 The Crossflow Feedwater Measurement System shall be FUNCTIONAL.

APPLICABILITY: THERMAL POWER > 2777 CMWt.

ACTIONS

--NOTE--

LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Crossflow System inoperable.	A.1 Restore Crossflow System to FUNCTIONAL status.	72 hours
B. Required Action A.1 and associated Completion Time not met.	B.1 Reduce thermal power to ≤ 2777 CMWt.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.3.14	Confirm no process computer out-of-service Crossflow System alarms have been present for a period greater than 5 hours.	Continuously

T 3.4.1 RCS CHEMISTRY

TLCO 3.4.1 The chemistry of the Reactor Coolant System (RCS) shall be maintained within the limits of Table T3.4.1-1.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS chemistry not within the limits of Table T3.4.1-1 in MODE 1, 2, or 3.	A.1 Restore RCS chemistry to within limits of Table T3.4.1-1. <u>AND</u> A.2 Restore RCS chemistry to within limits of Table T3.4.1-1.	24 hours 336 hours cumulative in past 365 days
B. Required Action A.2 and associated Completion Time not met.	B.1 Submit Special Report to the SRB, outlining cause of the limit violations and plans for maintaining chemistry compliance.	30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action A.1 and associated Completion Time not met. OR Conductivity > 10 μmho/cm at 25°C in MODE 1, 2, or 3. OR Chloride concentration > 0.5 ppm in MODE 1, 2, or 3.	C.1	Be in MODE 3.	12 hours
	AND		
	C.2	Be in MODE 4.	36 hours
D. Conductivity not within limit of Table T3.4.1-1 in other than MODES 1, 2, and 3.	D.1	Restore conductivity to within limits of Table T3.4.1-1.	24 hours
E. Chloride concentration not within limit of Table T3.4.1-1 in other than MODES 1, 2, and 3.	E.1	Restore chloride concentration to within limits of Table T3.4.1-1.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
F. -----------NOTE-------------- Required Action F.1 shall be completed if this Condition is entered. --------------------------------- Required Action and associated Completion Time of Condition E not met.	F.1	Determine structural integrity of RCS is acceptable for continued operation.	Prior to entering MODE 2 or 3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.4.1.1	Verify conductivity is within limits of Table T3.4.1-1.	72 hours AND 24 hours when continuous conductivity monitor is nonfunctional
TSR 3.4.1.2	Verify chloride concentration is within limits of Table T3.4.1-1.	72 hours

Table T3.4.1-1 (Page 1 of 1)
RCS Chemistry Limits

APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	CHLORIDE CONCENTRATION LIMIT	CONDUCTIVITY LIMIT (AT 25°C)
1	< 0.5 ppm	< 5 µmho/cm
2	< 0.1 ppm	< 5 µmho/cm
At all other times	< 0.1 ppm	< 10 µmho/cm

T 3.4.2 STRUCTURAL INTEGRITY

TLCO 3.4.2 The structural integrity of ASME Code Class 1, 2, 3, and MC (equivalent) components defined in the ISI Boundary Diagrams shall be maintained in accordance with the current ISI Plan requirements and applicable revision of 10 CFR 50.55a.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.
When associated subsystem(s) are required to be FUNCTIONAL or OPERABLE, except when testing is conducted pursuant to Technical Specification 3.10.1, Inservice Leak and Hydrostatic Testing Operation.

ACTIONS

---NOTE---
Separate condition entry is allowed for each component.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Structural integrity of Class 1, 2, 3, or MC component(s) not conforming as required.	A.1 Initiate action to evaluate component(s)' FUNCTIONALITY or OPERABILITY and enter appropriate TS or TRM required actions for nonfunctional or inoperable component(s).	Immediately
B. Structural integrity of Class 1, 2, 3, or MC component(s) not conforming as required because of a missed inspection.	B.1 Perform missed inspection.	24 hours
	<u>OR</u>	
	B.2 Initiate action to obtain relief from the missed surveillance or inspection.	Immediately
	<u>OR</u>	
	-----------NOTE------------- B.3 may be used only when performance of the missed surveillance is impractical. ---------------------------------	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3.1	Perform an evaluation of the risk associated with the missed inspection and include in the evaluation any necessary compensatory actions to be taken.	24 hours
	<u>AND</u>		
	B.3.2	Perform the missed inspection.	First reasonable opportunity
	<u>OR</u>		
	B.4	Declare affected component(s) inoperable or nonfunctional.	Immediately
C. Structural integrity of Class 1 component(s) not conforming as required other than a missed inspection.	C.1	Initiate action to maintain RCS temperature ≤ 50°F above minimum temperature required by NDT considerations.	Immediately
	<u>OR</u>		
	C.2	Initiate action to isolate affected component(s)	Immediately
D. Structural integrity of Class 2 component(s) not conforming as required other than a missed inspection.	D.1	Initiate action to maintain RCS temperature ≤ 212°F.	Immediately
	<u>OR</u>		
	D.2	Initiate action to isolate affected component(s).	Immediately
	<u>OR</u>		
	D.3	Declare affected component(s) inoperable or nonfunctional.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. (continued)	OR		
	D.4	Initiate action to confirm the ability of the component to perform its specified safety function, or its related support function, in its degraded or nonconforming condition.	Immediately
		AND	
	D.4.1	Perform a code repair.	First reasonable opportunity
		OR	
	D.4.2	Initiate action to obtain relief to perform a temporary non-code repair.	Immediately
		AND	
	D.4.3	Perform temporary non-code repair per approved relief.	First reasonable opportunity
E. Structural integrity of Class 3 component(s) not conforming as required other than a missed inspection.	E.1	Initiate action to isolate affected component(s).	Immediately
	OR		
	E.2.1	Initiate action to obtain relief to perform a temporary non-code repair.	Immediately
	AND		
	E.2.2	Perform temporary non-code repair per approved relief.	30 days

(continued)

ACTIONS

E. (continued)	OR		
	E.3.1	Initiate action to effect a code repair.	Immediately
	AND		
	E.3.2	Restore component(s)' structural integrity.	30 days
	OR		
	E.4	Declare affected component(s) inoperable or nonfunctional.	Immediately
	OR		
	E.5	Initiate action to confirm the ability of the component to perform its specified safety function, or its related support function, in its degraded or nonconforming condition.	Immediately
		AND	
	E.5.1	Perform a code repair.	First reasonable opportunity
		OR	
	E.5.2	Initiate action to obtain relief to perform a temporary non-code repair.	Immediately
		AND	
	E.5.3	Perform temporary non-code repair per approved relief.	First reasonable opportunity

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.4.2.1	Perform required inspection and testing in accordance with the current ISI Plan requirements and applicable revision of 10 CFR 50.55a.	In accordance with the current ISI Plan requirements

T 3.6.1 SUPPRESSION CHAMBER-TO-DRYWELL VACUUM BREAKER POSITION INDICATION

TLCO 3.6.1 Two closed-position indicator channels for each suppression chamber-to-drywell vacuum breaker shall be FUNCTIONAL.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

--NOTE--

Separate Condition entry is allowed for each indicator channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One closed-position indicator channel on one or more suppression chamber-to-drywell vacuum breakers nonfunctional.	A.1 Demonstrate drywell-to-suppression chamber maintains > 0.5 psid for 1 hour without makeup.	4 hours AND Once per 15 days thereafter
	AND	
	A.2 Restore closed-position indicator channel to FUNCTIONAL status.	Prior to startup from next MODE 4
B. Two closed-position indicator channels on one or more suppression chamber-to-drywell vacuum breakers nonfunctional.	B.1 Monitor drywell-to-suppression chamber dP to verify associated vacuum breaker remains closed.	Once per 12 hours
	AND	
	B.2 Demonstrate drywell-to-suppression chamber maintains > 0.5 psid for 1 hour without makeup.	Once per 15 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action A.1 and associated Completion Time not met. <u>OR</u> Required Action and associated Completion Time of Condition B not met.	C.1 Declare the associated vacuum breaker open.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.6.1.1	Perform CHANNEL CALIBRATION. The allowable value is such that the green “closed position” indication extinguishes at, or prior to, a vacuum breaker position that results in failing a demonstration that drywell-to-suppression chamber maintains > 0.5 psid for 1 hour without makeup.	24 months
TSR 3.6.1.2	---------------------------------NOTE---------------------------- Only required to be performed with torus-to-drywell dP at zero. --- Perform leakage test per Required Action A.1.	31 days

T 3.7.1 SNUBBERS

TLCO 3.7.1 All required snubbers utilized on safety-related systems shall be FUNCTIONAL. Snubbers utilized on nonsafety-related systems shall be FUNCTIONAL if the failure of that snubber or the nonsafety-related system would have an adverse effect on any safety-related system.

APPLICABILITY: MODES 1, 2, and 3.

MODES 4 and 5 for snubbers on systems required FUNCTIONAL in those MODES.

ACTIONS

---NOTE---

1. Separate Condition entry is allowed for each snubber.
2. Actions are applicable to a snubber with a seismic function ONLY.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required snubbers removed from supported system. <u>OR</u> One or more required snubbers nonfunctional while in place.	A.1	Refer to the requirements of Technical Specifications LCO 3.0.8.	Immediately
B. One or more required snubbers nonfunctional.	B.1	Perform an engineering evaluation on the components which are supported by the snubber(s) in accordance with ASME OM Code, Subsection ISTD	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion time of Condition B not met.	C.1 Declare supported system nonfunctional.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.1.1	Perform visual examinations of each snubber in accordance with ASME OM Code.	In accordance with site snubber Program
TSR 3.7.1.2	Perform a functional test on a representative sample of snubbers in accordance with ASME OM Code.	In accordance with site snubber program.
TSR 3.7.1.3	Snubber service life will be monitored in accordance with ASME OM Code.	In accordance with site snubber program.

T 3.7.2 ECCS AND RCIC ROOM COOLERS

TLCO 3.7.2 The following ECCS and RCIC room coolers shall be FUNCTIONAL:

a. Four core spray/residual heat removal (CS/RHR) room coolers;

b. Two high pressure coolant injection (HPCI) room coolers; and

c. Two RCIC room coolers.

APPLICABILITY: When associated ECCS and RCIC System and RHR shutdown cooling, suppression pool cooling, and suppression pool spray subsystems are required to be OPERABLE.

ACTIONS

--NOTE--
Separate Condition entry is allowed for each room cooler.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CS/RHR room cooler nonfunctional.	A.1	Declare ECCS and RHR shutdown cooling, suppression pool cooling, and suppression pool spray subsystems associated with nonfunctional room cooler inoperable.	Upon discovery of inoperable Unit 2 DG for the opposite division room cooler in the same diagonal.
	<u>AND</u>		
	A.2	Restore CS/RHR room cooler to FUNCTIONAL status.	30 days
B. One nonfunctional CS/RHR room cooler in both CS/RHR rooms powered by the same division.	B.1	Restore one CS/RHR room cooler to FUNCTIONAL status.	8 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One HPCI room cooler nonfunctional. <u>OR</u> One RCIC room cooler nonfunctional.	C.1 Restore room cooler to FUNCTIONAL status. <u>OR</u> C.2 Obtain Corporate Nuclear Engineering and Licensing Department evaluation justifying extended Completion Time.	30 days 30 days
D. Required Action and associated Completion Time of Condition A, B, or C not met. <u>OR</u> Two area coolers in one or more ECCS/RCIC rooms nonfunctional.	D.1 Declare associated system(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.2.1	Operate each room cooler.	92 days
TSR 3.7.2.2	Verify each room cooler actuates on an actual or simulated initiation signal.	18 months

T 3.7.3 SEALED SOURCE CONTAMINATION

TLCO 3.7.3 Each sealed source containing radioactive material either in excess of 100 μCi of beta and/or gamma emitting material or 5 μCi of alpha emitting material shall be free of ≥ 0.005 μCi of removable contamination.

APPLICABILITY: At all times.

ACTIONS

--NOTES--

1. Separate Condition entry is allowed for each source.

2. LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more sealed sources with removable contamination not within limit.	A.1	Suspend use and transfer of sealed source.	Immediately
	<u>AND</u>		
	A.2.1	Restore removable contamination to within limit.	Prior to use
	<u>OR</u>		
	A.2.2	Dispose of sealed source in accordance with 10 CFR.	Prior to use
	<u>AND</u>		
	A.3	Submit report of contaminated sealed source.	With the Annual Radiological Environmental Report

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Each sealed source shall be tested for leakage and/or contamination by the licensee, or other persons specifically authorized by the Commission or an Agreement State.

2. The test method shall have a detection sensitivity of at least 0.005 µCi per test sample.

SURVEILLANCE		FREQUENCY
TSR 3.7.3.1	-----NOTE----- Not applicable to: sources with half-life ≤ 30 days excluding tritium; gaseous sources; startup sources and fission detectors previously subjected to core flux; or sources not in use. ----- Verify each sealed source leakage and/or contamination is within limit.	6 months
TSR 3.7.3.2	-----NOTE----- Only applicable to sealed startup sources and fission detectors. ----- Verify each sealed source leakage and/or contamination is within limit.	Once within 31 days prior to use
TSR 3.7.3.3	-----NOTE----- Only applicable to sources not in use. ----- Verify each sealed source leakage and/or contamination is within limit.	Once within 6 months prior to transfer

T 3.8.1 AC CIRCUITS INSIDE CONTAINMENT

TLCO 3.8.1 The AC circuits inside primary containment associated with the following circuit breakers shall be de-energized.

a. Breaker Numbers 2, 4, 6, 8, 10, 12, 14, 40, and 42 in panel 2T51-S003;

b. Breaker Numbers 2, 4, 6, 8, 10, 12, 40, and 42 in panel 2T51-S004;

c. Breaker Numbers 28 and 34 in panel 2R25-S105; and

d. Frame 1EL on MCC 2R24-S014.

APPLICABILITY: MODES 1, 2, and 3, except during drywell entries.*

ACTIONS

---NOTE---
Separate Condition entry is allowed for each AC circuit.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC circuits inside containment energized.	A.1 Trip associated circuit breaker.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.1.1	Verify required AC circuits de-energized by verifying that the associated circuit breakers in the specified panels are tripped.	Once every 7 days

* Energization of the lighting circuits to support Drywell Entries is allowed for a reasonable time frame (up to 4 hours) before actions must be taken to de-energize the associated circuits. If it is apparent that a sustained delay in preparing for or in making drywell entries after the circuits are energized, the affected circuits should be de-energized until the preparations for drywell entry are ready to resume. This change will allow the energization of the lighting circuits for up to 4 hours to support Drywell Entry before actions must be taken to de-energize the associated circuits.

T 3.8.2 PRIMARY CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

TLCO 3.8.2 The primary containment penetration conductor overcurrent protective devices shown in TRM Table T9.2-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

--NOTE--

Separate Condition entry is allowed for each overcurrent device.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more primary containment penetration conductor overcurrent protective devices inoperable.	A.1 De-energize the circuit by tripping associated circuit breaker.	72 hours
	AND	
	A.2 Verify circuit de-energized.	Once per 7 days
B Required Action and Associated Completion Time not met.	B1. Be in MODE 3.	12 hours
	AND	
	B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.8.2.1	For the 4 kV circuits associated with each reactor recirculation pump: a. Perform CHANNEL CALIBRATION; and b. Perform an integrated system functional test which includes simulated automatic actuation of the system and verification that each relay and associated circuit breakers and control circuits function as designed.	24 months on a STAGGERED TEST BASIS for each pump's circuits
TSR 3.8.2.2	For molded case circuit breaker shown in TRM Table T9.2-1, perform a functional test of at least one circuit breaker of each type. The functional test shall consist of injecting a current input, as specified by NEMA AB2-1980, to the circuit breaker and verifying that the circuit breaker functions as designed. Should any circuit breaker fail to function as designed, all other circuit breakers of that type shall be tested.	24 months on a STAGGERED TEST BASIS for each circuit breaker type
TSR 3.8.2.3	Subject each circuit breaker shown in TRM Table T9.2-1, to an inspection and preventive maintenance in accordance with manufacturer's recommendations.	60 months

T 3.9.1 FUEL MOVEMENT DECAY TIME

TLCO 3.9.1 The reactor shall be subcritical for ≥ 24 hours.

APPLICABILITY: During movement of irradiated fuel in or above the RPV.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor subcritical for < 24 hours.	A.1 Suspend movement of irradiated fuel in and above the RPV.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
TSR 3.9.1.1 Verify reactor subcritical for ≥ 24 hours.	Prior to movement of irradiated fuel in or above the RPV

T 3.9.2 COMMUNICATIONS

TLCO 3.9.2 Direct communications shall be maintained between the main control room and refueling platform personnel.

APPLICABILITY: During CORE ALTERATIONS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Direct communication not maintained.	A.1 Suspend CORE ALTERATIONS.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
TSR 3.9.2.1 Verify direct communications between the control room and refueling floor platform personnel.	12 hours

T 3.9.3 REFUELING CRANE AND HOIST

TLCO 3.9.3 The crane/hoist in use for handling fuel assemblies or control rods within the RPV shall be FUNCTIONAL.

APPLICABILITY: During movement of fuel assemblies within the RPV,
During movement of control rods within the RPV.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required crane/hoist nonfunctional.	A.1 Suspend movement of fuel assemblies within the RPV with nonfunctional crane/hoist after placing the load in a safe condition.	Immediately
	<u>AND</u>	
	A.2 Suspend movement of control rods within the RPV with the nonfunctional crane/hoist after placing the load in a safe condition.	Immediately

SURVEILLANCE REQUIREMENTS

---NOTE---

References to auxiliary hoist encompass: 1) frame-mounted auxiliary hoist; 2) monorail-mounted hoist; and 3) service platform hoist.

SURVEILLANCE		FREQUENCY
TSR 3.9.3.1	Verify the following setpoints for the required crane/hoist. a. Overload cutoff: 1. 1200 ± 30 lb for fuel grapple, and 2. 1000 ± 30 lb for auxiliary hoist; b. Loaded interlock 1. 485 ± 30 lb for fuel grapple, and 2. 400 ± 30 lb for auxiliary hoist; c. Down-travel stop for auxiliary hoist ≤ 85 ft; d. Up-travel stop for top of load ≥ 6 ft below skimmer weirs; and e. Slack cable cutoff for main hoist: 50 ± 25 lb.	Once within 7 days prior to the start of movement of fuel assemblies or control rods within the RPV
TSR 3.9.3.2	Perform a load test for the required crane/hoist: a. ≥ 1200 lb for fuel grapple; and b. ≥ 1000 lb for auxiliary hoist.	Once within 7 days prior to the start of movement of fuel assemblies or control rods within the RPV

T 3.9.4 CRANE TRAVEL

TLCO 3.9.4 Loads > 1250 lb that travel over fuel assemblies in the spent fuel storage pool racks shall meet all the requirements stated in the Bases section of this TLCO.

APPLICABILITY: With fuel assemblies in the spent fuel storage pool racks.

ACTIONS

---NOTE---
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Load > 1250 lb over fuel assemblies in the spent fuel storage pool racks does not meet all the requirements stated in the Bases section of this TLCO.	A.1 Initiate movement of load to safe condition.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.9.4.1	----------------------------NOTE-------------------------------- Not applicable to loads consisting of fuel assemblies or control rods. --- Verify load being moved is $\leq$ 1250 lb. <u>OR</u> If load > 1250 lb, verify the load movement complies with the requirements stated in the Bases section of this TLCO.	Once prior to movement over fuel assemblies in the spent fuel storage pool racks

T 3.10.1 EMERGENCY RESPONSE FACILITIES

TLCO 3.10.1 The Technical Support Center, the Operations Support Center, and the Emergency Operations Facility shall be FUNCTIONAL.

APPLICABILITY: At all times.

ACTIONS

---NOTES---
1. Separate condition entry is allowed for each facility.
2. LCO 3.0.3 is not applicable.
3. If an emergency response facility (ERF) is out of service but it is determined that it can at any time be returned to service within 30 minutes, the CONDITION statements may be exited.
4. If an ERF will be removed from service for greater than 30 minutes, notify Emergency Planning to prepare a 10 CFR 50.54(q) evaluation. Entry into Condition A is required when the affected ERF becomes NON-FUNCTIONAL.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more emergency facilities nonfunctional.	A.1 Restore emergency facilities to FUNCTIONAL status.	30 minutes
	<u>AND</u>	
	---------------------NOTE-------------------- Alternate facilities are applicable only to OSC and TSC. --	
	A.2 Verify availability of alternate facilities.	Immediately
B. Required Action A and associated Completion Time not met.	B.1 Initiate compensatory actions, as necessary, to provide emergency response functions.	Immediately
	<u>AND</u>	
	B.2 Complete NRC notifications as necessary.	Within 8 hours
	<u>AND</u>	
	B.3 Proceed with actions to return ERFs to FUNCTIONAL status with a high priority.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.10.1.1	Perform testing and inventory to ensure functionality of an ERF.	In accordance with applicable procedures

B T 3.3.4 TRAVERSING INCORE PROBE (TIP) SYSTEM

BASES

FUNCTIONALITY of the TIP System requires:

a. Four movable detectors, drives, and readout equipment to map the core, and

b. Indexing equipment to allow all required detectors to be normalized in a common location.

The FUNCTIONALITY of the TIP System ensures that the measurements obtained from use of this equipment accurately represent the spatial neutron flux distribution in the reactor core.

In REQUIRED ACTION A.1, the Specification allows use of substituted TIP data from symmetric channels, adjusted by the plant computer to remove machine and power level dependent biases, if the control rod pattern is symmetric.

In REQUIRED ACTION A.2, the source of substituted data may also be calculations performed by the on-line computer core monitoring system which are normalized to available real data. Symmetry is not required for substitution of calculated readings. REQUIRED ACTION A.2 is modified by a note which limits the substitute readings to less than or equal to eight locations. For machines with nine channels, the use of A.2 is permitted provided the readings for the common channel are obtained from another FUNCTIONAL TIP machine.

B T 3.3.10 TURBINE OVERSPEED PROTECTION

BASES

The Main Turbine Overspeed Protection system is an integrated system with at least three lines of defense to protect from a damaging overspeed event and potential missile generation. The normal protection method is speed control using the control valves and the intercept valves. The secondary means of protection varies depending on the condition of the plant. Additionally, there is a Primary Overspeed Protection System and Emergency Overspeed Protection System. The Primary Overspeed Protection System is part of the normal speed control system and uses magnetic pickups to sense turbine speed, speed detection software and associated logic circuits. The Emergency Overspeed Protection System consists of an independent 2-out-of-3 voting electronic overspeed protection module using three additional magnetic pickups, speed detection software and associated logic circuits. Some components are common to the different protection schemes. The components that make up these protection schemes are identified below.

1. Normal Overspeed Protection Scheme – turbine speed over 1800 rpm sensed causes a feedback signal to close CVs and CIVs to bring speed back to 1800 rpm.

    a. Mark VI speed control
    b. EHC Fluid System
    c. Main turbine control valves
    d. Main turbine intercept valves

2. Primary Overspeed Protection Scheme – turbine speed over 1980 rpm sensed by the speed control speed pickups and an electrical trip is initiated to de-energize redundant sets of three solenoid controlled trip valves, dumping the ETS causing the stop valves to close followed by the control and intercept valves going closed.

    a. Speed control sensors
    b. Mark VI speed control
    c. Redundant 2-out-of-3 trip manifold assemblies
    d. Redundant sets of 3 trip solenoid valves
    e. Main turbine stop valves
    f. Main turbine reheat stop valves

3. Emergency Overspeed Protection Scheme – turbine speed over 1980 (higher than 2 above) is sensed by the speed pickups and an electrical trip is initiated by the electronic overspeed protection controllers to de-energize redundant sets of three solenoid

B T 3.3.10 TURBINE OVERSPEED PROTECTION (continued)

BASES

controlled trip valves, dumping the ETS causing the stop valves to close followed by the control and intercept valves going closed.

a. Emergency overspeed speed sensors
b. Mark VI overspeed protection controllers
c. Redundant 2-out-of-3 trip manifold assemblies
d. Redundant sets of 3 trip solenoid valves
e. Main turbine stop valves
f. Main turbine reheat stop valves

The Turbine Overspeed Protection System shall remain FUNCTIONAL. To satisfy this FUNCTIONALITY requirement, the following must be FUNCTIONAL:

- Two out of three primary speed signal input paths (Mark VI Turbine Control Module for Primary Overspeed Protection and Primary Overspeed Trip)
- Two out of three emergency speed signal input paths (Mark VI Protection Module for Emergency Overspeed Trip Protection)
- Two out of three Mark VI <R>, <S>, <T> Core trip signal output paths
- Two out of three Mark VI <X>, <Y>, <Z> Core trip signal output paths
- One of two Mark VI trip cards (TREG, TRPG) required to trip an ETD system resulting in turbine trip
- One of two parallel ETD systems required to trip the turbine
- Six separate speed sensors, two of either group of three are required to trip

References:

S63135, S62968 and S62844.

NOTES:

The main control room trip pushbutton switches and the local trip pushbutton switches de-energize the redundant sets of three solenoid controlled trip valves to produce a turbine trip.

B T 3.3.14 CROSSFLOW FEEDWATER MEASUREMENT SYSTEM

BASES

FUNCTIONALITY Requirements are as follows:

The Unit 2 Crossflow System consists of ultrasonic flow measurement (UFM) devices and computer electronics. The system is a high accuracy flow measurement system which improves the core thermal power (CTP) total loop uncertainty. The UFM feedwater flow rate is determined and compared with the C32 nozzle instrumentation, and a corrected feedwater flow is provided to the process computer for CTP computations.

The above system is required to be functioning properly for the Unit 2 Crossflow System to be considered FUNCTIONAL.

The Surveillance Requirement (TSR) provides for continuous monitoring by the process computer for Crossflow System alarms. The ACTION Statement is entered when a process computer Crossflow System out of service alarm remains on for greater than a continuous 5-hour period. Upon entry into the ACTION Statement, the 5 hours shall be subtracted from the 72-hour Completion Time.

B T 3.9.4 CRANE TRAVEL

BASES

BACKGROUND

NUREG-0612, “Control of Heavy Loads at Nuclear Power Plants,” (Ref. 1) was developed as an outgrowth of Generic Task A-36, “Control of Heavy Loads Near Spent Fuel.” Following issuance of NUREG-0612, Generic Letter 80-113, dated December 22, 1980, was issued requesting that responses be prepared to indicate the degree of conformance with the guidelines of NUREG-0612. This generic letter was supplemented by GL 81-07, “Control of Heavy Loads,” dated February 3, 1981. The generic letters provided for responses in two stages. The first response, Phase I, was to identify the load handling equipment within the scope of NUREG-0612 and to describe the associated load paths, procedures, operator training, special and general purpose lifting devices, the maintenance, testing, and repair of equipment, and the handling equipment specifications. Phase II was intended to show that either single-failure-proof handling equipment was not needed or that single-failure-proof equipment had been provided. On April 19, 1984, the NRC issued a Safety Evaluation Report (SER) for Phase I of the Plant Hatch response to the generic letter. That letter and SER concluded that the guidelines in NUREG-0612, Sections 5.1.1 and 5.3 have been satisfied, and thus, NRC concluded that Phase I for Plant Hatch was acceptable.

In May 2007, Regulatory Issue Summary 2005-25 Supplement 1, “Clarification of NRC Guidelines for Control of Heavy Loads,” (Ref. 2) was issued by the NRC. In that RIS, the NRC addressed the following two points: first, load drop analyses performed in association with nonsingle-failure-proof cranes are to be incorporated into the FSAR such that it contains a description of the consequence evaluation and elements of the underlying analyses necessary to make the description complete and accurate; and second, the NRC will not allow new plants to use synthetic slings for use with single-failure-proof cranes. The RIS states that, due to the industry experience of heavy load drops with synthetic slings, the occurrence of single operational errors below the hook that result in synthetic round sling failures is incompatible with the intent of single-failure-proof handling systems. The NRC went on to note that it was not “backfitting” this requirement to current operating reactors. Thus, the current licensing basis for heavy loads at Plant Hatch continues to be as described in the April 19, 1984, SER. RIS 2005-25, Supplement 1 discussion regarding use of synthetic slings represents additional NRC guidance for safe movement of heavy loads.

(continued)

B T 3.9.4 CRANE TRAVEL

BASES (continued)

TLCO

This TLCO prohibits loads > 1250 lb from traveling over fuel assemblies in the spent fuel storage pool racks, except as noted below. This weight limit corresponds to the dry weight of a single spent fuel assembly and corresponding handling tool, which is the heavy load limit as described in NUREG-0612. This weight limit is an initial assumption in the accident analysis for the fuel handling accident. Therefore, dropping of a load weighing ≤ 1250 lb remains bounded by the fuel handling accident. The only permitted exceptions for loads > 1250 lb are single-failure-proof lifts which comply with the following requirements, in addition to existing requirements regarding procedural controls for heavy lifts, training of crane operators, and crane design, inspection, and maintenance.

- The Unit 1 single-failure-proof crane shall be used.
- In order to meet the intent of NUREG-0612, movement over irradiated fuel should be minimized to the extent possible and should comply with the approved safe load path.
- All nonstructural equipment > 1250 lb shall be removed from the load prior to movement.
- Lift shall have an engineering evaluation to ensure structural adequacy of the load relative to the defined lift points.
- Lifting devices shall be ANSI B30.9-1971 (Ref. 3) compliant and be constructed of metallic material, or shall be special lifting devices that satisfy ANSI N14.6-1978 (Ref. 4).

The use of a single-failure-proof crane in conjunction with the specified lifting devices described above meets the requirements of NUREG-0612 as clarified by the NRC's current position regarding use of synthetic slings stated in Regulatory Issue Summary 2005-025, Supplement 1 (See Background section).

APPLICABILITY

This TLCO is applicable to the reactor refueling floor during all modes of operation whenever there are fuel assemblies in the spent fuel storage pool racks.

(continued)

B T 3.9.4 CRANE TRAVEL

BASES (continued)

REFERENCES

1. NUREG-0612, “Control of Heavy Loads at Nuclear Power Plants,” July 1980.

2. NRC Regulatory Issue Summary 2005-25, Supplement 1.

3. ANSI B30.9-1971, “Slings.”

4. ANSI N14.6-1978, “Standard For Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds or More for Nuclear Materials.”

5. GE-NE-0000-0078-2619-R0, “ 360 Degree Auxiliary Work Platform Load Drop Analysis,” December 2007.

6. BH0-C-S08-V002-0001, Drop Load Analysis For Control of Heavy Loads/Floor Slab Analysis,” Rev. 1, May 1986.

B T 3.10.1 EMERGENCY RESPONSE FACILITIES

BASES

APPLICABILITY

This TLCO is applicable to the Technical Support Center (TSC), the Operations Support Center (OSC), and the Emergency Operations Facility (EOF).

Emergency events could occur during all modes of operation; consequently, the emergency response facilities (ERFs) shall be FUNCTIONAL at all times.

CONDITIONS

Condition A

The 30-minute out-of-service time is acceptable since alternate facilities are available to provide the emergency response functions during the time the primary ERF is nonfunctional. If the alternate facilities are not available, then CONDITION B is immediately entered.

The Note indicates that this action does not apply to the EOF since it does not have an alternate facility.

Note 3 modifies the CONDITION statements when it is determined that the primary ERF can at any time during its out-of-service period be returned to service within 30 minutes. In that case, the ERF is considered FUNCTIONAL and the CONDITION statements may be exited. Similarly, if the ERF is to be deliberately taken out of service but will be capable of being returned to service at any time within 30 minutes, the ERF is considered FUNCTIONAL and the CONDITION statements are not required to be entered.

Condition B

If the alternate facilities are available, then no compensatory actions may be needed, provided the necessary compensatory actions are encompassed in the procedures for the alternate facilities. If the alternate facilities are not available, then compensatory actions must immediately be put in place.

There is no alternate EOF.

The NRC must be notified via a 50.72(b)(3)(xiii) eight-hour telephone call if the ERF is discovered out of service and is expected to remain out of service for greater than 30 minutes, or of it remains out of service for longer than 30 minutes.

(continued)

B T 3.10.1 EMERGENCY RESPONSE FACILITIES (continued)

BASES

As indicated on Note 4 of the ACTIONS section, if the ERF will deliberately be taken out of service for a period longer than 30 minutes, a 50.54(q) evaluation shall be written. If the 50.54(q) evaluation determines that the effectiveness of the Emergency Plan is decreased, the evaluation must be completed and submitted to NRC Headquarters, and that approval must be received prior to the ERF being taken out of service.

Admittedly, the term "high priority" is subjective. Consequently, the following clarification is provided: In the context of this TLCO, "high priority" is taken to mean that returning the primary ERF to FUNCTIONAL status will be the overriding objective. Priority is not given to, for example, staying within budgetary or scheduling constraints.

FUNCTIONALITY REQUIREMENTS

Scheduled outages affecting emergency response facilities shall be limited to no more than 16 hours per calendar quarter.

TSC

The following is required for functionality of the TSC:

- The ventilation system for filtration and climate control.
- Offsite dose projection equipment.
- Communication capability between control room, TSC, OSC, EOF, field monitoring teams, and offsite agencies.
- Event assessment capability.

If any of the following are out of service, the impact of their loss shall be evaluated in determining the ability of the TSC to perform its safety function:

- The following communication systems:

FUNCTION	EQUIPMENT
TSC management with EOF	Commercial telephone lines, TSC/EOF/OSC conference bridge
Resource management	Commercial telephone lines Local area network (LAN)
Radiological monitoring	Southern Linc Kenwood Radio System

(continued)

B T 3.10.1 EMERGENCY RESPONSE FACILITIES (continued)

BASES

Notifications and offsite protective action recommendations (PARs)	Emergency Notification Network (ENN)
NRC notifications	Emergency Notification System (ENS)

- Availability of plant procedures and plant drawings. For example:

Technical Specifications, EOPs, plant operating procedures, emergency implementing procedures, system piping and instrumentation drawings, and elementary drawings.

- Emergency supplies and equipment as delineated in the Emergency Plan, section H, appendix 4.

- Technical data displays for event assessment.

<u>OSC</u>

The following is required for functionality of the OSC:

- Communication capability with the TSC and control room.

- The Health Physics emergency HVAC system for climate control.

If any of the following are out of service, the impact of their loss shall be evaluated in determining the ability of the OSC to perform its required function.

- Emergency equipment supplies as delineated in the Emergency Plan, section H, appendix 4.

- Communication devices capable of performing the indicated function as provided below:

FUNCTION	EQUIPMENT
OSC management with TSC	Commercial telephone lines TSC/EOF/OSC conference bridge
Resource management	Commercial telephone lines
Radiological monitoring	Southern Linc Kenwood Radio System

(continued)

B T 3.10.1 EMERGENCY RESPONSE FACILITIES (continued)

BASES

EOF

The following is required for functionality of the EOF:

- Offsite dose projection capability.
- Communication capability between control room, TSC, OSC, EOF, and offsite agencies.

If any of the following are out of service, the impact of their loss shall be evaluated in determining the ability of the EOF to perform its required function:

- Technical data displays.
- Availability of procedural information for EOF positions.
- Communication devices capable of performing the indicated function as provided.

FUNCTION	EQUIPMENT
TSC management with EOF	Commercial telephone lines TSC/EOF/OSC conference bridge
Resource management	Commercial telephone lines Local area network (LAN)
Radiological monitoring	Southern Linc Kenwood Radio System
Notifications and offsite protective actions recommendations	Emergency Notification Network (ENN)
NRC notifications	Emergency Notification System (ENS)

SURVEILLANCE REQUIREMENTS

42SV-X75-001-1 requires functional testing of the TSC ventilation and filtration system. A suitable environment must be maintained in the TSC for personnel occupancy and equipment operation during radiological events. To accomplish this, the TSC ventilation and filtration system provides an adequate supply of filtered fresh air during accident conditions, as well as minimizing airborne radioactivity in the TSC during and after an accident.

(continued)

B T 3.10.1 EMERGENCY RESPONSE FACILITIES

BASES

SURVEILLANCE REQUIREMENTS (continued)

Functional testing of the ventilation system is therefore performed to ensure the TSC remains habitable.

73EP-TET-001-0 requires that Channel Checks be performed of the technical data displays in the TSC and EOF. These displays must be functional to allow TSC personnel to adequately diagnose abnormal plant conditions during accident scenarios. In the EOF, data displays are used to keep abreast of plant conditions during the emergency. Channel Checks are qualitative assessments by observation of channel behavior. The determination includes, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter. So, for example, the TSC and EOF data displays may be compared to each other, and to indications in the control room. If some of the technical data displays are found nonfunctional, this may not necessarily result in the facility being nonfunctional. Emergency Preparedness personnel shall evaluate the nonfunctional items and determine their effect on the functionality of the TSC and EOF.

73EP-INS-001-0 requires inventory of emergency equipment in the TSC and OSC. 73EP-INS-002-0 requires inventories of procedures in the TSC and OSC. This TSR also ensures the availability of emergency equipment supplies that are normally kept in the TSC and OSC. NMP-EP-300 requires inventory of emergency procedure equipment in the EOF. This surveillance ensures that the ERFs are maintained in a state of readiness with respect to the equipment and items necessary for emergency response. If some items are not in place, they shall be immediately replaced. However, if certain items cannot be replaced, Emergency Preparedness personnel shall evaluate their loss with respect to the functionality of the respective ERF.

73EP-TET-001-0 and NMP-EP-300 require functional testing of offsite dose projection equipment. Initial offsite dose projections are often made from the TSC. Followup projections are usually made from the EOF. Consequently, it is appropriate that both facilities retain functional offsite dose projection equipment. In addition to the testing required by this procedure, the offsite dose projection equipment will be tested during EP drills/exercises conducted each year at Plant Hatch.

73EP-TET-001-0 requires functional testing of the multiline pushbutton / ringdown lines, and the ENN and ENS offsite notification systems. The multiline phones provide communications within the plant during an emergency to facilitate event diagnosis, the assignment and

(continued)

B T 3.10.1 EMERGENCY RESPONSE FACILITIES

BASES

SURVEILLANCE REQUIREMENTS (continued)

dispatch of emergency personnel, and information updates of plant conditions. The ENN and ENS systems are the primary methods of notifying State and local authorities and the NRC and, as such, these systems should remain functional. ENN and ENS equipment is available in both the TSC and EOF. NMP-EP-300 also requires testing of communication equipment such as commercial, Southern Linc, and satellite phones. A nonfunctional communications system will not necessarily indicate a nonfunctional ERF. Emergency Preparedness shall evaluate each case in determining the functionality of the particular ERF.

42SV-741-004-1 requires testing of the Health Physics area emergency filter train. The emergency mode of the Health Physics area ventilation system is required to maintain functionality of the OSC. It is used primarily to maintain habitability of the Health Physics office areas in the case of airborne conditions or when the normal system is unavailable. Health Physics areas must be habitable to support OSC related activities being performed in the Chemistry counting room or Health Physics offices. Consequently, the ventilation system must be FUNCTIONAL and capable of handling potentially airborne conditions. To ensure the ventilation system is capable of maintaining habitability of the Health Physics areas, the emergency mode of the Health Physics ventilation system is periodically tested. This test includes a visual inspection of the filter train, removal of the charcoal samples for analysis, flowrate verification, and HEPA filter in-place leak testing.

TABLE T5.0-1 (Sheet 1 of 3)
ACCEPTANCE CRITERIA

SR 3.1.4.3	SCRAM TIME < 800 psig	(seconds)
"0" psig Scram Time[a]		≤ 2

a. For reactor steam dome pressure < 800 psig, only notch position 06 scram time limit applies. For scram times between 0 psig and 800 psig, the scram time criteria are determined by linear interpolation between the 0 psig acceptance criteria stated here and the 800 psig acceptance criteria stated in TS Table 3.1.4-1.

SR 3.3.1.1.16	RPS RESPONSE TIMES	(seconds)
APRM Two-Out-of-Four Voter		≤ 0.05
Main Steam Isolation Valve - Closure		≤ 0.06
TSV - Closure		≤ 0.06
TCV Fast Closure Trip Oil Pressure - Low		≤ 0.08[d]

b. Not used.
c. The sensor is eliminated from response time testing for this RPS circuit. Response time testing includes the trip unit and relay logic portions of the instrument channel. The response time for the channel sensor may be determined through means other than testing. The measured (test) results are added to the sensor response time for comparison to the given criteria.
d. Measured from start of Turbine Control Valve closure.

SR 3.3.4.1.5 and SR 3.3.4.1.6	EOC-RPT RESPONSE TIMES	(milliseconds)
TSV - Closure		≤ 155
TCV - Fast Closure		≤ 175
Breaker Interruption Time[e]		≤ 135

e. Breaker interruption time consists of breaker response time plus the arc suppression time which is a constant, supplied by the manufacturer, equal to 1/2 cycle (8.33 milliseconds).

TABLE T5.0-1 (Sheet 2 of 3)
ACCEPTANCE CRITERIA

SR 3.3.6.1.7 ISOLATION SYSTEM RESPONSE TIMES	(seconds)
MSL(f) Isolation Flow High	$\leq$ 0.5(g)(h)
MSL(f) Isolation Level 1	$\leq$ 1.0(g)(h)

f. The ISOLATION SYSTEM RESPONSE TIME is applicable to the MSIVs only.
g. Isolation Actuation Instrumentation Response Time. Valve movement times shown in TRM Table T7.0-1 are to be added to the instrumentation response time to obtain ISOLATION SYSTEM RESPONSE TIME.
h. The sensor is eliminated from response time testing for this MSIV actuation logic circuit. Response time testing includes the trip unit and relay logic portions of the instrument channel. The response time for the channel sensor may be determined through means other than testing. The measured (test) results are added to the sensor response time for comparison to the given criteria.

SR 3.5.1.13 ECCS RESPONSE TIMES	(seconds)
Core Spray	$\leq$ 34(i)
LPCI	$\leq$ 64(i)
HPCI	$\leq$ 75(i)

i. The ECCS actuation instrumentation is eliminated from response time testing. Response time testing includes the mechanical components. The response time for the actuation instrumentation may be determined through means other than testing. The measured (test) results are added to the actuation instrumentation response time for comparison to the given criteria.

SAFER/GESTR (DBA LOCA Analysis) Valve Times	(seconds)
2B31-F031 A/B (required closing time)	$\leq$ 43
2E11-F015 A/B (required opening time)	$\leq$ 63
2E21-F005 A/B (required opening time)	$\leq$ 20

42SV-SUV-033-2S LLS CHANNEL CALIBRATION	(seconds)
Arm LLS	$\leq$ 1.0

TABLE T5.0-1 (Sheet 3 of 3)
ACCEPTANCE CRITERIA

SR 3.7.7.3 TURBINE BYPASS SYSTEM RESPONSE TIME	(seconds)
Time from Initial Movement until 80%.Bypass System is required to pass at least 80% of its rated flow within 0.30 seconds after initial movement of a Turbine Control Valve (TCV) or a Turbine Stop Valve (TSV) following a turbine trip. If any individual valve does not meet this Response Time, an evaluation must be performed to determine whether the system as a whole meets this requirement.	$\leq$ 0.30
Time from Initial Movement until Initial Movement of Turbine Bypass System. The Turbine Bypass System contains three Bypass Valves that are analytically modeled as a single valve. Therefore, it is possible for the Turbine Bypass System to meet this Response Time with one or two Bypass Valves exceeding the specified Response Time. If one or two Bypass Valves exceed this Response Time, it is necessary to arithmetically average the Response Times of all three Bypass Valves. If the arithmetic average is equal to or below 0.10 seconds, the Turbine Bypass System is considered to have met the Response Time.	$\leq$ 0.10

TABLE T6.0-1 (Sheet 1 of 4)
INSTRUMENTATION AND CONTROLS REQUIRED FOR REMOTE SHUTDOWN

REQUIRED REMOTE SHUTDOWN FUNCTION	EQUIPMENT OR INDICATION REQUIRED FOR FUNCTION		TRANSFER SWITCH	LOCATION	ALTERNATE INFORMATION SOURCE OR CONTROL SOURCE
RPV Pressure	2B21-F013B	Manual LLS valve	2C82-S1	2C82-P001	
Control-SRVs	2B21-F013F	Manual LLS valve	2C82-S15	2C82-P001	
	2E51-F008	RCIC outboard steam supply isolation MOV	2C82-S2	2C82-P001	
	2E51-F010	RCIC suction from CST MOV			
	2E51-F019	RCIC minimum flow bypass to suppression pool MOV	2C82-S3	2C82-P001	
	2E51-F029	RCIC pump suction from suppression pool MOV			
	2E51-F012	RCIC pump discharge MOV			
	2E51-F013	RCIC injection MOV	2C82-S4	2C82-P001	
	2E51-F022	RCIC test bypass to CST MOV			
RCIC for RPV Makeup	2E51-F524	RCIC turbine trip throttle valve			
	2E51-F045	RCIC steam to turbine MOV	2C82-S5	2C82-P001	
	2E51-F046	RCIC lube oil cooling water MOV			
	2E51-C002-1	RCIC barometric condenser condensate pump			
	2E51-C002-2	RCIC barometric condenser vacuum pump	2C82-S6	2C82-P001	
	2E51-F031	RCIC suction from suppression pool MOV			

TABLE T6.0-1 (Sheet 2 of 4)
INSTRUMENTATION AND CONTROLS REQUIRED FOR REMOTE SHUTDOWN

REQUIRED REMOTE SHUTDOWN FUNCTION	EQUIPMENT OR INDICATION REQUIRED FOR FUNCTION		TRANSFER SWITCH	LOCATION	ALTERNATE INFORMATION SOURCE OR CONTROL SOURCE
RCIC (cont'd)	2C82-R001	RCIC flow controller	2C82-S7	2C82-P001	
	2C82-R003	RCIC speed indicator			
	2C82-R005	Reactor vessel water level	2C82-S18	2C82-P001	
	2E51-F007	RCIC steam supply line inboard isolation MOV	2C82-S53	2C82-P001	
Support Equipment	2P41-C001B	PSW pump	2C82-S70	2H21-P173	
RHR:	2E11-F008	RHR shutdown cooling outboard isolation MOV	2C82-S1	2C82-P001	
	2C82-R004	RHR flow indicator	2C82-S8	2C82-P001	
	2E11-C002B	RHR pump	2C82-S9	2C82-P001	
	2E11-F004B	RHR pump suction MOV	2C82-S10	2C82-P001	
	2E11-F006B	RHR shutdown cooling MOV			
Suppression Pool Cooling	2E11-F006D	RHR shutdown cooling MOV			
and	2E11-F024B	RHR test line isolation MOV	2C82-S11	2C82-P001	
Shutdown Cooling	2E11-F003B	RHR heat exchanger outlet MOV	2C82-S12	2C82-P001	
	2E11-F048B	RHR heat exchanger bypass MOV			
	2E11-C001B[(a)]	RHR service water pump 2B	2C82-S13	2C82-P001	
	2E11-F015B	LPCI inboard injection MOV			
	2E11-F017B	LPCI outboard injection MOV			

TABLE T6.0-1 (Sheet 3 of 4)
INSTRUMENTATION AND CONTROLS REQUIRED FOR REMOTE SHUTDOWN

REQUIRED REMOTE SHUTDOWN FUNCTION	EQUIPMENT OR INDICATION REQUIRED FOR FUNCTION		TRANSFER SWITCH	LOCATION	ALTERNATE INFORMATION SOURCE OR CONTROL SOURCE
RHR (Cont'd)	2E11-C001D[a]	RHR service water pump 2D	2C82-S14	2C82-P001	
	2E11-F028B	RHR suppression pool cooling/spray MOV			
	2B31-F023B	Reactor recirculation pump suction MOV	2C82-S16	2C82-P001	
	2E11-F047B	RHR heat exchanger inlet MOV	2C82-S17	2C82-P001	
	2C82-R006	Reactor vessel pressure instrument	2C82-S18	2C82-P001	
	2E11-F006A	RHR shutdown cooling MOV	2C82-S52	2C82-P001	
	2E11-F006C	RHR shutdown cooling MOV			
	2E11-F009	RHR shutdown cooling inboard isolation MOV	2C82-S53	2C82-P001	
	2E11-F007B	RHR minimum flow MOV	2C82-S80	2C82-P001	
	2E11-R071	RHR service water flow instrument	N/A	2H21-P173	
	2T48-R070	Suppression pool level instrument	N/A	2H21-P173	
	2T48-R072	Suppression pool temperature instrument	N/A	2H21-P173	

TABLE T6.0-1 (Sheet 4 of 4)
INSTRUMENTATION AND CONTROLS REQUIRED FOR REMOTE SHUTDOWN

REQUIRED REMOTE SHUTDOWN FUNCTION	EQUIPMENT OR INDICATION REQUIRED FOR FUNCTION		TRANSFER SWITCH	LOCATION	ALTERNATE INFORMATION SOURCE OR CONTROL SOURCE
	2R43-R752	DG 2A local frequency indication	N/A	2R43-P001A	
		DG 2A local speed setting knob	N/A	DG 2A Woodward Governor	
	2R43-R753	DG 2A local voltage indication	N/A	2R43-P001A	
		DG 2A local auto voltage adjust switch	N/A	2R43-P001A inside	
		DG 2A control switch [CONTROL REMOTE AT ENG. switch]	N/A	2R43-P003A	
	1R43-R766B	DG 1B local frequency indication	N/A	1R43-P001B	
Emergency		DG 1B local speed setting knob	N/A	DG 1B Woodward Governor	
Diesel	1R43-R769B	DG 1B local voltage indication	N/A	1R43-P001B	
Generator		DG 1B local auto voltage adjust switch	N/A	1R43-P001B inside	
Equipment		DG 1B mode switch	2R43-M01	DG 1B room’s north wall	
	2R43-R755	DG 2C local frequency indication	N/A	2R43-P001C	
		DG 2C local speed setting knob	N/A	DG 2C Woodward Governor	
	2R43-R756	DG 2C local voltage indication	N/A	2R43-P001C	
		DG 2C local auto voltage adjust switch	N/A	2R43-P001C inside	
		DG 2C control switch [CONTROL REMOTE AT ENG. switch]	N/A	2R43-P003C	

a. Only one RHR service water pump is required.

TABLE T7.0-1 (Sheet 1 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
1A	Equipment Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
1A	Equipment Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
1B	Equipment Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
1B	Equipment Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
2	Personnel Airlock	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,3,6,54	-
2	Personnel Airlock	Outboard	-	-		-	-	-	-	-	-		-
2	Personnel Airlock	Outboard	Double O-Ring	-	B	-	-	-	-	-	-	1,3,6,54	-
2	Personnel Airlock	Outboard	Barrel	-	B	-	-	-	-	-	-	55	-
3	H202 Sample Supply	Inboard	2P33-F002	AO Globe	C	Spring	Air/DC	10	-	Open	Closed	1,2,3,4	AD
3	H202 Sample Supply	Outboard	2P33-F010	AO Globe	C	Spring	Air/AC	10	-	Open	Closed	1,2,3,4	AD
4	Drywell Head Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
4	Drywell Head Access Hatch	Outboard	-	-		-	-	-	-	-	-		-
5A	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5A	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5B	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5B	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5C	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5C	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5D	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5D	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5E	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5E	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5F	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5F	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5G	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5G	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5H	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
5H	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
6	CRD Removal Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
6	CRD Removal Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
7A	Main Steam	Inboard	2B21-F022A	AO Globe	C	N2/AC/DC	N2/Spring	1	3<T<5	Open	Closed	1,4,7,27,67	RF
7A	Main Steam	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
7A	Main Steam	Outboard	2B21-F028A	AO Globe	C	Air/AC/DC	Air/Spring	1	3<T<5	Open	Closed	1,4,7,27	AD

TABLE T7.0-1 (Sheet 2 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
7A	Main Steam	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
7B	Main Steam	Inboard	2B21-F022B	AO Globe	C	N2/AC/DC	N2/Spring	1	3<T<5	Open	Closed	1,4,7,27,67	RF
7B	Main Steam	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
7B	Main Steam	Outboard	2B21-F028B	AO Globe	C	Air/AC/DC	Air/Spring	1	3<T<5	Open	Closed	1,4,7,27	AD
7B	Main Steam	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
7C	Main Steam	Inboard	2B21-F022C	AO Globe	C	N2/AC/DC	N2/Spring	1	3<T<5	Open	Closed	1,4,7,27,67	RF
7C	Main Steam	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
7C	Main Steam	Outboard	2B21-F028C	AO Globe	C	Air/AC/DC	Air/Spring	1	3<T<5	Open	Closed	1,4,7,27	AD
7C	Main Steam	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
7D	Main Steam	Inboard	2B21-F022D	AO Globe	C	N2/AC/DC	N2/Spring	1	3<T<5	Open	Closed	1,4,7,27,67	RF
7D	Main Steam	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
7D	Main Steam	Outboard	2B21-F028D	AO Globe	C	Air/AC/DC	Air/Spring	1	3<T<5	Open	Closed	1,4,7,27	AD
7D	Main Steam	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
8	Condensate Drain	Inboard	2B21-F016	MO Gate	C	AC	AC	1	-	Closed	Closed	1,2,3,4,28,70	RF
8	Condensate Drain	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5, 63	-
8	Condensate Drain	Outboard	2B21-F019	MO Gate	C	DC	DC	1	-	Closed	Closed	1,2,3,4,28	AD
8	Condensate Drain	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5, 63	-
9A	Primary Feedwater	Inboard	2B21-F010A	Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,9,29,30	AD
9A	Primary Feedwater	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5, 64	-
9A	Primary Feedwater	Outboard	2B21-F077A	AO Check	C	Process	Reverse Flow	-	-	Open	Closed	12,3,4,9,29,30,60	AD
9A	Primary Feedwater	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
9B	Primary Feedwater	Inboard	2B21-F010B	Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,9,29,30	AD
9B	Primary Feedwater	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
9B	Primary Feedwater	Outboard	2B21-F077B	AO Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,9,29,30,60	AD
9B	Primary Feedwater	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
10	Steam to RCIC Turbine	Inboard	2E51-F007	MO Gate	C	AC	AC	4	25	Open	Closed	1,2,3,4,28,70	AD
10	Steam to RCIC Turbine	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
10	Steam to RCIC Turbine	Outboard	2E51-F008	MO Gate	C	DC	DC	4	30	Open	Closed	1,2,3,4,28	AD
10	Steam to RCIC Turbine	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
11	Steam to HPCI Turbine	Inboard	2E41-F002	MO Gate	C	AC	AC	3	57	Open	Closed	1,2,3,4,28,70	RF
11	Steam to HPCI Turbine	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5, 62	-
11	Steam to HPCI Turbine	Outboard	2E41-F003	MO Gate	C	DC	DC	3	67	Open	Closed	1,2,3,4,28	AD
11	Steam to HPCI Turbine	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-

TABLE T7.0-1 (Sheet 3 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
12	RHR Shutdown Cooling Suction	Inboard	2E11-F008	MO Gate	C	DC	DC	6	-	Closed	Closed	1,2,3,4	AD
12	RHR Shutdown Cooling Suction	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
12	RHR Shutdown Cooling Suction	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
12	RHR Shutdown Cooling Suction	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
13A	RHR Return To Recirc Loop	Inboard	2E11-F015A	MO Gate	C	AC	AC	13,j	-	Closed	Closed	1,2,3,4,11,19	AD
13A	RHR Return to Recirc Loop	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
13A	RHR Return to Recirc Loop	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
13A	RHR Return to Recirc Loop	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
13B	RHR Return to Recirc Loop	Inboard	2E11-F015B	MO Gate	C	AC	AC	13,j	-	Closed	Closed	1,2,3,4,11,19	AD
13B	RHR Return to Recirc Loop	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
13B	RHR Return to Recirc Loop	Outboard	Closed System	-		-	-	-	-	-	-	24	-
13B	RHR Return to Recirc Loop	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
14	RWC Supply	Inboard	2G31-F001	MO Gate	C	AC	AC	5,d	30	Open	Closed	1,2,3,4,28	AD
14	RWC Supply	Inboard	Expansion Bellows	-	B	-	-			Open	Closed	1,2,3,5,62	-
14	RWC Supply	Outboard	2G31-F004	MO Gate	C	DC	DC	5,d	40	Open	Closed	1,2,3,4,28	AD
14	RWC Supply	Outboard	Expansion Bellows	-	B	-	-			-	-	1,2,3,5	-
15	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
15	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
16A	Core Spray A Return	Inboard	2E21-F005A	MO Gate	C	AC	AC	-	-	Closed	Closed	1,2,3,4,11,19	AD
16A	Core Spray A Return	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
16A	Core Spray A Return	Outboard	Closed System	-		-	-	-	-	-	-	24	-
16A	Core Spray A Return	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
16B	Core Spray B Return	Inboard	2E21-F005B	MO Gate	C	AC	AC	-	-	Closed	Closed	1,2,3,4,11,19	AD
16B	Core Spray B Return	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
16B	Core Spray B Return	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
16B	Core Spray B Return	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
17	RPV Head Spray	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,62	-
17	RPV Head Spray	Inboard	2E11-F023	MO Globe	C	DC	DC	-	-	Closed	Closed	1,2,3,4,26	AD
17	RPV Head Spray	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
17	RPV Head Spray	Outboard	Closed System	-	-	-	-	-		-	-	24	-
18	Clean Radwaste Pump Disch	Inboard	2G11-F019	AO Globe	C	Air/AC	Spring	2,b	-	Open	Closed	1,2,3,4,28	AD
18	Clean Radwaste Pump Disch	Outboard	2G11-F020	AO Globe	C	Air/AC	Spring	2,b	-	Open	Closed	1,2,3,4,28	AD
19	Dirty Radwaste Pump Disch	Inboard	2G11-F003	AO Globe	C	Air/AC	Spring	2,b	-	Open	Closed	1,2,3,4,28	AD

TABLE T7.0-1 (Sheet 4 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
19	Dirty Radwaste Pump Disch	Outboard	2G11-F004	AO Globe	C	Air/AC	Spring	2,b	-	Open	Closed	1,2,3,4,28	AD
20	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
20	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
21	Service Air	Inboard	2P51-F651	Globe	C	Hand	Hand	-	-	Closed	Closed	1,2,3,4,18	AD
21	Service Air	Outboard	2P51-F513	Globe	C	Hand	Hand	-	-	Closed	Closed	1,2,3,4,18	AD
22	Drywell Pneumatic Supply	Inboard	2P70-F004	SO Globe	C	Spring	AC	13,c	-	Open	Open	1,2,3,4,19,25	AD
22	Drywell Pneumatic Supply	Inboard	2P70-N003	-	C	-	-	-	-	-	-		-
22	Drywell Pneumatic Supply	Outboard	2P70-F005	SO Globe	C	Spring	AC	13,c	-	Open	Open	1,2,3,4,19,25	AD
23	RBCCW Supply	Inboard	Closed System	-	-	-	-	-	-	-	-	19	-
23	RBCCW Supply	Outboard	2P42-F051	MO Gate	C	AC	AC	-	-	Open	Open	1,2,3,4,19	AD
24	RBCCW Return	Inboard	Closed System	-		-	-	-	-	-	-	19	-
24	RBCCW Return	Outboard	2P42-F052	MO Gate	C	AC	AC	-	-	Open	Open	1,2,3,4,19	AD
25	Drywell Purge Supply	Inboard	2T48-F307	AO Btfly	C	Air/AC	Spring	2	-	Closed	Closed	1,2,3,4,72	RF
25	Drywell Purge Supply	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,39	-
25	Drywell N2 Makeup	Inboard	2T48-F118A	AO Globe	C	Air/AC	Spring	11	-	Open	Closed	1,2,3,4,68	RF
25	Drywell Purge Supply	Outboard	2T48-F308	AO Btfly	C	Air/AC	Spring	2	-	Closed	Closed	1,2,3,4	AD
25	Drywell Purge Supply	Outboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,40	-
25	Drywell Purge Supply	Outboard	2T48-F103	AO Btfly	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4	AD
25	Drywell Purge Supply	Outboard	2T48-D006	Blind Flange	C	-	-	-	--	-	-		-
25	Drywell N2 Makeup	Outboard	2T48-F104	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4	AD
26	Drywell Main Exhaust	Inboard	2T48-F319	AO Btfly	C	Air/AC	Spring	2	-	Closed	Closed	1,2,3,4,69	RF
26	Drywell Main Exhaust	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,41	-
26	Drywell N2 Exhaust	Inboard	2T48-F341	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4	AD
26	Drywell Main Exhaust	Outboard	2T48-F320	AO Btfly	C	AC/Air	Spring	2	-	Closed	Closed	1,2,3,4	AD
26	Drywell Main Exhaust	Outboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,42	-
26	Drywell N2 Exhaust	Outboard	2T48-F340	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4	AD
27A	Recirc Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
27A	Recirc Line A Flow	Outboard	2B31-F009B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
27A	Recirc Line A Flow	Outboard	2B31-F009C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
27B	Recirc Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
27B	Recirc Line A Flow	Outboard	2B31-F010B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
27B	Recirc Line A Flow	Outboard	2B31-F010C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
27C	Pump C001A Seal Purge	Inboard	2B31-F013A	Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,43	AD

TABLE T7.0-1 (Sheet 5 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
27C	Pump C001A Seal Purge	Outboard	2B31-F017A	Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,43	AD
28	H202 Sample Return	Inboard	2P33-F004	AO Globe	C	Spring	Air/DC	10	-	Open	Closed	1,2,3,4	AD
28	H202 Sample Return	Outboard	2P33-F012	AO Globe	C	Spring	Air/AC	10	-	Open	Closed	1,2,3,4	AD
29A	Recirc Line B Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
29A	Recirc Line B Flow	Outboard	2B31-F011A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
29A	Recirc Line B Flow	Outboard	2B31-F011D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
29B	Recirc Line B Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
29B	Recirc Line B Flow	Outboard	2B31-F012A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
29B	Recirc Line B Flow	Outboard	2B31-F012D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
29C	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
29C	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
30A	Recirc Line B Press (spared)	Inboard	2B31-F058B	Globe	A	Hand	Hand	-	-	Closed	Closed	1,2,3,4,15	-
30A	Recirc Line B Press (spared)	Outboard	Swagelock Cap	-	A	-	-	-	-	-	-	15,32	-
30B	Recirc Pump B Disch Press	Inboard	Orifice	-	-	-	-	-	-	-	-		-
30B	Recirc Pump B Disch Press	Outboard	2B31-F040B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
30C	Recirc Pump B Suct Press	Inboard	Orifice	-	-	-	-	-	-	-	-		-
30C	Recirc Pump B Suct Press	Outboard	2B31-F040D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
30D	Recirc Pump B Seal 2	Inboard	Orifice	-	-	-	-	-	-	-	-		-
30D	Recirc Pump B Seal 2	Outboard	2B31-F003B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
30E	Recirc Pump B Seal 1	Inboard	Orifice	-	-	-	-	-	-	-	-		-
30E	Recirc Pump B Seal 1	Outboard	2B31-F004B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
30F	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
30F	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
31A	Recirc Line A (spared)	Inboard	2B31-F058A	Globe	A	Hand	Hand	-	-	Closed	Closed	1,2,3,4,15	-
31A	Recirc Line A (spared)	Outboard	Swagelock Cap	-	A	-	-	-	-	-	-	15,32	-
31B	Recirc Pump A Disch Press	Inboard	Orifice	-	-	-	-	-	-	-	-		-
31B	Recirc Pump A Disch Press	Outboard	2B31-F040A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
31C	Recirc Pump A Suct Press	Inboard	Orifice	-	-	-	-	-	-	-	-		-
31C	Recirc Pump A Suct Press	Outboard	2B31-F040C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
31D	Recirc Pump A Seal 2	Inboard	Orifice	-	-	-	-	-	-	-	-		-
31D	Recirc Pump A Seal 2	Outboard	2B31-F003A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
31E	Recirc Pump A Seal 1	Inboard	Orifice	-	-	-	-	-	-	-	-		-
31E	Recirc Pump A Seal 1	Outboard	2B31-F004A	EFCV	A	Spring	Process	-	-	Open	Open	56	-

TABLE T7.0-1 (Sheet 6 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
31F	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
31F	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
32A	Drywell Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
32A	Drywell Pressure	Outboard	2E11-F041D	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
32B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
32B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
32C	Drywell Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
32C	Drywell Pressure	Outboard	2E11-F041B	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
33A	Main Steam Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
33A	Main Steam Line A Flow	Outboard	2B21-F072A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
33B	Main Steam Line B Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
33B	Main Steam Line B Flow	Outboard	2B21-F072B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
33C	Main Steam Line B Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
33C	Main Steam Line B Flow	Outboard	2B21-F071B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
33D	Main Steam Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
33D	Main Steam Line A Flow	Outboard	2B21-F071A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
33E	Main Steam Line C Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
33E	Main Steam Line C Flow	Outboard	2B21-F071C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
33F	Main Steam Line C Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
33F	Main Steam Line C Flow	Outboard	2B21-F072C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
34A	Main Steam Line D Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
34A	Main Steam Line D Flow	Outboard	2B21-F072D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
34B	Main Steam Line D Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
34B	Main Steam Line D Flow	Outboard	2B21-F071D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
34C	ILRT Verification Flow	Inboard	2T23-F004	Globe	C	Hand	Hand	-	-	Closed	Closed	1,2,3,4,18	AD
34C	ILRT Verification Flow	Outboard	2T23-F005	Globe	C	Hand	Hand	-	-	Closed	Closed	1,2,3,4,18	AD
34D	Drywell Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
34D	Drywell Pressure	Outboard	2T48-F363A	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
34E	RCIC Steam Line DP	Inboard	Orifice	-	-	-	-	-	-	-	-		-
34E	RCIC Steam Line DP	Outboard	2E51-F044C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
34F	RCIC Steam Line DP	Inboard	Orifice	-	-	-	-	-	-	-	-		-
34F	RCIC Steam Line DP	Outboard	2E51-F044A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
35A	TIP Drive D	Inboard	Ball Vlv For J004D	Ball	C	AC	AC	13,e	NA	Closed	Closed	1,2,3,4,13	AD

TABLE T7.0-1 (Sheet 7 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
35A	TIP Drive D	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
35A	TIP Drive D	Outboard	Shear Vlv For J004D	Shear	-	-	DC,Explosive	-	-	Open	As Req.	13,34	-
35B	TIP Drive A	Inboard	Ball Vlv For J004A	Ball	C	AC	AC	13,e	NA	Closed	Closed	1,2,3,4,13	AD
35B	TIP Drive A	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
35B	TIP Drive A	Outboard	Shear Vlv For J004A	Shear	-	-	DC,Explosive	-	-	Open	As Req.	13,34	-
35C	TIP Drive C	Inboard	Ball Vlv For J004C	Ball	C	AC	AC	13,e	NA	Closed	Closed	1,2,3,4,13	AD
35C	TIP Drive C	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
35C	TIP Drive C	Outboard	Shear Vlv For J004C	Shear	-	-	DC,Explosive	-	-	Open	As Req.	13,34	-
35D	TIP Drive B	Inboard	Ball Vlv For J004B	Ball	C	AC	AC	13,e	NA	Closed	Closed	1,2,3,4,13	AD
35D	TIP Drive B	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
35D	TIP Drive B	Outboard	Shear Vlv For J004B	Shear	-	-	DC,Explosive	-	-	Open	As Req.	13,34	-
35E	TIP N2 Purge	Inboard	2C51-F3017	Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,21	AD
35E	TIP N2 Purge	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
36	Spare	Inboard	Welded Plate	-	A	-	-	-	-	-	-	-	-
36	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
37A	CRD Insert (typical 38)	Inboard	-	-	C	-	-	-	-	-	-	-	-
37A	CRD Spare (typical 40)	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
37A	CRD Insert (typical 38)	Outboard	2C11-D001-120	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
37A	CRD Insert (typical 38)	Outboard	2C11-D001-123	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
37A	CRD Insert (typical 38)	Outboard	2C11-D001-126	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-
37A	CRD Insert (typical 38)	Outboard	2C11-D001-138	Check	A	Process	Process	-	-	Open	Closed	10,35	-
37A	CRD Spare (typical 40)	Outboard	-	-	A	-	-	-	-	-	-		-
37B	CRD Insert (typical 31)	Inboard	-	-	-	-	-	-	-	-	-		-
37B	CRD Spare (typical 33)	Inboard	Welded Cap	-	A	-	-	-	-	-	-		-
37B	CRD Insert (typical 31)	Outboard	2C11-D001-120	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
37B	CRD Insert (typical 31)	Outboard	2C11-D001-123	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
37B	CRD Insert (typical 31)	Outboard	2C11-D001-126	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-
37B	CRD Insert (typical 31)	Outboard	2C11-D001-138	Check	A	Process	Process	-	-	Open	Closed	10,35	-
37B	CRD Spare (typical 33)	Outboard	-	-	A	-	-	-	-	-	-		-
37C	CRD Insert (typical 31)	Inboard	-	-	-	-	-	-	-	-	-		-
37C	CRD Spare (typical 33)	Inboard	Welded Cap	-	A	-	-	-	-	-	-		-
37C	CRD Insert (typical 31)	Outboard	2C11-D001-120	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
37C	CRD Insert (typical 31)	Outboard	2C11-D001-123	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-

TABLE T7.0-1 (Sheet 8 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
37C	CRD Insert (typical 31)	Outboard	2C11-D001-126	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-
37C	CRD Insert (typical 31)	Outboard	2C11-D001-138	Check	A	Process	Process	-	-	Open	Closed	10,35	-
37C	CRD Spare (typical 33)	Outboard	-	-	-	-	-	-	-	-	-		-
37D	CRD Insert (typical 37)	Inboard	-	-	-	-	-	-	-	-	-		-
37D	CRD Spare (typical 39)	Inboard	Welded Cap	-	A	-	-	-	-	-	-		-
37D	CRD Insert (typical 37)	Outboard	2C11-D001-120	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
37D	CRD Insert (typical 37)	Outboard	2C11-D001-123	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
37D	CRD Insert (typical 37)	Outboard	2C11-D001-126	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-
37D	CRD Insert (typical 37)	Outboard	2C11-D001-138	Check	A	Process	Process	-	-	Open	Closed	10,35	-
37D	CRD Spare (typical 39)	Outboard	-	-	-	-	-	-	-	-	-		-
38A	CRD Insert (typical 38)	Inboard	-	-	-	-	-	-	-	-	-		-
38A	CRD Spare (typical 40)	Inboard	Welded Cap	-	A	-	-	-	-	-	-		-
38A	CRD Insert (typical 38)	Outboard	2C11-D001-121	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
38A	CRD Insert (typical 38)	Outboard	2C11-D001-122	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
38A	CRD Insert (typical 38)	Outboard	2C11-D001-127	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-
38A	CRD Spare (typical 40)	Outboard	-	-	-	-	-	-	-	-	-		-
38B	CRD Insert (typical 31)	Inboard	-	-	-	-	-	-	-	-	-		-
38B	CRD Spare (typical 33)	Inboard	Welded Cap	-	A	-	-	-	-	-	-		-
38B	CRD Insert (typical 31)	Outboard	2C11-D001-121	Solenoid	A	-	Spring	-	-	Closed	Closed	10,35	-
38B	CRD Insert (typical 31)	Outboard	2C11-D001-122	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
38B	CRD Insert (typical 31)	Outboard	2C11-D001-127	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-
38B	CRD Spare (typical 33)	Outboard	-	-	-	-	-	-	-	-	-		-
38C	CRD Insert (typical 31)	Inboard	-	-	-	-	-	-	-	-	-		-
38C	CRD Spare (typical 33)	Inboard	Welded Cap	-	A	-	-	-	-	-	-		-
38C	CRD Insert (typical 31)	Outboard	2C11-D001-121	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
38C	CRD Insert (typical 31)	Outboard	2C11-D001-122	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
38C	CRD Insert (typical 31)	Outboard	2C11-D001-127	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-
38C	CRD Spare (typical 33)	Outboard	-	-	-	-	-	-	-	-	-		-
38D	CRD Insert (typical 37)	Inboard	-	-	-	-	-	-	-	-	-		-
38D	CRD Spare (typical 39)	Inboard	Welded Cap	-	A	-	-	-	-	-	-		-
38D	CRD Insert (typical 37)	Outboard	2C11-D001-121	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
38D	CRD Insert (typical 37)	Outboard	2C11-D001-122	Solenoid	A	AC	Spring	-	-	Closed	Closed	10,35	-
38D	CRD Insert (typical 37)	Outboard	2C11-D001-127	AO Globe	A	Spring	Air/AC	-	-	Closed	Open	10,35	-

TABLE T7.0-1 (Sheet 9 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
38D	CRD Spare (typical 39)	Outboard	-	-	-	-	-	-	-	-	-		-
39A	Containment Spray	Inboard	2E11-F016A	MO Globe	C	AC	AC	13,g	-	Closed/K	Closed	1,2,3,4,8	AD
39A	Containment Spray	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
39B	Containment Spray	Inboard	2E11-F016B	MO Globe	C	AC	AC	13,g	-	Closed/K	Closed	1,2,3,4,8	AD
39B	Containment Spray	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
40A (A)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40A (A)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40A (B)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40A (B)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40A (C)	Press Above Core Plate	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40A (C)	Press Above Core Plate	Outboard	2E21-F018C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40A (D)	Press Below Core Plate	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40A (D)	Press Below Core Plate	Outboard	2B21-F061	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40A (E)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40A (E)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40A (F)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40A (F)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40B (A)	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40B (A)	Jet Pump Inst	Outboard	2B21-F053A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40B (B)	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40B (B)	Jet Pump Inst	Outboard	2B21-F059C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40B (C)	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40B (C)	Jet Pump Inst	Outboard	2B21-F051A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40B (D)	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40B (D)	Jet Pump Inst	Outboard	2B21-F059E	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40B (E)	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40B (E)	Jet Pump Inst	Outboard	2B21-F059G	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40B (F)	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40B (F)	Jet Pump Inst	Outboard	2B21-F059A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40C (A)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40C (A)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40C (B)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40C (B)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-

TABLE T7.0-1 (Sheet 10 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
40C (C)	Press Above Core Plate	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40C (C)	Press Above Core Plate	Outboard	2B21-F055	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40C (D)	Press Below Core Plate	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40C (D)	Press Below Core Plate	Outboard	2B21-F057	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40C (E)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40C (E)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40C (F)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40C (F)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40D (A)	HPCI Steam Line DP Instrumentation	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40D (A)	HPCI Steam Line DP Instrumentation	Outboard	2E41-F024B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40D (B)	HPCI Steam Line DP Instrumentation	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40D (B)	HPCI Steam Line DP Instrumentation	Outboard	2E41-F024D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
40D (C)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40D (C)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40D (D)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40D (D)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40D (E)	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
40D (E)	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
40D (F)	CS Diff Press Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
40D (F)	CS Diff Press Inst	Outboard	2E21-F018B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
41	Reactor Water Sample Line	Inboard	2B31-F019	AO Globe	C	N2/AC	Spring	1,a	-	Open	Closed	1,2,3,4	AD
41	Reactor Water Sample Line	Outboard	2B31-F020	AO Globe	C	Air/AC	Spring	1,a	-	Open	Closed	1,2,3,4	AD
42	Standby Liquid Control	Inboard	2C41-F007	Check	C	Process	Reverse Flow	-	-	Closed	Closed	1,2,3,4,44	AD
42	Standby Liquid Control	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5	-
42	Standby Liquid Control	Outboard	2C41-F006	Check	C	Process	Reverse Flow	-	-	Closed	Closed	1,2,3,4,44	AD
42	Standby Liquid Control	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,	-
43	Drywell Test and Fill	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
43	Drywell Test and Fill	Outboard	-	-	-	-	-	-	-	-	-		-
44	Drywell N2 Makeup Inlet	Inboard	2T48-F322	AO Globe	C	N2/AC	Spring	-	-	Closed	Closed	1,2,3,4,20	AD
44	Drywell N2 Makeup Inlet	Outboard	2T48-F321	AO Globe	C	N2/AC	Spring	-	-	Closed	Closed	1,2,3,4,17,20	AD
45A	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
45A	Jet Pump Inst	Outboard	2B21-F053C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
45B	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-

TABLE T7.0-1 (Sheet 11 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
45B	Jet Pump Inst	Outboard	2B21-F059L	EFCV	A	Spring	Process	-	-	Open	Open	56	-
45C	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
45C	Jet Pump Inst	Outboard	2B21-F059R	EFCV	A	Spring	Process	-	-	Open	Open	56	-
45D	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
45D	PASS	Inboard	2B21-F111	AO Gate	C	Air/AC	Spring	-	-	Closed	Closed	1,2,3,4,45	AD
45D	Jet Pump Inst	Outboard	2B21-F051C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
45D	PASS	Outboard	2B21-F112	AO Gate	C	Air/AC	Spring	-	-	Closed	Closed	1,2,3,4,45	AD
45E	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
45E	Jet Pump Inst	Outboard	2B21-F059T	EFCV	A	Spring	Process	-	-	Open	Open	56	-
45F	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
45F	Jet Pump Inst	Outboard	2B21-F059N	EFCV	A	Spring	Process	-	-	Open	Open	56	-
46	Demineralized Water	Inboard	2P21-F034	Gate	C	Hand	Hand	-	-	Closed/L	Closed	1,2,3,4,18	AD
46	Demineralized Water	Outboard	2P21-F032	Gate	C	Hand	Hand	-	-	Closed/L	Closed	1,2,3,4,18	AD
47	Chilled Water Supply	Inboard	Closed System	-	-	-	-	-	-	-	-	19,36	-
47	Chilled Water Supply	Outboard	2P64-F045	MO Globe	C	AC	AC	-	-	Open	Open	1,2,3,4,19	AD
48	Chilled Water Return	Inboard	Closed System	-	-	-	-	-	-	-	-	19,36	-
48	Chilled Water Return	Outboard	2P64-F047	MO Globe	C	AC	AC	-	-	Open	Open	1,2,3,4,19	AD
49A	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
49A	Jet Pump Inst	Outboard	2B21-F053B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
49B	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
49B	Jet Pump Inst	Outboard	2B21-F059D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
49C	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
49C	Jet Pump Inst	Outboard	2B21-F051B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
49D	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
49D	Jet Pump Inst	Outboard	2B21-F059F	EFCV	A	Spring	Process	-	-	Open	Open	56	-
49E	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
49E	Jet Pump Inst	Outboard	2B21-F059H	EFCV	A	Spring	Process	-	-	Open	Open	56	-
49F	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
49F	Jet Pump Inst	Outboard	2B21-F059B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
50A	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
50A	Jet Pump Inst	Outboard	2B21-F053D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
50B	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
50B	Jet Pump Inst	Outboard	2B21-F059M	EFCV	A	Spring	Process	-	-	Open	Open	56	-

TABLE T7.0-1 (Sheet 12 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
50C	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
50C	Jet Pump Inst	Outboard	2B21-F059S	EFCV	A	Spring	Process	-	-	Open	Open	56	-
50D	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-	-	-
50D	Jet Pump Inst	Outboard	2B21-F051D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
50E	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
50E	Jet Pump Inst	Outboard	2B21-F059U	EFCV	A	Spring	Process	-	-	Open	Open	56	-
50F	Jet Pump Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
50F	Jet Pump Inst	Outboard	2B21-F059P	EFCV	A	Spring	Process	-	-	Open	Open	56	-
51A	RCIC Steam Line DP Instrumentation	Inboard	Orifice	-	-	-	-	-	-	-	-		-
51A	RCIC Steam Line DP Instrumentation	Outboard	2E51-F044D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
51B	RCIC Steam Line DP Instrumentation	Inboard	Orifice	-	-	-	-	-	-	-	-		-
51B	RCIC Steam Line DP Instrumentation	Outboard	2E51-F044B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
51C	Drywell Pneumatic Supply	Inboard	2P70-F066	SO Globe	C	Spring	AC	13,c	-	Open	Open	1,2,3,4,19,25	AD
51C	Drywell Pneumatic Supply	Inboard	2P70-N016	-	C	-	-	-	-	-	-		-
51C	Drywell Pneumatic Supply	Outboard	2P70-F067	SO Globe	-	Spring	AC	13,c	-	Open	Open	1,2,3,4,19,25	AD
51D	Drywell Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
51D	Drywell Pressure	Outboard	2T48-F363B	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33,73	AD
51E	Main Steam Line D Flow	Inboard	Orifice	-	-	-	-	-	-		-		-
51E	Main Steam Line D Flow	Outboard	2B21-F070D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
51F	Main Steam Line D Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
51F	Main Steam Line D Flow	Outboard	2B21-F073D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
52A	Main Steam Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
52A	Main Steam Line A Flow	Outboard	2B21-F073A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
52B	Main Steam Line C Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
52B	Main Steam Line C Flow	Outboard	2B21-F073C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
52C	Main Steam Line C Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
52C	Main Steam Line C Flow	Outboard	2B21-F070C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
52D	Main Steam Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
52D	Main Steam Line A Flow	Outboard	2B21-F070A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
52E	Main Steam Line B Flow	Inboard	Orifice	-	-	-	-	-	-		-		-
52E	Main Steam Line B Flow	Outboard	2B21-F070B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
52F	Main Steam Line B Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
52F	Main Steam Line B Flow	Outboard	2B21-F073B	EFCV	A	Spring	Process	-	-	Open	Open	56	-

TABLE T7.0-1 (Sheet 13 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
53A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
53A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
53B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
53B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
53C	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
53C	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
53D	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
53D	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
53E	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
53E	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
53F	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
53F	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
54A	Drywell Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
54A	Drywell Pressure	Outboard	2E11-F041C	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
54B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
54B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
54C	Drywell Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
54C	Drywell Pressure	Outboard	2E11-F041A	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
55	Chemical Pump Discharge	Inboard	2G11-F852	Gate	C	Hand	Hand	-	-	Closed/LC	Closed	1,2,3,4,18,28	AD
55	Chemical Pump Discharge	Outboard	2G11-F853	Gate	C	Hand	Hand	-	-	Closed/LC	Closed	1,2,3,4,18,28	AD
56A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
56A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
56B	RPV Level and DP Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
56B	RPV Level and DP Inst	Outboard	2B21-F047A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
56C	RPV Level Inst	Inbaord	Orifice	-	-	-	-	-	-	-	-		-
56C	RPV Level Inst	Outboard	2B21-F045A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
56D	RPV Level and Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
56D	RPV Level and Pressure	Outboard	2B21-F049A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
56E	RPV Level and Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
56E	RPV Level and Pressure	Outboard	2B21-F043A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
56F	RPV Level Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
56F	RPV Level Inst	Outboard	2B21-F041	EFCV	A	Spring	Process	-	-	Open	Open	56	-
57A	Recirc Line B Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-

TABLE T7.0-1 (Sheet 14 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
57A	Recirc Line B Flow	Outboard	2B31-F011B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
57A	Recirc Line B Flow	Outboard	2B31-F011C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
57B	Recirc Line B Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
57B	Recirc Line B Flow	Outboard	2B31-F012B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
57B	Recirc Line B Flow	Outboard	2B31-F012C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
57C	Recirc Pump B Seal Purge	Inboard	2B31-F013B	Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,43	AD
57C	Recirc Pump B Seal Purge	Outboard	2B31-F017B	Check	C	Process	Reverse Flow	-	-	Open	Closed	1,2,3,4,43	AD
58	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
58	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
59A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
59A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
59B	RPV Level and DP Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
59B	RPV Level and DP Inst	Outboard	2B21-F047B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
59C	RPV Level Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
59C	RPV Level Inst	Outboard	2B21-F045B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
59D	RPV Level and Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
59D	RPV Level and Pressure	Outboard	2B21-F049B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
59E	RPV Level and Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
59E	RPV Level and Pressure	Outboard	2B21-F043B	EFCV	A	Spring	Process	-	-	Open	Open	56	-
59F	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
59F	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
60A	H2O2 Sample Supply	Inboard	2P33-F003	AO Globe	C	Spring	DC/Air	10	-	Open	Closed	1,2,3,4	AD
60A	H2O2 Sample Supply	Outboard	2P33-F011	AO Globe	C	Spring	Air/AC	10	-	Open	Closed	1,2,3,4	AD
60B	FPM Sample Return	Inboard	2D11-F050	AO Globe	C	Air/DC	Spring	11	-	Open	Closed	1,2,3,4	AD
60B	FPM Sample Return	Outboard	2D11-F052	AO Globe	C	Air/AC	Spring	11	-	Open	Closed	1,2,3,4	AD
61A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
61A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
61B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
61B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
62	FPM Sample Supply	Inboard	2D11-F051	AO Globe	C	Air/AC	Spring	11	-	Open	Closed	1,2,3,4	AD
62	FPM Sample Supply	Outboard	2D11-F053	AO Globe	C	Air/AC	Spring	11	-	Open	Closed	1,2,3,4	AD
63	Drywell Pneumatic Suction	Inboard	2P70-F002	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4	AD
63	Drywell Pneumatic Suction	Inboard	2P70-F003	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4	AD

TABLE T7.0-1 (Sheet 15 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
64	H2O2 Sample Return	Inboard	2P33-F005	AO Globe	C	Spring	DC/Air	10	-	Open	Closed	1,2,3,4	AD
64	H2O2 Sample Return	Outboard	2P33-F013	AO Globe	C	Spring	Air/AC	10	-	Open	Closed	1,2,3,4	AD
65	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
65	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
66A	Recirc Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
66A	Recirc Line A Flow	Outboard	2B31-F009A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
66A	Recirc Line A Flow	Outboard	2B31-F009D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
66B	Recirc Line A Flow	Inboard	Orifice	-	-	-	-	-	-	-	-		-
66B	Recirc Line A Flow	Outboard	2B31-F010A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
66B	Recirc Line A Flow	Outboard	2B31-F010D	EFCV	A	Spring	Process	-	-	Open	Open	56	-
66C	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
66C	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
67	Drywell Post Accident Vent	Inboard	2T48-F335B	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4,12,17	AD
67	Drywell Post Accident Vent	Outboard	2T48-F334B	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4,12,17	AD
68	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
68	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
69	Drywell/Torus Diff Press Return	Inboard	2T48-F209	AO Ball	C	Air/AC	Spring	12,k	-	Closed	Closed	1,2,3,4	AD
69	Drywell/Torus Diff Press Return	Outboard	2T48-F210	AO Ball	C	Air/AC	Spring	12,k	-	Closed	Closed	1,2,3,4	AD
70	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
70	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
71	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
71	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
72	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
72	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
73	Post LOCA Radiation Monitor	Inboard	Welded Plate	-	A	-	-	-	-	-	-	-	-
73	Post LOCA Radiation Monitor	Outboard	-	-	-	-	-	-	-	-	-	-	-
74	Post LOCA Radiation Monitor	Inboard	Welded Plate	-	A	-	-	-	-	-	-	-	-
74	Post LOCA Radiation Monitor	Outboard	-	-	-	-	-	-	-	-	-	-	-
75	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
75	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
76	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
76	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
77	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-

TABLE T7.0-1 (Sheet 16 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
77	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
78A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
78A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
78B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
78B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
78C	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
78C	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
78D	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
78D	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
78E	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
78E	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
78F	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
78F	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
79A	Core Spray DP Inst	Inboard	Orifice	-	-	-	-	-	-	-	-		-
79A	Core Spray DP Inst	Outboard	2E21-F018A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
79B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
79B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
79C	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
79C	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
79D	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
79D	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
79E	HPCI Steam Line DP Inst	Inboard	Orifice	-	A	-	-	-	-	-	-		-
79E	HPCI Steam Line DP Inst	Outboard	2E41-F024C	EFCV	A	Spring	Process	-	-	Open	Open	56	-
79F	HPCI Steam Line DP Inst	Inboard	Orifice	-	A	-	-	-	-	-	-		-
79F	HPCI Steam Line DP Inst	Outboard	2E41-F024A	EFCV	A	Spring	Process	-	-	Open	Open	56	-
80	Drywell Post Accident Vent	Inboard	2T48-F335A	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4,12,17	AD
80	Drywell Post Accident Vent	Outboard	2T48-F334A	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4,12,17	AD
81	Drywell N2 Makeup Inlet	Inboard	2T48-F114	AO Globe	C	N2/AC	Spring	-		Closed	Closed	1,2,3,4,17,20	AD
81	Drywell N2 Makeup Inlet	Outboard	2T48-F113	AO Globe	C	N2/AC	Spring	-		Closed	Closed	1,2,3,4,17,20	AD
82	Drywell Head Flange	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5	-
82	Drywell Head Flange	Outboard	-	-	-	-	-	-	-	-	-		-
83A	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83A	RPV Stabilizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-

TABLE T7.0-1 (Sheet 17 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
83B	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83B	RPV Stabilizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
83C	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83C	RPV Stablizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
83D	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83D	RPV Stabilizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
83E	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83E	RPV Stabilizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
83F	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83F	RPV Stabilizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
83G	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83G	RPV Stabilizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
83H	RPV Stabilizer Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
83H	RPV Stabilizer Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
100A	Neutron Monitoring (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
100A	Neutron Monitoring (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
100B	Neutron Monitoring (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
100B	Neutron Monitoring (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
100C	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
100C	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
100D	Neutron Monitoring (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
100D	Neutron Monitoring (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
100E	Neutron Monitoring (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
100E	Neutron Monitoring (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
100G/H	Neutron Monitoring (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
100G/H	Neutron Monitoring (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
100I/J	Neutron Monitoring (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
100I/J	Neutron Monitoring (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
101A	Recirc Pump Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
101A	Recirc Pump Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
101B	Recirc Pump Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
101B	Recirc Pump Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
101C	Recirc Pump Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-

TABLE T7.0-1 (Sheet 18 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
101C	Recirc Pump Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
101D	Recirc Pump Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
101D	Recirc Pump Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
101E	Recirc Pump Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
101E	Recirc Pump Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
101F	Recirc Pump Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
101F	Recirc Pump Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
102A	Indication and Control (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
102A	Indication and Control (Elec Pen)	Outboard	-	-	-	-	-	-	-	-			-
102B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
102B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
103A	Indication and Control (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
103A	Indication and Control (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
103B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
103B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
104A	CRD Rod Pos Indic (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
104A	CRD Rod Pos Indic (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
104B	CRD Rod Pos Indic (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
104B	CRD Rod Pos Indic (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
104C	CRD Rod Pos Indic (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
104C	CRD Rod Pos Indic (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
104D	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
104D	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
104E	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
104E	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
104F	CRD Rod Pos Indic (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
104F	CRD Rod Pos Indic (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
104G	CRD Rod Pos Indic (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
104G	CRD Rod Pos Indic (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
104H	CRD Rod Pos Indic (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
104H	CRD Rod Pos Indic (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
104J	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
104J	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-

TABLE T7.0-1 (Sheet 19 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
105A	600V Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
105A	600V Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
105B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
105B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
105C	600V Power (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
105C	600V Power (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
105D	Spare	Inboard	Welded Cap		A	-	-	-	-	-	-	-	-
105D	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
106A	Thermocouples (Elec Pen)	Inboard	Canister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
106A	Thermocouples (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
106B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
106B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
107A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
107A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
107B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
107B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
108A	Grounding Rod	Outboard	-	-	-	-	-	-	-	-	-	-	-
108B	Grounding Rod	Inoboard	Grounding Rod	-	A	-	-	-	-	-	-	-	-
108B	Grounding Rod	Outboard	-	-	-	-	-	-	-	-	-	-	-
200A	Torus Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
200A	Torus Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
200B	Torus Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
200B	Torus Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-
201A	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201A	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
201B	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201B	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
201C	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201C	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
201D	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201D	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
201E	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201E	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-

TABLE T7.0-1 (Sheet 20 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
201F	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201F	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
201G	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201G	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
201H	Drywell to Torus Vent Line	Inboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14,62	-
201H	Drywell to Torus Vent Line	Outboard	Expansion Bellows	-	B	-	-	-	-	-	-	1,2,3,5,14	-
202	Control and Indic (Elec Pen)	Inboard	Cannister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
202	Control and Indic (Elec Pen)	Outboard	-	-	-	-	-	-	-	-	-		-
203	RCIC Pump Suction	Inboard	2E51-F003	AO Btfly	A	Spring	Air/AC	-	-	Open	Open	37,59	-
203	RCIC Pump Suction	Outboard	2E51-F031	MO Gate	A	DC	DC	-	-	Closed	Closed	37,59	-
204A	RHR Pump Suction	Inboard	2E11-F004A	MO Gate	A	AC	AC	-	-	Open	Open	37,59	-
204A	RHR Pump Suction	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
204B	RHR Pump Suction	Inboard	2E11-F004B	MO Gate	A	AC	AC	-	-	Open	Open	37,59	-
204B	RHR Pump Suction	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
204C	RHR Pump Suction	Inboard	2E11-F004C	MO Gate	A	AC	AC	-	-	Open	Open	37,59	-
204C	RHR Pump Suction	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
204D	RHR Pump Suction	Inboard	2E11-F004D	MO Gate	A	AC	AC	-	-	Open	Open	37,59	-
204D	RHR Pump Suction	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
205	Vacuum Relief	Inboard	2T48-F310	AO Btfly	C	Spring	Air/AC	-	-	Closed	Closed	1,2,3,4,20,72	RF
205	Vacuum Relief	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,46,65	-
205	Vacuum Relief	Inboard	2T48-F311	AO Btfly	C	Spring	Air/AC	-	-	Closed	Closed	1,2,3,4,20,72	RF
205	Torus Purge Supply	Inboard	2T48-F309	AO Btfly	C	Air/AC	Spring	2	-	Closed	Closed	1,2,3,4,72	RF
205	Torus N2 Makeup	Inboard	2T48-F118B	AO Globe	C	Air/AC	Spring	11	-	Open	Open	1,2,3,4,68	RF
205	Torus Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
205	Vacuum Relief	Outboard	2T48-F328A	AO Check	C	VAC,Air/AC	Reverse Flow	-	-	Closed	Closed	1,2,3,4	AD
205	Vacuum Relief	Outboard	2T48-F328B	AO Check	C	VAC,Air/AC	Reverse Flow	-	-	Closed	Closed	1,2,3,4	AD
205	Vacuum Relief	Outboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,47,65	-
205	Torus Purge Supply	Outboard	2T48-F324	AO Btfly	C	Air/AC	Spring	2	-	Closed	Closed	1,2,3,4	AD
205	Torus Purge Supply	Outboard	2T48-D006	Blind Flange	C	-	-	-	-	-	-		-
205	Torus N2 Makeup	Outboard	2T48-F104	AO Globe	C	Air/AC	Spring	11	-	Closed	Closed	1,2,3,4	AD
205	Torus Pressure	Outboard	2T48-F364B	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
206A	Torus Water Level	Inboard	Orifice	-	-	-	-	-	-	-	-		-
206A	Torus Water Level	Outboard	2T48-F361B	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD

TABLE T7.0-1 (Sheet 21 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
206B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
206B	Spare	Inboard	-	-	-	-	-	-	-	-	-	-	-
206C	Torus Water Level	Inboard	Orifice	-	-	-	-	-	-	-	-		-
206C	PASS	Inboard	2E41-F122	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4,58	AD
206C	Torus Water Level	Outboard	2T48-F361A	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
206C	PASS	Outboard	2E41-F121	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4,58	AD
206D	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
206D	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
206E	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
206E	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
206F	Torus Water Level	Inboard	Orifice	-	-	-	-	-	-	-	-	-	-
206F	Torus Water Level	Outboard	2T48-F362A	AO Globe	A	Spring	Air/AC	-	-	Open	Open	37	-
206G	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
206G	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
206H	Torus Water Level	Inboard	Orifice	-	-	-	-	-	-	-	-		-
206H	Torus Water Level	Outboard	2T48-F362B	AO Globe	A	Spring	Air/AC	-	-	Open	Open	37	-
207	HPCI Pump Suction	Inboard	2E41-F051	AO Btfly	A	Spring	Air/AC		-	Open	Open	37,59	-
207	HPCI Pump Suction	Outboard	2E41-F042	MO Gate	A	DC	DC	3	-	Closed	Closed	37	-
208A	Core Spray Pump Suction	Inboard	2E21-F001A	MO Gate	A	AC	AC	-	-	Open	Open	37,59	-
208A	Core Spray Pump Suction	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
208B	Core Spray Pump Suction	Inboard	2E21-F001B	MO Gate	A	AC	AC	-	-	Open	Open	37,59	-
208B	Core Spray Pump Suction	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
209A	Torus Water Temp	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
209A	Torus Water Temp	Outboard	-	-	-	-	-	-	-	-	-	-	-
209B	Torus Water Temp	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
209B	Torus Water Temp	Outboard	-	-	-	-	-	-	-	-	-	-	-
209C	Torus Water Temp	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
209C	Torus Water Temp	Outboard	-	-	-	-	-	-	-	-	-	-	-
209D	Torus Water Temp	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
209D	Torus Water Temp	Outboard	-	-	-	-	-	-	-	-	-	-	-
210A	RHR Test Line	Inboard	2E11-F025A	Relief	A	-	-	-	-	Closed	Closed	16,37,59	-
210A	RHR Test Line	Inboard	2E11-F029	Relief	A	-	-	-	-	Closed	Closed	16,37,59	-
210A	RHR Test Line	Inboard	2E11-F097	Relief	A	-	-	-	-	Closed	Closed	16,37,59	-

TABLE T7.0-1 (Sheet 22 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
210A	RHR Test Line	Inboard	2E51-F019	MO Globe	A	DC	DC	13,i	-	Closed	Closed	37,59	-
210A	RHR Test Line	Inboard	2E11-F028A	MO Gate	C	AC	AC	13,g	-	Closed/K	Closed	1,2,3,4,8,48,59	AD
210A	RHR Test Line	Outboard	Closed System	-		-	-	-	-	-	-	24	-
210A	RHR Test Line	Outboard	2E51-F021	Check	A	Process	Reverse Flow	-	-	Closed	Closed	59	-
210B	RHR Test Line	Inboard	2E11-F025B	Relief	A	-	-	-	-	Closed	Closed	16,37,59	-
210B	RHR Test Line	Inboard	2E41-F012	MO Globe	A	DC	DC	13,h	-	Closed	Closed	37,59	--
210B	RHR Test Line	Inboard	2E11-F028B	MO Gate	C	AC	AC	13,g	-	Closed/K	Closed	1,2,3,4,8,48,59	AD
210B	RHR Test Line	Outboard	Closed System	-		-	-	-	-		-	24	-
210B	RHR Test Line	Outboard	2E41-F046	Check	A	Process	Reverse Flow	-	-	Closed	Closed	37,59	-
211A	Torus Spray	Inboard	2E11-F028A	MO Gate	C	AC	AC	13,g	-	Closed/K	Closed	1,2,3,4,8,48,59	AD
211A	Torus Spray	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
211B	Torus Spray	Inboard	2E11-F028B	MO Gate	C	AC	AC	13,g	-	Closed/K	Closed	1,2,3,4,8,48,59	AD
211B	Torus Spray	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
212	RCIC Turbine Exhaust	Inboard	2E51-F001	Stop Check	A	Process	Reverse Flow	-	-	Closed	Closed	37,59	-
212	RCIC Turbine Exhaust Vac Brkr	Inboard	2E51-F104	MO Gate	C	AC	AC	9	-	Open	Closed	1,2,3,4,37,50	-
212	RCIC Turbine Exhaust	Outboard	2E51-F040	Stop Check	A	Process	Reverse Flow	-	-	Closed	Closed	37,59	-
212	RCIC Turbine Exhaust Vac Brkr	Outboard	2E51-F105	MO Gate	C	AC	AC	9	-	Open	Closed	1,2,3,4,37,50	-
213	RCIC Turbine Vacuum Pump	Inboard	2E51-F002	Stop Check	A	Process	Reverse Flow	-	-	Closed	Closed	37,59	-
213	RCIC Turbine Vacuum Pump	Outboard	2E51-F028	Check	A	Process	Reverse Flow	-	-	Closed	Closed	37,59	-
214	HPCI Turbine Exhaust	Inboard	2E41-F021	Stop Check	A	Process	Reverse Flow	-	-	Closed	Closed	37,59	-
214	HPCI Turbine Exhaust Vac Brkr	Inboard	2E41-F104	MO Gate	C	AC	AC	8	-	Open	Closed	1,2,3,4,37,51	AD
214	HPCI Turbine Exhaust	Outboard	2E41-F049	Check	A	Process	Reverse Flow	-	-	Closed	Closed	37,59	-
214	HPCI Turbine Exhaust Vac Brkr	Outboard	2E41-F111	MO Gate	C	AC	AC	8	-	Open	Closed	1,2,3,4,37,51	AD
215	HPCI Exhaust Drain	Inboard	2E41-F022	Stop Check	A	Process	Reverse Flow	-		Closed	Closed	37,59	-
215	HPCI Exhaust Drain	Outboard	2E41-F040	Check	A	Process	Reverse Flow	-		Closed	Closed	37,59	-
216A	Spare	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
216A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
216B	Spare	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
216B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
216C	Spare	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
216C	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
216D	Spare	Inboard	Welded Thermowell	-	A	-	-	-	-	-	-	-	-
216D	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-

TABLE T7.0-1 (Sheet 23 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
217A	H2O2 Sample Supply	Inboard	2P33-F006	AO Globe	C	Spring	Air/DC	10	-	Open	Closed	1,2,3,4	AD
217A	H2O2 Sample Supply	Outboard	2P33-F014	AO Globe	C	Spring	Air/AC	10	-	Open	Closed	1,2,3,4	AD
217B	H2O2 Sample Supply	Inboard	2P33-F007	AO Globe	C	Spring	Air/DC	10	-	Open	Closed	1,2,3,4	AD
217B	H2O2 Sample Supply	Outboard	2P33-F015	AO Globe	C	Spring	Air/AC	10	-	Open	Closed	1,2,3,4	AD
217C	FPM Sample Supply	Inboard	2D11-F065	Globe	C	Hand	Hand	-	-	Closed	Closed	1,2,3,4,18	AD
217C	FPM Sample Supply	Outboard	2D11-F058	Globe	C	Hand	Hand		-	Closed	Closed	1,2,3,4,18	AD
217D	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
217D	Spare	Outboard	-	-	-	-	-	-	-	-	Closed	-	-
218A	Torus Purification Suction	Inboard	2G51-F002	Gate	A	Hand	Hand	-	-	Closed/LC	Closed	18,37	-
218A	Torus Purification Suction	Inboard	Flange Gasket	-	A	-	-	-	-	-	-	37	-
218A	Torus Purification Suction	Outboard	2G51-D001	Blind Flange	A	-	-	-	-	-	-	37	-
218B	Construction Drain	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,37,54	-
218B	Construction Drain	Outboard	-	-	-	-	-	-	-	-	-		-
220	Torus Exhaust Bypass	Inboard	2T48-F339	AO Globe	C	Air/AC	Spring	10	-	Closed	Closed	1,2,3,4	AD
220	Torus Main Exhaust	Inboard	2T48-F318	AO Btfly	C	Air/AC	Spring	2	-	Closed	Closed	1,2,3,4,69	RF
220	Torus Main Exhaust	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,52	-
220	Torus Pressure	Inboard	Orifice	-	-	-	-	-	-	-	-		-
220	Torus Exhaust Bypass	Outboard	2T48-F338	AO Globe	C	Air/AC	Spring	10	-	Closed	Closed	1,2,3,4	AD
220	Torus Main Exhaust	Outboard	2T48-F326	AO Btfly	C	Air/AC	Spring	2	-	Closed	Closed	1,2,3,4	AD
220	Torus Main Exhaust	Outboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,53	-
220	Torus Pressure	Outboard	2T48-F364A	AO Globe	C	Spring	Air/AC	-	-	Open	Open	1,2,4,33, 73	AD
221A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
221A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
221B	HPCI Turbine Exhaust Vac Brkr	Inboard	2E41-F111	MO Gate	C	AC	AC	8	-	Open	Closed	1,2,3,4	AD
221B	HPCI Turbine Exhaust Vac Brkr	Outboard	2E41-F104	MO Gate	C	AC	AC	8	-	Open	Closed	1,2,3,4	AD
221C	RCIC Turbine Exhaust Vac Brkr	Inboard	2E51-F105	MO Gate	C	AC	AC	9	-	Open	Closed	1,2,3,4	AD
221C	RCIC Turbine Exhaust Vac Brkr	Outboard	2E51-F104	MO Gate	C	AC	AC	9	-	Open	Closed	1,2,3,4	AD
222A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
222A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
222B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
222B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
223A	Spare	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5	-
223A	Spare	Outboard	-	-	-	-	-	-	-	-	-		-

TABLE T7.0-1 (Sheet 24 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
223B	Spare	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5	-
223B	Spare	Outboard	-	-	-	-	-	-	-	-	-		-
224A	RHR Relief Valve Disch (RHR)	Inboard	2E11-F055A	Relief	A	-	-	-	-	Closed	-	16,37,59	-
224A	RHR Relief Valve Disch (RHR)	Inboard	2E11-F103A	MO Globe	A	AC	AC	-	-	Closed	Closed	17.37,59	-
224A	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
224A	RHR Relief Valve Disch (RHR)	Outboard	Closed System	-	-	-	-	-	-	-	-	24,59	-
224A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
224B	RHR Relief Valve Disch (RHR)	Inboard	2E11-F055B	Relief	A	-	-	-	-	Closed	-	16,37,59	-
224B	RHR Relief Valve Disch (RHR)	Inboard	2E11-F103B	MO Globe	A	AC	AC	-	-	Closed	Closed	17,37,59	-
224B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
224B	RHR Relief Valve Disch (RHR)	Outboard	Closed System	-	-	-	-	-	-	-	-	24,59	-
224B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
225A	Vac Breaker Air Supply	Inboard	2T48-F323G Air Cyl	-	B	-	-	-	-	-	-	38	-
225A	Vac Breaker Air Supply	Outboard	2T48-F342G	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225B	Vac Breaker Air Supply	Inboard	2T48-F323H Air Cyl	-	B	-	-	-	-	-	-	38	-
225B	Vac Breaker Air Supply	Outboard	2T48-F342H	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225C	Vac Breaker Air Supply	Inboard	2T48-F323I Air Cyl	-	B	-	-	-	-	-	-	38	-
225C	Vac Breaker Air Supply	Outboard	2T48-F3421	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225D	Vac Breaker Air Supply	Inboard	2T48-F323J Air Cyl	-	B	-	-	-	-	-	-	38	-
225D	Vac Breaker Air Supply	Outboard	2T48-F342J	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225E	Vac Breaker Air Supply	Inboard	2T48-F323K Air Cyl	-	B	-	-	-	-	-	-	38	-
225E	Vac Breaker Air Supply	Outboard	2T48-F342K	SO Globe	C	AC	Spring	-	-	Clsoed	Closed	1,2,3,4	AD
225F	Vac Breaker Air Supply	Inboard	2T48-F323L Air Cyl	-	B	-	-	-	-	-	-	38	-
225F	Vac Breaker Air Supply	Outboard	2T48-F342L	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225G	Vac Breaker Air Supply	Inboard	2T48-F323A Air Cyl	-	B	-	-	-	-	-	-	38	-
225G	Vac Breaker Air Supply	Outboard	2T48-F342A	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225H	Vac Breaker Air Supply	Inboard	2T48-F323B Air Cyl	-	B	-	-	-	-	-	-	38	-
225H	Vac Breaker Air Supply	Outboard	2T48-F342B	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225J	Vac Breaker Air Supply	Inboard	2T48-F323CAir Cyl	-	B	-	-	-	-	-	-	38	-
225J	Vac Breaker Air Supply	Outboard	2T48-F342C	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225K	Vac Breaker Air Supply	Inboard	2T48-F323D Air Cyl	-	B	-	-	-	-	-	-	38	-
225K	Vac Breaker Air Supply	Outboard	2T48-F342D	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225L	Vac Breaker Air Supply	Inboard	2T48-F323E Air Cyl	-	B	-	-	-	-	-	-	38	-

TABLE T7.0-1 (Sheet 25 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
225L	Vac Breaker Air Supply	Outboard	2T48-F342E	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
225M	Vac Breaker Air Supply	Inboard	2T48-F323F Air Cyl	-	B	-	-	-	-	-	-	38	-
225M	Vac Breaker Air Supply	Outboard	2T48-F342F	SO Globe	C	AC	Spring	-	-	Closed	Closed	1,2,3,4	AD
226A	Core Spray Test Line	Inboard	2E21-F015A	MO Globe	A	AC	AC	13,f	-	Closed	Closed	37,59	-
226A	Core Spray Test Line	Inboard	2E21-F036A	Check	A	Process	Reverse Flow	-	-	Closed	Closed	37	-
226A	Core Spray Test Line	Inboard	2E21-F044A	Stop Check	A	Process	Reverse Flow	-	-	Open	Closed	37	-
226A	Core Spray Test Line	Inboard	2E11-F011A	MO Gate	A	AC	AC	13,g	-	Closed	Closed	37	-
226A	Core Spray Test Line	Inboard	2E11-F007A	MO Gate	A	AC	AC	-	-	Open	Open	22,37	-
226A	Core Spray Test Line	Outboard	2E11-F026A	MO Gate	A	AC	AC	13,g	-	Closed	Closed	37,74	-
226A	Core Spray Test Line	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
226B	Core Spray Test Line	Inboard	2E21-F015B	MO Globe	A	AC	AC	13,f	-	Closed	Closed	37,59	-
226B	Core Spray Test Line	Inboard	2E21-F036B	Check	A	Process	Reverse Flow	-	-	Closed	Closed	37	-
226B	Core Spray Test Line	Inboard	2E21-F044B	Stop Check	A	Process	Reverse Flow	-	-	Open	Closed	37	-
226B	Core Spray Test Line	Inboard	2E11-F011B	MO Gate	A	AC	AC	13,g	-	Closed	Closed	37	-
226B	Core Spray Test Line	Inboard	2E11-F007B	MO Gate	A	AC	AC	-	-	Open	Open	22,37	
226B	Core Spray Test Line	Outboard	Closed System	-	-	-	-	-	-	-	-	24	-
226B	Core Spray Test Line	Outboard	2E11-F026B	MO Gate	A	AC	AC	13,g	-	Closed	Closed	37,74	-
227A	Spare	Inboard	Welded Plate	-	A	-	-	-	-	-	-	-	-
227A	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
227B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
227B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
228A	Low Voltage Power	Inboard	Cannister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
228A	Low Voltage Power	Outboard	-	-	-	-	-	-	-	-	-		-
228B	Low Voltage Power (spare)	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5	-
228B	Low Voltage Power (spare)	Outboard	-	-	-	-	-	-	-	-	-		-
228C	Low Voltage Power	Inboard	Cannister	-	B	-	-	-	-	-	-	1,2,3,5,57	-
228C	Low Voltage Power	Outboard	-	-	-	-	-	-	-	-	-		-
229	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
229	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
230	Torus N2 Makeup Inlet	Inboard	2T48-F327	AO Globe	C	N2/AC	Spring	-	-	Closed	Closed	1,2,3,4,17,20	AD
230	Torus N2 Makeup Inlet	Outboard	2T48-F325	AO Globe	C	N2/AC	Spring	-	-	Closed	Closed	1,2,3,4,17,20	AD
231	Torus Post Accident Vent	Inboard	2T48-F333A	AO Globe	C	Air/AC	Spring	10	-	Closed	Closed	1,2,3,4,12,17,20	AD
231	Torus Post Accident Vent	Outboard	2T48-F332A	AO Globe	C	Air/AC	Spring	10	-	Closed	Closed	1,2,3,4,12,17,20	AD

TABLE T7.0-1 (Sheet 26 of 37)
PRIMARY CONTAINMENT PENETRATIONS (Note 18)

PEN. NO.	DESCRIPTION	BARRIER ORIENT.	BARRIER TYPE (MPL)	VALVE TYPE (A)	TEST TYPE (B)	POWER TO OPEN (A), (C)	POWER TO CLOSE (A), (C)	ISOL. GP. (D)	MAX. OPER. TIME (sec) (G)	NORM. POS.	POS. ON ISOL. (E)	NOTES (F)	TEST DIRECT. (H)
232	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
232	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
233	Drywell to Torus DP Suction	Inboard	2T48-F211	AO Ball	C	Air/AC	Spring	12,k	-	Closed	Closed	1,2,3,4	AD
233	Drywell to Torus DP Suction	Outboard	2T48-F212	AO Ball	C	Air/AC	Spring	12,k	-	Closed	Closed	1,2,3,4	AD
234A	Cond. Pump Suction from Torus	Inboard	2G51-F011	AO Globe	A	Air/AC	Spring	7	-	Closed	Closed	37	-
234A	Cond. Pump Suction from Torus	Outboard	2G51-F012	AO Globe	A	Air/AC	Spring	7	-	Closed	Closed	37	-
234B	Spare	Inboard	Welded Cap	-	A	-	-	-	-	-	-	-	-
234B	Spare	Outboard	-	-	-	-	-	-	-	-	-	-	-
235A	Torus Post Accident Vent	Inboard	2T48-F333B	AO Globe	C	Air/AC	Spring	10	-	Closed	Closed	1,2,3,4,12,17,20	AD
235A	Torus Post Accident Vent	Outboard	2T48-F332B	AO Globe	C	Air/AC	Spring	10	-	Closed	Closed	1,2,3,4,12,17,20	AD
235B	Torus N2 Makeup Inlet	Inboard	2T48-F116	AO Globe	C	N2/AC	Spring	-	-	Closed	Closed	1,2,3,4,17,20	AD
235B	Torus N2 Makeup Inlet	Outboard	2T48-F115	AO Globe	C	N2/AC	Spring	-	-	Closed	Closed	1,2,3,4,17,20	AD
236	Torus Access Hatch	Inboard	Double O-Ring	-	B	-	-	-	-	-	-	1,2,3,5,54	-
236	Torus Access Hatch	Outboard	-	-	-	-	-	-	-	-	-		-

TABLE T7.0-1 (Sheet 27 of 37)
PRIMARY CONTAINMENT PENETRATIONS

NOTES

A. All motor operated isolation valves remain in the last position upon failure of valve power.

B. Although specific penetrations are listed as receiving Type A, B, or C tests, only those penetrations that do not get a Type B or C test are listed as getting a Type A test.

C. The AC motor operated valves are powered from the AC standby emergency buses. The DC powered isolation valves are powered from the plant batteries.

D. **Isolation groups for automatic PCIVs are defined as follows:**

Group 1: The valves in Group 1 are actuated by any one of the following conditions:

1. Reactor vessel water level - Low Low Low, Level 1
2. Main steam line flow - High
3. Main steam line tunnel temperature - High
4. Main steam line pressure - Low
5. Condenser vacuum - Low
6. Turbine building area temperature - High

Group 2: The valves in Group 2 are actuated by any one of the following conditions:

1. Reactor vessel water level - Low, Level 3
2. Drywell pressure - High
3. Drywell radiation - High*
4. Reactor building exhaust radiation - High*
5. Refueling floor exhaust radiation - High*

*This signal isolates the 18 inch containment purge and vent valves only.

D. **Group 3**: The valves in Group 3 are actuated by any one of the following conditions:

1. HPCI steam line flow - High
2. HPCI steam supply pressure - Low
3. HPCI turbine exhaust diaphragm pressure - High
4. Suppression pool area ambient temperature - High**
5. Suppression pool area differential temperature - High**
6. Suppression pool area temperature - Time Delay Relays
7. Emergency area cooler temperature - High
8. HPCI pipe penetration room temperature - High

**This signal must be present for more than 15 minutes before system isolation will take place via the suppression pool area temperature - time delay relays.

Group 4: The valves in Group 4 are actuated by any one of the following conditions:

1. RCIC steam line flow - High
2. RCIC steam line pressure - Low
3. RCIC turbine exhaust diaphragm pressure - High
4. RCIC suppression pool area ambient temperature - High***
5. RCIC suppression pool differential temperature - High***
6. RCIC suppression pool area temperature - Time Delay Relays
7. Emergency area cooler temperature - High

***This signal must be present for more than 30 minutes before system isolation will take place via the suppression pool area temperature time delay relays.

Group 5: The valves in Group 5 are actuated by any one of the following conditions:

1. Reactor vessel water level - Low Low, Level 2
2. Reactor water cleanup area temperature - High
3. Reactor water cleanup area ventilation differential temperature - High
4. Standby Liquid Control System initiation ****

****Closes 2G31-F004 only.

D. **Group 6**: The valves in Group 6 are actuated by any one of the following conditions:

1. Reactor vessel water level - Low, Level 3
2. Reactor vessel steam dome pressure - High

Group 7: The valves in Group 7 are actuated by any one of the following conditions:

1. Drywell pressure high
2. Reactor vessel water level – Low, Level 3
3. Reactor building exhaust radiation high
4. Refueling floor exhaust radiation high

Group 8: The valves in Group 8 are actuated by concurrent receipt of the following signals:

1. HPCI steam supply pressure - Low
2. Drywell pressure - High

Group 9: The valves in Group 9 are actuated by concurrent receipt of the following signals:

1. RCIC steam line pressure - Low
2. Drywell pressure - High

Group 10: The valves in Group 10 are actuated by any one of the following conditions:

1. Reactor vessel water level - Low, Level 3
2. Drywell pressure - High
3. Reactor building exhaust radiation - High
4. Refueling floor exhaust radiation - High

Group 11: The valves in Group 11 are actuated by any one of the following conditions:

1. Reactor vessel water level - Low, Level 3
2. Drywell pressure - High
3. Reactor building exhaust radiation - High
4. Refueling floor exhaust radiation – High

D. **Group 12**: The valves in Group 12 are actuated by any one of the following conditions:

1. Reactor vessel water level - Low, Level 3
2. Drywell pressure - High
3. Reactor building exhaust radiation – High
4. Refueling floor exhaust radiation - High

Group 13: The valves in Group 13 are actuated by any one of the other isolation signals.

Other isolation signal designators:

a. 2B31-F019 and 2B31-F020 also isolate on main steam line radiation - high, high.

b. These valves do **NOT** isolate on reactor building exhaust radiation - high or refueling floor exhaust radiation - high or drywell radiation high signals.

c. These valves isolate on high flow in drywell pneumatic supply line signal.

d. These valves also isolate on RWCU differential flow - high. 2G31-F004 also isolates on high temperature following the non-regenerative heat exchanger.

e. These valves close upon withdrawal of the TIP. TIP automatic withdrawal is actuated by either reactor vessel water level - low or drywell pressure - high.

f. These valves isolate on Core Spray actuation via a reactor vessel water level - low low low, level 1 or drywell pressure - high signal.

g. These valves isolate on LPCI actuation via a reactor vessel water level - low low low, level 1 or drywell pressure - high signal.

h. This valve closes when the HPCI steam supply valve or the HPCI turbine stop valve is closed or on pump discharge flow - high.

i. This valve closes when the RCIC steam supply valve or the RCIC turbine stop valve is closed, or on RCIC pump discharge flow - high.

j. These valves automatically isolate under the following conditions: 1) 2E11-F008 not closed **AND** 2) 2E11-F009 not closed **and** 3) reactor pressure $\leq$ 145 psig **AND** 4) high drywell pressure **OR** reactor vessel water level – Low, Level 3.

D. k. These valves also isolate on main steam line radiation – high, high.

E. The Position on Isolation results from the listed Normal Position receiving an isolation signal.

F. **NOTES:**

1. Type C test durations will be as specified in subsection 6.4.3 of ANSI/ANS-56.8-1994.

2. Test pressures are at least 46.9 psig for all valves and penetrations except MSIVs (see note 27 for MSIV test pressures).

3. The total acceptable leakage for all valves and penetrations other than the MSIVs, and notes 9 and 29 must meet is $0.6L_a$.

4. Local leak tests on all testable isolation valves shall be performed in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.

5. Local leak tests on all testable penetrations shall be performed in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.

6. The personnel airlock shall be tested in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.

7. MSIVs require that both solenoid pilots be de-energized to close valves. The accumulator air pressure plus spring, act together to close valves when both pilots are de-energized. Voltage failure at only one pilot does not cause valve closure. The valves are designed to close fully in less than 5 seconds, but in no case less than 3 seconds.

8. Containment spray and suppression pool cooling valves have interlocks that allow them to be reopened manually after automatic closure. This setup permits containment spray for high drywell pressure/temperature conditions, post-LOCA scrubbing of inorganic iodines and particulates from the primary containment atmosphere, and/or suppression pool cooling. When automatic signals are not present, these valves may be opened for testing for operating convenience.

9. These valves undergo a water test. Leakage rate must not exceed a value that would deplete the water inventory covering the valve seating surface in a 30-day period. Measured local leakage is not added to the types B and C local leakage totals for comparison with the 60-percent L_a acceptance criteria for local leakage rate testing.

10. Control rod drive hydraulic lines can be isolated by the solenoid valves outside primary containment. Lines that extend outside the primary containment are small and terminate in a system designed to prevent out leakage. Solenoid valves normally are closed, but they open on rod movement and during a reactor scram.

TABLE T7.0-1 (Sheet 32 of 37)
PRIMARY CONTAINMENT PENETRATIONS

F.

11. Coincident signals (RPV Water Level Low, Low, Low – Level 1 + Drywell Pressure High) and a low reactor pressure permissive open valves. Special interlocks permit testing these valves by a manual switch except when automatic isolation signals are present.

12. Manual switches override all automatic signals on the two smaller valves that bypass the suppression chamber and drywell exhaust valve.

13. Signals RPV Water Level Low – Level 3 or High Drywell Pressure cause automatic withdrawal of the traversing incore probe. When the probe is withdrawn, the valve automatically closes by mechanical action. An explosive shear valve is installed outboard of the ball valve. The shear valve is provided to isolate the line if the probe does not withdraw.

14. There is one bellows assembly on each torus downcomer from the drywell to the torus. The drywell penetrations are X-5A-H and the torus penetrations are X-201A-H. Although the same bellows assemblies are listed under both penetration numbers in these tables for completeness, they are listed only under X-5A-H in the LLRT procedure for simplicity.

15. The penetration is equipped with an inboard manual isolation valve, an excess flow check valve, and a Swagelock cap. This configuration meets the requirements of Regulatory Guide 1.11 and is exempt from Appendix J, Type C testing.

16. Relief valve setpoint is greater than 1.5 times the containment design pressure. Relief valve discharge side serves as a boundary.

17. Administratively closed.

18. Locked-closed manual valve.

19. Leakage detection is provided by process instrumentation.

20. Alarms in control room when valve is open.

21. NEDC-22253 concludes the TIP nitrogen purge line meets the applicable requirements of Regulatory Guide 1.11; therefore, TIP purge check valve 2C51-F3017 provides single containment isolation valve capability.

22. Valve will close after RHR flow is established. LCO 3.3.5.1 is applicable to this signal.

23. (DELETED)

F.

24. The second isolation boundary is provided by a Quality Group B, Seismic Category I, missile protected, closed system. The system is filled with water and operating at a pressure greater than P_a post-LOCA.

25. Flow instrumentation will generate a high flow isolation signal and automatically close the redundant isolation valves (after a time delay) should the pneumatic header in the drywell rupture. However, this automatic high flow signal is not required for Operability of the valve's primary containment isolation function.

26. Deactivated and locked in the closed position.

27. The combined MSIV leakage rate for all four main steam lines is either: 1) ≤ 100 scfh when tested at ≥ 28.8 psig and < 47.3 psig or 2) ≤ 144 scfh when tested at ≥ 47.3 psig.

28. The combined leakage rate for penetrations 8, 10, 11, 14, 18, 19, and 55 shall not exceed 0.02 L_a.

29. System remains water filled post-LOCA. Isolation valves are tested with water. Leakage is not included in the 0.6 L_a types B and C tests local leakage totals.

30. These valves are required for limiting containment leakage following a design bases accident and are expected to remain covered by water following a design basis LOCA.

31. The outboard isolation barrier is a closed system outside primary containment.

32. Instrument removed as part of ATTS modification.

33. Seismic Category I, Quality Group B instrument line.

34. Since the TIP drive shear valve isolates the TIP tubing by shearing the tube and drive cable and by jamming the sheared ends of the tubing into a Teflon coating on the shear valve disc, the valve cannot be type C tested without destroying the drive tube. Therefore, the TIP shear valves are not type C tested.

TABLE T7.0-1 (Sheet 34 of 37)
PRIMARY CONTAINMENT PENETRATIONS

F.

35. The design of these lines does not facilitate type C testing as described in 10 CFR 50, Appendix J. However, adequate leakage monitoring of the CRD lines is provided by normal plant operating procedures. Since the insert and withdraw lines are pressurized to at least reactor operating pressure by the cooling water flow during normal plant operation, leakage from these lines would be immediately evident. Type C test leakage is not included in the maximum allowable leakage rate of 0.060 L_a summation. These valves remain closed during the test and are not vented.

    The hydraulic control units are installed on El. 130 ft. of the reactor building, a relatively high traffic area. In addition, the Unit 2 daily rounds procedure requires the operator to make a visual inspection for leakage in the hydraulic area of the reactor building at least once per shift and record the inspection.

36. The inboard isolation barrier is a closed system inside primary containment.

37. This penetration is sealed from the primary containment, and not leakage tested, due to its line terminating below the water level of the torus. No leakage testing is necessary because the torus is postulated to always remain filled with water.

38. The inboard isolation barrier is the vacuum breaker exercising cylinder. The barrier is provided by seals on the air operated piston. The exercising cylinder, although not Quality Group B, was specified by the vacuum breaker vendor to be qualified to the postulated post-LOCA environment. The cylinder is designed to operate with an air pressure of 95 to 100 psig, which is significantly higher than the post LOCA containment pressure, and is Type B leakage rate tested.

39. The first flange double o-rings on 2T48-F307 act as an inboard barrier for penetration X-25.

40. The second flange double o-rings and shaft double o-rings on valve 2T48-F307, in conjunction with the first flange double o-rings on valves 2T48-F308 and F103, are outboard barriers for penetration X-25.

41. The first flange double o-rings on 2T48-F319 act as an inboard barrier for penetration X-26.

42. The second flange double o-rings and shaft double o-rings on valve 2T48-F319, in conjunction with the first flange double o-rings on valve 2T48-F320, are outboard barriers for penetration X-26.

43. The two check valves used as inboard and outboard barriers were evaluated to provide sufficient isolation capability. The evaluation consided the consequences of breaking the line that these valves are a part of. Furthermore, it was concluded that the installation of an automatic power actuated valve outside primary containment could possibly result in a breach of the primary coolant boundary during normal reactor operation.

TABLE T7.0-1 (Sheet 35 of 37)
PRIMARY CONTAINMENT PENETRATIONS

F.

44. Although a check valve is not normally used as an outboard barrier, this situation was evaluated with the conclusion that an automatic valve that opens on signal introduces a possible failure mechanism. For this case, an explosive valve is used to provide assurance of reliable timely actuation; therefore, the availability of the line is assured.

45. 2B21-F111 and F112 are outside of the containment boundary. They are type C tested since they will be used post-LOCA to obtain samples.

46. The first flange double o-rings on valves 2T48-F310, F311, and F309 act as an inboard barrier for penetration X-205.

47. The second flange double o-rings and shaft double o-rings on valves 2T48-F310, F311, and F309, in conjunction with the first flange double o-rings on valve 2T48-F324, are outboard barriers for penetration X-205.

48. 2E11-F028A&B are tested as barriers for penetration X-211A & B. Since the penetrations X-210 A & B have water seals, these valves are not required to be tested for these penetrations.

49. (DELETED)

50. Valves 2E51-F104 & F105 are type C tested as part of penetration X-221C.

51. Valves 2E41-F104 & F111 are type C tested as part of penetration X-221B.

52. The first flange double o-rings on 2T48-F318 act as an inboard barrier for penetration X-220.

53. The second flange double o-rings and shift double o-rings on valve 2T48-F318, in conjunction with the first flange double o-rings on valves 2T48-F326, are outboard barriers for penetration X-220.

54. Penetration is sealed by a blind flange or door with double o-ring seals. These seals are leakage rate tested by pressurizing between the o-rings.

55. The personnel airlock door seals are tested at 10 psig; the barrier is tested at P_a. The lock barrier test leakage rate does not exceed 0.05 L_a.

56. Seismic Category I, Quality Group A, instrument line up to and including the excess flow check valve (EFCV). Instrument tubing is certified and Seismic Category I. An orifice is installed in proximity to the process line in accordance with Regulatory Guide 1.11.

57. Electrical penetrations are tested by pressuring between the seals through a valve test connection.

58. 2E41-F121 and F122 are outside the containment boundary. They are type C tested, since they will be used post LOCA to obtain samples.

59. Leakage detection is provided in accordance with HNP-2-FSAR subsection 5.2.7.

60. Feedwater outboard isolation valves are described in HNP-2-FSAR section 3.1, criterion 55.

61. (DELETED)

62. Penetration has a double-ply, bellows type seal which is tested by pressurizing between the two plies through a test connection.

63. Penetration has a single-layer clamshell design bellows assembly which is welded over the existing bellows and tested by pressurizing between the existing and new bellows through a test connection. NRC Generic Letter 89-09 has been invoked.

64. Penetration has a two-layer bellows clamshell assembly which is tested by pressurizing between the seals through a test connection. NRC Generic Letter 89-09 has been invoked.

65. The body double o-rings and pipe flange gasket are leakage tested during the Type C test of 2T48-F328A&B.

66. (DELETED)

67. Globe valve may be tested in the reverse direction. This is a conservative test; test pressure tends to unseat the disc. (See HNP-2-FSAR figures 3.8-10 and 3.8-11.)

68. Control valve tested in the reverse direction. This is a conservative test; test pressure tends to unseat the disc. (See HNP-2-FSAR figure 3.8-12.)

69. Butterfly valve is tested in the reverse direction. ASME Code, Section XI, paragraph IWV 3420, as referenced in 10 CFR 50.55a, states that butterfly valves may be leakage rate tested in either direction provided their seat construction is designed for sealing against pressure on either side. These butterfly valves are being conservatively tested in the reverse direction and meet the criteria of paragraph IWV 3420.

    Leakage is equivalent, because the same seating surface is tested when test pressure is applied from either direction. (See HNP-2-FSAR figures 3.8-13, 14, and 15.)

70. Gate valve tested in the reverse direction. A generic leakage test is performed for this valve, since the opposite seat on the outboard valve is tested. Both isolation valves are the same design and, therefore, have similar leakage characteristics. This valve is also subjected to P_a during the Type A test. Piping outboard of the second primary isolation valve is Seismic Category I, Quality Group B.

71. (DELETED)

TABLE T7.0-1 (Sheet 37 of 37)
PRIMARY CONTAINMENT PENETRATIONS

72. Identifies isolation valves that are tested by applying pressure between the inboard and outboard isolation valves. The inboard valve is not tested in the direction required for isolation. Testing to confirm bi-directional leakage characteristics is performed following maintenance that could affect seat leakage.

73. Type C testing is performed on these valves; however, the results of the testing are not included in the 0.60 La summation. These valves remain open during the ILRT.

74. 2E11-F026A/B had power removed by opening breaker, valve in closed position.

G. The only valve operational time limits listed in this table are the times explicitly assumed in the accident, anticipated operational occurrence, or high energy line break analyses. These values are typically higher than other valve stroke times that are contained in the Plant Hatch Pump and Valve Inservice Test Plan and/or chapter 5.0 of the Technical Requirements Manual.

H. RF (Reverse Flow) - Type C test where test pressure is not applied in the same direction as when the valve would be required to perform its containment isolation function.

AD (Accident Direction) - Type C test where test pressure is applied in the same direction as when the valve would be required to perform its containment isolation function.

TABLE T7.0-2 (Sheet 1 of 4)
PRIMARY CONTAINMENT ISOLATION DEVICES: MPL TO PENETRATION NUMBER CROSS REFERENCE

MPL	PEN.	MPL	PEN.	MPL	PEN.
2B21-F010A	9A	2B21-F059E	40B (D)	2B31-F004A	31E
2B21-F010B	9B	2B21-F059F	49D	2B31-F004B	30E
2B21-F016	8	2B21-F059G	40B (E)	2B31-F009A	66A
2B21-F019	8	2B21-F059H	49E	2B31-F009B	27A
2B21-F022A	7A	2B21-F059L	45B	2B31-F009C	27A
2B21-F022B	7B	2B21-F059M	50B	2B31-F009D	66A
2B21-F022C	7C	2B21-F059N	45F	2B31-F010A	66B
2B21-F022D	7D	2B21-F059P	50F	2B31-F010B	27B
2B21-F028A	7A	2B21-F059R	45C	2B31-F010C	27B
2B21-F028B	7B	2B21-F059S	50C	2B31-F010D	66B
2B21-F028C	7C	2B21-F059T	45E	2B31-F011A	29A
2B21-F028D	7D	2B21-F059U	50E	2B31-F011B	57A
2B21-F041	56F	2B21-F061	40A (D)	2B31-F011C	57A
2B21-F043A	56E	2B21-F070A	52D	2B31-F011D	29A
2B21-F043B	59E	2B21-F070B	52E	2B31-F012A	29B
2B21-F045A	56C	2B21-F070C	52C	2B31-F012B	57B
2B21-F045B	59C	2B21-F070D	51E	2B31-F012C	57B
2B21-F047A	56B	2B21-F071A	33D	2B31-F012D	29B
2B21-F047B	59B	2B21-F071B	33C	2B31-F013A	27C
2B21-F049A	56D	2B21-F071C	33E	2B31-F013B	57C
2B21-F049B	59D	2B21-F071D	34B	2B31-F017A	27C
2B21-F051A	40B (C)	2B21-F072A	33A	2B31-F017B	57C
2B21-F051B	49C	2B21-F072B	33B	2B31-F019	41
2B21-F051C	45D	2B21-F072C	33F	2B31-F020	41
2B21-F051D	50D	2B21-F072D	34A	2B31-F040A	31B
2B21-F053A	40B (A)	2B21-F073A	52A	2B31-F040B	30B
2B21-F053B	49A	2B21-F073B	52F	2B31-F040C	31C
2B21-F053C	45A	2B21-F073C	52B	2B31-F040D	30C
2B21-F053D	50A	2B21-F073D	51F	2B31-F058A	31A
2B21-F055	40C (C)	2B21-F077A	9A	2B31-F058B	30A
2B21-F057	40C (D)	2B21-F077B	9B	2C11-D001-120	37A
2B21-F059A	40B (F)	2B21-F111	45D	2C11-D001-120	37B
2B21-F059B	49F	2B21-F112	45D	2C11-D001-120	37C
2B21-F059C	40B (B)	2B31-F003A	31D	2C11-D001-120	37D
2B21-F059D	49B	2B31-F003B	30D	2C11-D001-121	38A

TABLE T7.0-2 (Sheet 2 of 4)
PRIMARY CONTAINMENT ISOLATION DEVICES: MPL TO PENETRATION NUMBER CROSS REFERENCE

MPL	PEN.	MPL	PEN.	MPL	PEN.
2C11-D001-121	38B	2E11-F004A	204A	2E11-F103B	224B
2C11-D001-121	38C	2E11-F004B	204B	2E11-F3078A	224A
2C11-D001-121	38D	2E11-F004C	204C	2E11-F3078B	224B
2C11-D001-122	38A	2E11-F004D	204D	2E21-F001A	208A
2C11-D001-122	38B	2E11-F007A	226A	2E21-F001B	208B
2C11-D001-122	38C	2E11-F007B	226B	2E21-F005A	16A
2C11-D001-122	38D	2E11-F008	12	2E21-F005B	16B
2C11-D001-123	37A	2E11-F011A	226A	2E21-F015A	226A
2C11-D001-123	37B	2E11-F011B	226B	2E21-F015B	226B
2C11-D001-123	37C	2E11-F015A	13A	2E21-F018A	79A
2C11-D001-123	37D	2E11-F015B	13B	2E21-F018B	40D (F)
2C11-D001-126	37A	2E11-F016A	39A	2E21-F018C	40A (C)
2C11-D001-126	37B	2E11-F016B	39B	2E21-F036A	226A
2C11-D001-126	37C	2E11-F023	17	2E21-F036B	226B
2C11-D001-126	37D	2E11-F025A	210A	2E21-F044A	226A
2C11-D001-127	38A	2E11-F025B	210B	2E21-F044B	226B
2C11-D001-127	38B	2E11-F026A	226A	2E41-F002	11
2C11-D001-127	38C	2E11-F026B	226B	2E41-F003	11
2C11-D001-127	38D	2E11-F028A	210A	2E41-F012	210B
2C11-D001-138	37A	2E11-F028A	211A	2E41-F021	214
2C11-D001-138	37B	2E11-F028B	210B	2E41-F022	215
2C11-D001-138	37C	2E11-F028B	211B	2E41-F024A	79F
2C11-D001-138	37D	2E11-F029	210A	2E41-F024B	40D (A)
2C41-F006	42			2E41-F024C	79E
2C41-F007	42			2E41-F024D	40D (B)
				2E41-F040	215
2C51-F3017	35E			2E41-F042	207
2C51-R751	35E	2E11-F041A	54C	2E41-F046	210B
2C51-R752	35E	2E11-F041B	32C	2E41-F049	214
2D11-F050	60B	2E11-F041C	54A	2E41-F051	207
2D11-F051	62	2E11-F041D	32A	2E41-F104	214
2D11-F052	60B	2E11-F055A	224A	2E41-F104	221B
2D11-F053	62	2E11-F055B	224B	2E41-F111	214
2D11-F058	217C	2E11-F097	210A	2E41-F111	221B
2D11-F065	217C	2E11-F103A	224A	2E41-F121	206C

TABLE T7.0-2 (Sheet 3 of 4)
PRIMARY CONTAINMENT ISOLATION DEVICES: MPL TO PENETRATION NUMBER CROSS REFERENCE

MPL	PEN.	MPL	PEN.	MPL	PEN.
2E41-F122	206C	2P33-F004	28	2T48-F118A	25
2E51-F001	212	2P33-F005	64	2T48-F118B	205
2E51-F002	213	2P33-F006	217A	2T48-F209	69
2E51-F003	203	2P33-F007	217B	2T48-F210	69
2E51-F007	10	2P33-F010	3	2T48-F211	233
2E51-F008	10	2P33-F011	60A	2T48-F212	233
2E51-F019	210A	2P33-F012	28	2T48-F307	25
2E51-F021	210A	2P33-F013	64	2T48-F308	25
2E51-F028	213	2P33-F014	217A	2T48-F309	205
2E51-F031	203	2P33-F015	217B	2T48-F310	205
2E51-F040	212	2P42-F051	23	2T48-F311	205
2E51-F044A	34F	2P42-F052	24	2T48-F318	220
2E51-F044B	51B	2P51-F513	21	2T48-F319	26
2E51-F044C	34E	2P51-F651	21	2T48-F320	26
2E51-F044D	51A	2P64-F045	47	2T48-F321	44
2E51-F104	212	2P64-F047	48	2T48-F322	44
2E51-F104	221C	2P70-F002	63	2T48-F323A Air Cyl.	225G
2E51-F105	212	2P70-F003	63	2T48-F323B Air Cyl.	225H
2E51-F105	221C	2P70-F004	22	2T48-F323C Air Cyl.	225J
2G11-F003	19	2P70-F005	22	2T48-F323D Air Cyl.	225K
2G11-F004	19	2P70-F066	51C	2T48-F323E Air Cyl.	225L
2G11-F019	18	2P70-F067	51C	2T48-F323F Air Cyl.	225M
2G11-F020	18	2P70-N003	22	2T48-F323G Air Cyl.	225A
2G11-F852	55	2P70-N016	51C	2T48-F323H Air Cyl.	225B
2G11-F853	55	2T23-F004	34C	2T48-F323I Air Cyl.	225C
2G31-F001	14	2T23-F005	34C	2T48-F323J Air Cyl.	225D
2G31-F004	14	2T48-D006	25	2T48-F323K Air Cyl.	225E
2G51-D001	218A	2T48-D006	205	2T48-F323L Air Cyl.	225F
2G51-F002	218A	2T48-F103	25	2T48-F324	205
2G51-F011	234A	2T48-F104	25	2T48-F325	230
2G51-F012	234A	2T48-F104	205	2T48-F326	220
2P21-F032	46	2T48-F113	81	2T48-F327	230
2P21-F034	46	2T48-F114	81	2T48-F328A	205
2P33-F002	3	2T48-F115	235B	2T48-F328B	205
2P33-F003	60A	2T48-F116	235B	2T48-F332A	231

TABLE T7.0-2 (Sheet 4 of 4)
PRIMARY CONTAINMENT ISOLATION DEVICES: MPL TO PENETRATION NUMBER CROSS REFERENCE

MPL	PEN.	MPL	PEN.	MPL	PEN.
2T48-F332B	235A				
2T48-F333A	231				
2T48-F333B	235A				
2T48-F334A	80				
2T48-F334B	67				
2T48-F335A	80				
2T48-F335B	67				
2T48-F338	220				
2T48-F339	220				
2T48-F340	26				
2T48-F341	26				
2T48-F342A	225G				
2T48-F342B	225H				
2T48-F342C	225J				
2T48-F342D	225K				
2T48-F342E	225L				
2T48-F342F	225M				
2T48-F342G	225A				
2T48-F342H	225B				
2T48-F342I	225C				
2T48-F342J	225D				
2T48-F342K	225E				
2T48-F342L	225F				
2T48-F361A	206C				
2T48-F361B	206A				
2T48-F362A	206F				
2548-F362B	206H				
2T48-F363A	34D				
2T48-F363B	51D				
2T48-F364A	220				
2T48-F364B	205				

SECONDARY CONTAINMENT OVERVIEW

Pages T8.0-1 and T8.0-2 provide an overview of the remainder of the secondary containment section of the TRM. An understanding of this section is vital to proper use and understanding of the complete section.

Pages T8.1-1 through T8.1-4 each address a specific secondary containment type. Each page specifies LCO and SURVEILLANCE REQUIREMENTS for the specific containment type and is laid out as follows:

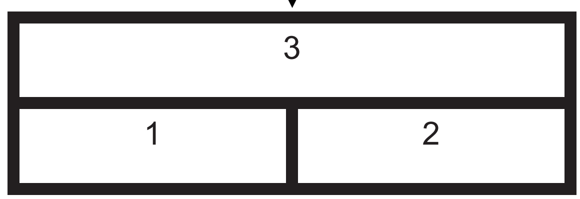
This provides a simple pictorial representation of the containment configuration including zones to be included. Zones are as follows:

- 1: U1 Reactor Building
- 2: U2 Reactor Building
- 3: Common Refueling Floor

This identifies the containment type. In this example, it is "A."

TYPE A

LCO REQUIREMENTS:



Unit	Status Restrictions/Limitations	Refueling Floor Equipment Hatch
1	Restrictions such as Unit MODE would be specified here.	Specifies if the hatch is required to be in place or not.
2	Restrictions such as Unit MODE would be specified here.	Specifies if the hatch is required to be in place or not.

LCO 3.6.4.1:
- Refers to the pictorial representation above.
- Specifies hatches (including penetrations) and doors for the specified containment type.

LCO 3.6.4.2: Specifies SCIVs required for the specified containment type.

LCO 3.6.4.3: Specifies SGT Subsystems required for the specified containment type.

Prior to changing to a secondary containment type, the SRs for that containment must be current. If this is not possible, secondary containment is inoperable.

SURVEILLANCE REQUIREMENTS:

SR 3.6.4.1.1:	Specifies hatches to which this SR applies for this containment type. Included in this group are the items in Table T8.2-1 characterized by penetration information.

SR 3.6.4.1.2:	Specifies doors to which this SR applies for this containment type.

SR 3.6.4.1.3 and SR 3.6.4.1.4:	Specifies number of SGT subsystems required for surveillances for this containment type. Must test one of the specified combinations every 24 months such that all combinations are tested every X times 24 (+25%) months where X equals number of combinations.

SR 3.6.4.2.1	Specifies SCIVs to which this SR applies for this containment type.

STANDARD LIMITATIONS FOR SURVEILLANCE REQUIREMENTS

The following apply to the SURVEILLANCE REQUIREMENTS for each containment Type, and will not be repeated on each page:

A. TYPE X LCO requirements do not have to be met during TYPE X surveillance testing IF the containment is not currently in TYPE X.

For example, if surveillance for Type C secondary containment is to be performed while the actual containment configuration is Type A:

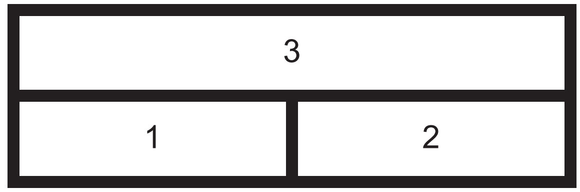
1. The LCO REQUIREMENTS specified for Type A containment (page T8.1-1) remain in effect.
2. The SURVEILLANCE REQUIREMENTS specified for Type C containment (page T8.1-4) must be satisfied.

B. If TYPE X containment surveillance is being performed, must ensure TYPE X testing does not invalidate current containment TYPE UNLESS appropriate TS LCO CONDITION is entered.

For example, must ensure that alignment / gagging of SCIVs in Table T8.3-1 does not make the SCIVs inoperable for the actual secondary containment type in effect. IF (in this example) one SCIV is made inoperable, enter TS LCO 3.6.4.2, CONDITION A.

TYPE A

LCO REQUIREMENTS:



Unit	Status Restrictions/Limitations	Refueling Floor Equipment Hatch
1	NONE	Either IN or OUT
2	NONE	Either IN or OUT

LCO 3.6.4.1: Secondary Containment Boundary as shown above.

LCO 3.6.4.2: Required SCIVs as defined by TRM Table T8.2-1.

LCO 3.6.4.3: Required SGT Subsystems: 1A, 1B, 2A, 2B (i.e., all 4).

SURVEILLANCE REQUIREMENTS:

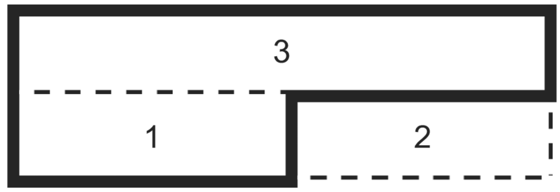
SR 3.6.4.1.1: Required hatches defined by Table T8.2-1.

SR 3.6.4.1.2: Required doors defined by Table T8.2-1.

SR 3.6.4.1.3 and SR 3.6.4.1.4: 3 SGT subsystems are required for surveillances. Must test one of the following combinations every 24 months such that all combinations are tested every 96 (+25%) months:

- 1A, 1B, 2A (One U1 SGT subsystem may trip per design.)
- 1A, 1B, 2B (One U1 SGT subsystem may trip per design.)
- 1A, 2A, 2B
- 1B, 2A, 2B

SR 3.6.4.2.1 Required SCIVs defined by Table T8.2-1.



TYPE B1

LCO REQUIREMENTS:

Unit	Status Restrictions/Limitations	Refueling Floor Equipment Hatch
1	NONE	OUT
2	• In MODE 4 or 5, OR defueled and not conducting OPDRVs. • U2 reactor coolant < 212°F and vented. • No refueling floor airspace to U2 Reactor Building airspace opening exists via the drywell.	IN

LCO 3.6.4.1:	Secondary Containment Boundary as shown above.

LCO 3.6.4.2:	Required SCIVs as defined by TRM Table T8.2-1.

LCO 3.6.4.3:	Required SGT Subsystems:	One U1 subsystem and both U2 subsystems: 1A, 2A, 2B <u>OR</u> 1B, 2A, 2B

SURVEILLANCE REQUIREMENTS:

SR 3.6.4.1.1:	Required hatches defined by Table T8.2-1.

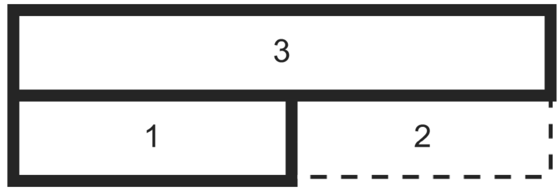
SR 3.6.4.1.2:	Required doors defined by Table T8.2-1.

SR 3.6.4.1.3 and SR 3.6.4.1.4:	2 (of the 3 required by LCO 3.6.4.3) SGT subsystems are required for surveillances. Must test one of the following combinations every 24 months such that all combinations are tested every 120 (+25%) months: • 1A, 2A • 1A, 2B • 1B, 2A • 1B, 2B • 2A, 2B

SR 3.6.4.2.1	Required SCIVs defined by Table T8.2-1.

TYPE B2

LCO REQUIREMENTS:



Unit	Status Restrictions/Limitations	Refueling Floor Equipment Hatch
1	NONE	IN
2	• In MODE 4 or 5, OR defueled and not conducting OPDRVs. • U2 reactor coolant < 212°F and vented. • No refueling floor airspace to U2 Reactor Building airspace opening exists via the drywell.	IN

LCO 3.6.4.1:	Secondary Containment Boundary as shown above.

LCO 3.6.4.2:	Required SCIVs as defined by TRM Table T8.2-1.

LCO 3.6.4.3:	Required SGT Subsystems: 1A, 1B, 2A, 2B (i.e., all 4).

SURVEILLANCE REQUIREMENTS:

SR 3.6.4.1.1:	Required hatches defined by Table T8.2-1.

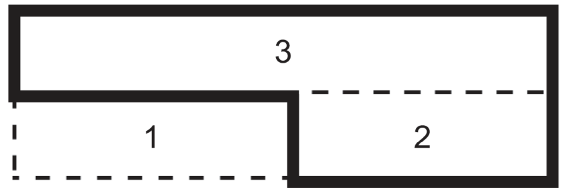
SR 3.6.4.1.2:	Required doors defined by Table T8.2-1.

SR 3.6.4.1.3 and SR 3.6.4.1.4:	3 SGT subsystems are required for surveillances. Must test one of the following combinations every 24 months such that all combinations are tested every 96 (+25%) months: • 1A, 1B, 2A (One U1 SGT subsystem may trip per design.) • 1A, 1B, 2B (One U1 SGT subsystem may trip per design.) • 1A, 2A, 2B • 1B, 2A, 2B

SR 3.6.4.2.1	Required SCIVs defined by Table T8.2-1.

TYPE C

LCO REQUIREMENTS:



Unit	Status Restrictions/Limitations	Refueling Floor Equipment Hatch
1	• In MODE 4 or 5, OR defueled and not conducting OPDRVs. • U1 reactor coolant < 212°F and vented. • No refueling floor airspace to U1 Reactor Building airspace opening exists via the drywell.	IN
2	NONE	OUT

LCO 3.6.4.1: Secondary Containment Boundary as shown above.

LCO 3.6.4.2: Required SCIVs as defined by TRM Table T8.2-1.

LCO 3.6.4.3: Required SGT subsystems: Both U2 subsystems and one U1 subsystem: 2A, 2B, 1A OR 2A, 2B, 1B

SURVEILLANCE REQUIREMENTS:

SR 3.6.4.1.1: Required hatches defined by Table T8.2-1.

SR 3.6.4.1.2: Required doors defined by Table T8.2-1.

SR 3.6.4.1.3 and SR 3.6.4.1.4: 2 (of the 3 required by LCO 3.6.4.3) SGT subsystems are required for surveillances. Must test one of the following combinations every 24 months such that all combinations are tested every 120 (+25%) months:

- 2A, 2B
- 2A, 1A
- 2A, 1B
- 2B, 1A
- 2B, 1B

SR 3.6.4.2.1 Required SCIVs defined by Table T8.2-1.

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 1 of 8)

HATCHES (includes penetration devices)

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
1	R/F Floor to Unit 2 Stack Monitoring Equipment Room Hatch	P		X	X	
1	Reactor Building 228’ Airtight Equipment Hatch	P			X	X
1	Fuel Pool Cleanup and RWCU Demineralizer Hatch Covers 228’	P				X
1	R/B 205’ 4” Floor Drain Line Screw Cap by RBCCW Surge Tank	P				X
1	R/F 228’ 4” Floor Drain Plug Southwest Corner (elevator vestibule airlock)	P				X
1	HPCI Room Roof Hatch Plug	P	X	X	X	
1	Reactor Building Blowout Panels (164’ T/B)	P	X	X	X	
1	Refueling Floor Skylights	P	X	X	X	X
1-X159	Penetration Blind Flange or Modified Flange with a 2-inch or Smaller Temporary Connection with 1 Inboard and 1 Outboard Manual SCIV	P	X	X	X	
1-X160	Penetration Blind Flange	P	X	X	X	
1-X161	Penetration with Sealed Electrical Box for Temporary Power	P	X	X	X	
1-X162	Penetration Blind Flange	P	X	X	X	

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 2 of 8)

HATCHES (includes penetration devices) (continued)

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
2	Rx Building 228 Airtight Equipment Hatch	P		X	X	
2	HPCI Room Roof Hatch Plug	P	X			X
2	Reactor Building Blowout Panels 164' T/B	P	X			X
2	Fuel Pool Cleanup and RWCU Demineralizer Hatch Covers 228'	P		X	X	
2	Refueling Floor Skylights	P	X	X	X	X
2-X137	Penetration with Sealed Electrical Box for Temporary Power	P	X			X
2-X138	Penetration Blind Flange or Modified Flange with a 2-inch or Smaller Temporary Connection with 1 Inboard and 1 Outboard Manual SCIV	P	X			X
2-X144(1)	Penetration Blind Flange	P	X			X
2-X144(2)	Penetration Blind Flange	P	X			X

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 3 of 8)

DOORS

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
1HMS-7	Railroad Airlock to Hot Machine Shop	P	X	X	X	
1R-23A	Railroad Airlock Outer	P	X	X	X	
1R23B	Railroad Airlock Inner	P	X	X	X	
1R-27	130’ Elevation Airlock Inner	P	X	X	X	
1R-28	130’ Elevation Airlock Outer (fire door)	P	X	X	X	
1R-30A	Railroad Door Outer	P	X	X	X	
1R-30B	Railroad Door Inner	P	X	X	X	
1R-40A	Airlock, R208-A, to Unit 1 Reactor Building El. 164’	P	X	X	X	X
1R-41	Airlock, R208-A, to Unit 1 Turbine Building El. 164’ (fire door)	P	X	X	X	X
1R-42	Airlock, R208-A, to Unit 2 Reactor Building El. 164’ (fire door)	P	X	X	X	X
IR-50	185’ Elevation Ventilation Room	P	X	X	X	
1R-52	Airlock, R311-A, to Unit 1 Reactor Building El. 185’	P		X	X	X
1R-52A	Airlock, R311-A, to Unit 2 Reactor Building El. 185’	P		X	X	X
1R-59	185’ Elevation Ventilation Room Airlock Outer	P	X	X	X	
1R-59A	185’ Elevation Ventilation Room Airlock Inner	P	X	X	X	
1R-60	185’ Elevation Vestibule Airlock Inner	P	X	X	X	
1R-60A	185’ Elevation Vestibule Airlock Outer	P	X	X	X	
1R-62	203’ Ventilation Room Airlock Outer	P	X	X	X	

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 4 of 8)

DOORS (continued)

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
1R-62A	203’ Ventilation Room Airlock Inner	P	X	X	X	
1R-62A	203’ Ventilation Room Airlock Inner	P	X	X	X	
1R-63	203’ Ventilation Access	P	X	X	X	
1R-64	228’ Elevation Vestibule Airlock (fire door)	P				X
1R-64A	228’ Elevator Vestibule to R/F Floor	P				X
1R-65	228’ R/F Floor Northeast Corner (fire door)	P				X
1R-67	244’ Vestibule Airlock Outer	P	X	X	X	
1R-67A	244’ Vestibule Airlock Inner	P	X	X	X	
1RW-30	130’ Radwaste Airlock Outer (fire door)	P	X	X	X	
1RW-30A	130’ Radwaste Airlock Inner	P	X	X	X	
2R-22	Airlock, 2R106, to TIP Drive Area Northwest Reactor Building, El. 130’-0”	P	X			X
2R-23	Airlock, 2R106, to Turbine Building Elev. 130’ (fire door)	P	X			X
2R-26	Airlock, 2R108, to Radwaste Building El. 132’-4” (fire door)	P	X			X
2R-28	130’ Reactor Building Railroad Double Door	P	X			X
2R-29	Airlock, 2R108, to CRD Cont’l. Piping Area 2R104-A Southwest Reactor Building El. 130’-1”	P	X			X
2R-31	Airlock, 2R112, to Reactor Building El. 130’-0”	P	X			X
2R-31A	Airlock, 2R112, to Hot Machine Shop HMS100	P	X			X
2R-56	185’ Access to Reactor Building Supply Fans (double doors to outside)	P	X			X

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 5 of 8)

DOORS (continued)

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
2R-57	Airlock, 2R305, to Reactor Building Supply Fan Room 2R305 El. 185’	P	X			X
2R-59	Airlock, 2R305, to El. 185’ Operating Floor	P	X			X
2R-61	Airlock, 2R420, to Northwest Stairwell 2R410 El. 203 (fire door)	P	X			X
2R-62	Airlock, 2R420, to Exhaust Fan Ventilation Room 2R419 El. 203’	P	X			X
2R-65	203’ Access to Refueling Floor Supply Fans (double doors to outside)	P	X			X
2R-66	Airlock, 2R421, to Exhaust Fan Ventilation Room 2R419 El. 203’	P	X			X
2R-67	Airlock, 2R421, to RWCU Demin Access El. 203’	P	X			X
2R-68	Airlock, 2R422, to El. 203’ Working Floor 2R401	P	X			X
2R-69	Airlock, 2R422, to Refueling Floor Supply Fan Room 2R415 El. 203’	P	X			X
2R-71	Airlock, 2R511, to Northwest Stairwell El. 228’ (fire door)	P	X	X	X	X
2R-72	Airlock, 2R511, to Refueling Floor El. 228’	P	X	X	X	X
2R-73	Airlock, 2R511, to Reactor Building Roof El. 228’	P	X	X	X	X
2R-74	Airlock, 2R510, to 228’ El. Refueling Floor	P		X	X	
2R-75	Airlock, 2R510, to Southeast Stairwell El. 228’	P		X	X	
2R-76	Airlock, 2R114, to Post Accident Sampling Room, 2R113	P	X			X
2R-77	Airlock, 2R114, to Hot Machine Shop HMS100	P	X			X

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 6 of 8)

SECONDARY CONTAINMENT ISOLATION VALVES

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
1T41-F003A	R/F Inboard Vent Supply Isolation	4.2 s	X	X	X	X
1T41-F003B	R/F Outboard Vent Supply Isolation	4.2 s	X	X	X	X
1T41-F011A	R/B Inboard Vent Supply Isolation	5 s	X	X	X	
1T41-F011B	R/B Outboard Vent Supply Isolation	5 s	X	X	X	
1T41-F023A	R/F Inboard Vent Exhaust Isolation	4.2 s	X	X	X	X
1T41-F023B	R/F Outboard Vent Exhaust Isolation	4.2 s	X	X	X	X
1T41-F032A	SGT Inlet from R/B	P/gag				X
1T41-F032B	SGT Inlet from R/B	P/gag				X
1T41-F043A	R/B Accessible Area Inboard Vent Exhaust	5 s	X	X	X	
1T41-F043B	R/B Accessible Area Outboard Vent Exhaust	5 s	X	X	X	
1T41-F044A	R/B Inaccessible Area Inboard Vent Exhaust	5 s	X	X	X	
1T41-F044B	R/B Inaccessible Area Outboard Vent Exhaust	5 s	X	X	X	
1T45-F010	R/F East Side Drains Isolation Valve	P				X
1T45-F011	R/F West Side Drains/Vent Drain Pot Isolation Valve	P				X
1T45-F013	R/F East Side Drains Isolation Valve	P				X
1T45-F014	R/F West Side Drains, Vent Drain Pots, New Fuel Storage Vaults Drains Isolation Valve	P				X
1T45-F015	R/F Cask Wash Down Area Drain Isolation Valve	P				X
1T45-F021	Railroad Airlock Drain Isolation Valve	P	X	X	X	

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 7 of 8)

SECONDARY CONTAINMENT ISOLATION VALVES (continued)

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
1T45-F060A	Vent Drain Pot Isolation Valve	P				X
1T45-F060B	Vent Drain Pot Isolation Valve	P				X
1T45-F060C	Vent Drain Pot Isolation Valve	P				X
1T48-F081	Primary Cont. 18” Vent Isolation	P/gag				X
1T48-F083	Primary Cont. 2” Vent Isolation	P				X
2T41-F003A	R/F Inboard Vent Supply Isolation	4.2 s	X	X	X	X
2T41-F003B	R/F Outboard Vent Supply Isolation	4.2 s	X	X	X	X
2T41-F011A	R/B Inboard Vent Supply Isolation	5 s	X			X
2T41-F011B	R/B Outboard Vent Supply Isolation	5 s	X			X
2T41-F023A	R/F Inboard Vent Exhaust Isolation	4.2 s	X	X	X	X
2T41-F023B	R/F Outboard Vent Exhaust Isolation	4.2 s	X	X	X	X
2T41-F044A	R/B Inaccessible Area Inboard Vent Exhaust	5 s	X			X
2T41-F044B	R/B Inaccessible Area Outboard Vent Exhaust	5 s	X			X
2T41-FD101	R/F Vent Drain Pot Isolation Valve	P		X	X	
2T41-FD102	R/F Vent Drain Pot Isolation Valve	P		X	X	
2T41-FD103	R/F Vent Drain Pot Isolation Valve	P		X	X	
2T41-FD104	R/F Vent Drain Pot Isolation Valve	P		X	X	
2T41-FD105	R/F Vent Drain Pot Isolation Valve	P		X	X	

TABLE T8.2-1 (SECONDARY CONTAINMENT DEVICES) (sheet 8 of 8)

SECONDARY CONTAINMENT ISOLATION VALVES (continued)

MPL	DESCRIPTION	Passive/Active TIME	A	B1	B2	C
2T41-FD106	R/F Vent Drain Pot Isolation Valve	P		X	X	
2T45-F011	R/F West Side Drains, New Fuel Storage Vaults Drains Isolation Valve	P		X	X	
2T45-F013	R/F Cask Washdown Area Isolation Valve	P		X	X	
2T45-F014	R/F East Side Drains Isolation Valve	P		X	X	
2T45-F015	R/F East Side Drains Isolation Valve	P		X	X	
2T45-F016	R/F Northwest Corner Stairway Drain Isolation Valve	P		X	X	
2T45-F017	R/F West Side Drains Isolation Valve	P		X	X	
2T45-F018	R/F West Side Drains Isolation Valve	P		X	X	
2T45-F019	R/F West Side Drains Isolation Valve	P		X	X	
2T46-F001A	SGT 2A Inlet from R/B	P/gag		X	X	
2T46-F001B	SGT 2B Inlet from R/B	P/gag		X	X	
2T48-F081	Primary Cont. 18” Vent Isolation	P/gag		X[1]	X[1]	
2T48-F083	Primary Cont. 2” Vent Isolation	P		X	X	

NOTE:

[1] This valve is not required to be gagged and/or closed in a Type B1/B2 Secondary Configuration which includes the Unit 2 Drywell.

SECONDARY CONTAINMENT EXPANSION

This section does NOT apply to swapping from one containment type to another.

Expansion of an existing secondary containment type to include additional volume and / or a different barrier is sometimes necessary (especially during outages). This expansion is acceptable and is NOT considered a different type of containment, provided the following actions/conditions are taken/maintained:

A. Testing requirements for expanding an existing secondary containment type are as follows:

Expansion Type	Example of Expansion Type (not all inclusive)	Surveillance(s) Required
Volume increase AND boundary change	Type B1, B2, or C expanded to include all or part of drywell of the excluded zone	SR 3.6.4.1.3 AND SR 3.6.4.1.4: • Secondary containment is inoperable when the expansion is implemented, and appropriate TS CONDITION must be entered. Successful completion of these SRs demonstrate secondary containment operability, and the CONDITION is exited at that time. • Perform these SRs using the most limiting combination of SGT trains.
Volume increase ONLY	Type A expanded to include drywell	SR 3.6.4.1.3: • If the expanded configuration involves a volume increase which is **EXACTLY** the same as one that has been previously tested during the past 24 months (+25%), no testing is required. • If conditions of first bullet are not satisfied, secondary containment is inoperable when the expansion is implemented, and appropriate TS CONDITION must be entered. Successful completion of the SR demonstrates secondary containment operability, and the CONDITION is exited at that time. • Perform this SR using the most limiting combination of SGT trains.

B. When expanding secondary containment type B1 or type B2 to include the Unit 2 drywell, or when expanding secondary containment type C to include the Unit 1 drywell, either all or a portion of the drywell becomes part of the secondary containment after the drywell head is removed as explained below:

1. IF the following conditions exist, **ALL** of the drywell is part of secondary containment:
   - the bulkhead manways are opened;
   - the drywell equipment hatches are closed and intact;
   - the personnel airlock is OPERABLE; and
   - applicable primary containment isolation valves are maintained closed so that no additional air paths penetrate the primary containment.

2. IF the following conditions exist, only the portion of the drywell above the bulkhead manways is part of secondary containment:
   - the bulkhead manways are closed and sealed;
   - the drywell equipment hatches are either open or closed;
   - and the personnel airlock is either OPERABLE or inoperable.

T 9.1 BATTERY RESISTANCES

Purpose:

Identify maintenance and OPERABILITY resistance values for Class 1E batteries.

Application:

The maintenance resistance limits for the intercell connections, shown in Table T9.1-1, are the battery manufacturer's recommendations. The limits include both the connector and connector contact resistances. The maintenance resistance limits for the cable connections, also shown in Table T9.1-1, include only the connector and connector contact resistance at one end of a cable. The battery cable connections are intertier or interstep, interrack, and the battery terminals. All cable connections consist of two connections, one for each end of the cable, except for the battery terminal connection which consists of only one connection for each terminal.

The maintenance resistance limit applies to each connection of a connection type and provides an indication that maintenance is required to reduce the contact resistance of an individual connection.

The OPERABILITY resistance limit applies to the overall connection resistance and allows for an increase in connection resistance due to changes in connection tightness and contact surface corrosion. The OPERABILITY limit is calculated for a battery that has reached end-of-life (80% of rated capacity). The OPERABILITY limit for a battery that has any design margin is conservative. Calculation SENH 94-021 provides supporting documentation for these battery resistance limits.

Table T9.1-1: Battery Resistance Limits (μOhms)			
	Intercell Connections	Cable Connections	
Battery MPL No.	Maintenance (Each)	Maintenance (Each)	OPERABILITY Limit (Overall)
1R42-S001A	50	25	3980
1R42-S001B	50	25	3980
1R42-S002A	100	50	4480
1R42-S002B	100	50	4480
1R42-S002C	100	50	4480
2R42-S001A	50	25	4080
2R42-S001B	50	25	4080
2R42-S002A	100	50	4480
2R42-S002C	100	50	4480

TABLE T9.2-1 (Sheet 1 of 4)

PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

DEVICE NO. & LOCATION[(a)]	SYSTEM/COMPONENT POWERED
A. Type 1:	
1. 4 kV CKT BRKR 2R22-S001, FR 5	Reactor Recirc Water Pump ASD 2A 2B31-S002A
2. 4 kV CKT BRKR 2R22-S008, FR 2	Recirc A Pump Motor 2B31-C001A
3. 4 kV CKT BRKR 2R22-S002, FR 5	Reactor Recirc Water Pump ASD 2B 2B31-S002B
4. 4 kV CKT BRKR 2R22-S009, FR 2	Recirc B Pump Motor 2B31-C001B
B. Type 2:	
1. 600 VAC, MCB, TM 2R24-S012, FR 2DL	Drywell Area Cooling Unit 2T47-B009B
2. 600 VAC, MCB, TM 2R24-S012, FR 2DR	Drywell Area Cooling Unit 2T47-B009B
3. 600 VAC, MCB, TM 2R24-S012, FR 3FL	Drywell Area Cooling Unit 2T47-B008B
4. 600 VAC, MCB, TM 2R24-S012, FR 3FR	Drywell Area Cooling Unit 2T47-B008A
5. 600 VAC, MCB, TM 2R24-S011, FR 1DL	Drywell Area Cooling Unit 2T47-B008A
6. 600 VAC, MCB, TM 2R24-S011, FR 1DR	Drywell Area Cooling Unit 2T47-B008A
7. 600 VAC, MCB, TM 2R24-S011, FR 20AR	Drywell Area Cooling Unit 2T47-B009A
8. 600 VAC, MCB, TM 2R24-S011, FR 20E	Drywell Area 2T47-B009A

(continued)

TABLE T9.2-1 (Sheet 2 of 4)

PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

DEVICE NO. & LOCATION[a]	SYSTEM/COMPONENT POWERED
A. Type 3:	
1. 600 VAC, MCB, TM 2R24-S014, FR 5E	Recirc Pump Motor Heater 2B31-C001B
2. 600 VAC, MCB, TM 2R24-S013, FR 5B	Recirc Pump Motor Heater 2B31-C001A
D. Type 4:	
1. 120 VAC, MCB, TM 2R25-S102, BRKR 10	Cables BHE808M01 and BHE808M02
2. 120 VAC, MCB, TM 2R25-S101, BRKR 10	Cables BGE708M01 and BGE708M02
E. Type 5:	
1. 600 VAC, MCB, MO 2R24-S014, FR 2A	Drywell Equip DR Sump Pump Disch MOV 2G11-F018
2. 600 VAC, MCB, MO 2R24-S014, FR 6C	Drywell Equip DR Sump Pump Disch MOV 2G11-F015
3. 600 VAC, MCB, MO 2R24-S012B, FR 4A	RCIC Steam Supply Isolation MOV 2E51-F007
4. 600 VAC, MCB, MO 2R24-S011, FR 9A	Reactor Heat Spray Valve MOV 2E11-F022
5. 600 VAC, MCB, MO 2R24-S011A, FR 4A	HPCI Inboard Steam Isolation MOV 2E41-F002
6. 600 VAC, MCB, MO 2R24-S011, FR 14C	RWCU Inboard Isolation Valve MOV 2G31-F001
7. 600 VAC, MCB, MO 2R24-S011, FR 15B	Main Steam Line Drain Valve MOV 2B21-F016

(continued)

TABLE T9.2-1 (Sheet 3 of 4)

PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

DEVICE NO. & LOCATION[(a)]	SYSTEM/COMPONENT POWERED
F. Type 6:	
1. 600 VAC, MCB, MO 2R24-S018A, FR 2A	Recirc Pump Suction Valve MOV 2B31-F023A
2. 600 VAC, MCB, MO 2R24-S018A, FR 2B	Recirc Pump Discharge Valve MOV 2B31-F031A
3. 600 VAC, MCB, MO 2R24-S018B, FR 3A	Recirc Pump Suction Valve MOV 2B31-F023B
4. 600 VAC, MCB, MO 2R24-S018B, FR 3B	Recirc Pump Discharge Valve MOV 2B31-F031B
5. 600 VAC, MCB, MO 2R24-S014, FR 1B	Drywell Equip Drain Sump Pump B 2G11-C006B
6. 600 VAC, MCB, MO 2R24-S014, FR 7D	Drywell Floor Drain Sump Pump B 2G11-C001B
7. 600 VAC, MCB, MO 2R24-S013, FR 4A	Drywell Floor Drain Sump Pump 1A 2G11-C001A
8. 600 VAC, MCB, MO 2R24-S013, FR 4B	Drywell Equip Drain Sump Pump A 2G11-C006A
9. 600 VAC, MCB, MO 2R24-S012, FR 18B	Drywell Area Cooling Unit 2T47-B007B
10. 600 VAC, MCB, MO 2R24-S012, FR 20A	Drywell Return Air Fan 2T47-C001B
11. 600 VAC, MCB, MO 2R24-S011, FR 6C	RHR Shutdown Cooling Suction MOV 2E11-F009
12. 600 VAC, MCB, MO 2R24-S011, FR 18A	Drywell Area Cooling Unit 2T47-B007A
13. 600 VAC, MCB, MO 2R24-S011, FR 18B1	Drywell Return Air Fan 2T47-C001A
14. 600 VAC, MCB, MO 2R24-S013, FR 3B	Drywell Cooling Unit 2T47-B010A
15. 600 VAC, MCB, MO 2R24-S014, FR 8A	Drywell Cooling Unit 2T47-B010B

(continued)

TABLE T9.2-1 (Sheet 4 of 4)

PRIMARY CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

DEVICE NO. & LOCATION[a]	SYSTEM/COMPONENT POWERED
G. Type 7:	
1. 208 VAC, MCB, MO 2R24-S013, FR 11D	Drywell Chemical Drain Sump Pump 2G11-C101
2. 208 VAC, MCB, MO 2R24-S012, FR 23C	Drywell Return Air Fan 2T47-C002B
3. 208 VAC, MCB, MO 2R24-S011, FR 22C	Drywell Return Air Fan 2T47-C002A

[a]MCB – Molded Case Circuit Breaker
MO – Magnetic Only
TM – Thermal Magnetic

TABLE T10.1-1 (SHEET 1 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
1D11-N026A,B	ODCM 3-1 (3.e.)	N/A
1D11-R013	ODCM 3-1 (3.e.)	N/A
1D11-R625	ODCM 3-1 (3.d.)	N/A
1D11-R631	TRM T3.3.3-1 (4.)	N/A
1L51-N005	TRM T3.3.6-1 (1.d.)	N/A
1L51-N006	TRM T3.3.6-1 (2.b.)	N/A
1L51-N007	TRM T3.3.6-1 (2.a.)	N/A
1L51-N008	TRM T3.3.6-1 (2.c.)	N/A
1L51-N105	TRM T3.3.6-1 (4.a.)	N/A
1R43-R766B	TS LCO 3.3.3.2 for “B” DG Equipment	N/A
1R43-R769B	TS LCO 3.3.3.2 for “B” DG Equipment	N/A
1Z41-N015A,B	TRM T3.3.7-1 (5.)	LFD-2-MCREC-06
1Z41-N015A,B	TS LCO 3.3.7.1	LFD-2-MCREC-01
1Z41-R615A,B	TRM T3.3.7-1 (5.)	LFD-2-MCREC-06
1Z41-R615A,B	TS LCO 3.3.7.1	LFD-2-MCREC-01
2B21-F013B,F	TS LCO 3.3.3.2 for RPV Pressure Control	N/A
2B21-F022A,B,C,D	TS 3.3.1.1-1 (5.)	LFD-2-RPS-10
2B21-F028A,B,C,D	TS 3.3.1.1-1 (5.)	LFD-2-RPS-10
2B21-K752A	TS 3.3.5.1-1 (4.a.)	LFD-2-ECCS-18
2B21-K752A	TS 3.3.5.1-1 (4.b.)	LFD-2-ECCS-19
2B21-K752A	TS 3.3.5.1-1 (4.c.)	LFD-2-ECCS-20
2B21-K752A	TS 3.3.5.1-1 (4.d.)	LFD-2-ECCS-21
2B21-K752B	TS 3.3.5.1-1 (5.a.)	LFD-2-ECCS-18
2B21-K752B	TS 3.3.5.1-1 (5.b.)	LFD-2-ECCS-19
2B21-K752B	TS 3.3.5.1-1 (5.c.)	LFD-2-ECCS-20
2B21-K752B	TS 3.3.5.1-1 (5.d)	LFD-2-ECCS-21
2B21-K754A	TS 3.3.5.1-1 (4.a.)	LFD-2-ECCS-18
2B21-K754A	TS 3.3.5.1-1 (4.g.)	LFD-2-ECCS-24
2B21-K754B	TS 3.3.5.1-1 (5.a.)	LFD-2-ECCS-18
2B21-K754B	TS 3.3.5.1-1 (5.g.)	LFD-2-ECCS-24
2B21-K756A	TS 3.3.5.1-1 (4.a.)	LFD-2-ECCS-18
2B21-K756A	TS 3.3.5.1-1 (4.g.)	LFD-2-ECCS-24

TABLE T10.1-1 (SHEET 2 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2B21-K756B	TS 3.3.5.1-1 (5.a.)	LFD-2-ECCS-18
2B21-K756B	TS 3.3.5.1-1 (5.g.)	LFD-2-ECCS-24
2B21-N004A,B,C,D,E,F,G,H,K,L,M	TRM T3.3.3-1 (3.)	N/A
2B21-N015A,B,C,D	TS 3.3.6.1-1 (1.b.)	LFD-2-PCIS-02
2B21-N027	TS 3.3.3.1-1 (2.d.)	N/A
2B21-N056A,B,C,D	TS 3.3.6.1-1 (1.d.)	LFD-2-PCIS-04
2B21-N078A,B,C,D	TS 3.3.1.1-1 (3.)	LFD-2-RPS-08
2B21-N080A,B,C,D	TS 3.3.1.1-1 (4.)	LFD-2-RPS-09
2B21-N080A,B,C,D	TS 3.3.6.1-1 (2.a.)	LFD-2-PCIS-07
2B21-N080A,B,C,D	TS 3.3.6.1-1 (6.b.)	LFD-2-PCIS-34
2B21-N081A,B,C,D	TS 3.3.6.1-1 (1.a.)	LFD-2-PCIS-01
2B21-N081A,B,C,D	TS 3.3.6.1-1 (5.d.)	LFD-2-PCIS-32
2B21-N081A,B,C,D	TS 3.3.6.2-1 (1.)	LFD-2-SCIS-01
2B21-N085A,B	TS 3.3.3.1-1 (2.a.)	N/A
2B21-N085A,B	TS 3.3.5.1-1 (2.e.)	LFD-2-ECCS-09
2B21-N086A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
2B21-N086A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N087A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
2B21-N087A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N088A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
2B21-N088A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N089A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
TB21-N089A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N090A,B,C,D	TS 3.3.5.1-1 (1.c.)	LFD-2-ECCS-03
2B21-N090A,B,C,D	TS 3.3.5.1-1 (2.c.)	LFD-2-ECCS-07
2B21-N090A,D	TS 3.3.3.1-1 (1.)	N/A
2B21-N090B,C,E,F	TS 3.3.5.1-1 (2.d.)	LFD-2-ECCS-08
2B21-N091A,B,C,D	TRM T3.3.7-1 (1.)	LFD-2-MCREC-02
2B21-N091A,B,C,D	TS 3.3.3.1-1 (2.b.)	N/A
2B21-N091A,B,C,D	TS 3.3.5.1-1 (1.a.)	LFD-2-ECCS-01
2B21-N091A,B,C,D	TS 3.3.5.1-1 (2.a.)	LFD-2-ECCS-05
2B21-N091A,B,C,D	TS 3.3.5.1-1 (3.a.)	LFD-2-ECCS-12

TABLE T10.1-1 (SHEET 3 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2B21-N091A,C	TS 3.3.5.1-1 (4.a.)	LFD-2-ECCS-18
2B21-N091B,D	TS 3.3.5.1-1 (5.a.)	LFD-2-ECCS-18
2B21-N091A,B,C,D	TS 3.3.5.2-1 (1.)	LFD-2-RCIC-01
2B21-N091A,B,C,D	TS LCO 3.3.4.2.a.	LFD-2-RPT-03
2B21-N093A	TS 3.3.5.2-1 (2.)	LFD-2-RCIC-02
2B21-N093A,B	TS 3.3.3.1-1 (2.c.)	N/A
2B21-N093B	TS 3.3.5.1-1 (3.c.)	LFD-2-ECCS-14
2B21-N095A	TS 3.3.5.2-1 (2.)	LFD-2-RCIC-02
2B21-N095A,B	TS 3.3.3.1-1 (2.c)	N/A
2B21-N095A	TS 3.3.5.1-1 (4.d.)	LFD-2-ECCS-21
2B21-N095B	TS 3.3.5.1-1 (5.d.)	LFD-2-ECCS-21
2B21-N095B	TS 3.3.5.1-1 (3.c.)	LFD-2-ECCS-14
2B21-N120A,B	TS LCO 3.3.4.2.b.	LFD-2-RPT-04
2B21-N120A,B,C,D	TS 3.3.6.3-1 (1.)	LFD-2-LLS-01
2B21-N120A,B,C,D	TS 3.3.6.3-1 (2.)	LFD-2-LLS-02
2B21-N122A,B	TS LCO 3.3.4.2.b.	LFD-2-RPT-04
2B21-N122A,B,C,D	TS 3.3.6.3-1 (2.)	LFD-2-LLS-02
2B21-N123A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05
2B21-N124A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05
2B21-N125A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05
2B21-N126A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05
2B21-N301A,B,C,D,E,F,G,H,K,L,M	TRM T3.3.3-1 (3.)	N/A
2B21-N301A,B,C,D,E,F,G,H,K,L,M	TS 3.3.6.3-1 (3.)	LFD-2-LLS-03
2B21-N302A,B,C,D,E,F,G,H,K,L,M	TRM TLCO 3.3.3, REQUIRED ACTION C.1	LFD-2-LLS-03
2B21-N302A,B,C,D,E,F,G,H,K,L,M	TS 3.3.6.3-1 (3.)	LFD-2-LLS-03
2B21-N620A,B	TS LCO 3.3.4.2.b.	LFD-2-RPT-04
2B21-N620A,B,C,D	TS 3.3.6.3-1 (1.)	LFD-2-LLS-01
2B21-N620A,B,C,D	TS 3.3.6.3-1 (2.)	LFD-2-LLS-02
2B21-N621A,B,C,D	TS 3.3.6.3-1 (2.)	LFD-2-LLS-02
2B21-N622A,B,C,D	TS 3.3.6.3-1 (2.)	LFD-2-LLS-02
2B21-N623A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05
2B21-N624A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05

TABLE T10.1-1 (SHEET 4 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2B21-N625A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05
2B21-N626A,B,C,D	TS 3.3.6.1-1 (1.e.)	LFD-2-PCIS-05
2B21-N641B,C	TS 3.3.5.1-1 (2.d.)	LFD-2-ECCS-08
2B21-N642A,B	TS LCO 3.3.4.2.b.	LFD-2-RPT-04
2B21-N643A,B	TS 3.3.6.3-1 (2.)	LFD-2-LLS-02
2B21-N643A,B	TS LCO 3.3.4.2.b.	LFD-2-RPT-04
2B21-N678A,B,C,D	TS 3.3.1.1-1 (3.)	LFD-2-RPS-08
2B21-N680A,B,C,D	TS 3.3.1.1-1 (4.)	LFD-2-RPS-09
2B21-N680A,B,C,D	TS 3.3.6.1-1 (2.a.)	LFD-2-PCIS-07
2B21-N680A,B,C,D	TS 3.3.6.1-1 (6.b.)	LFD-2-PCIS-34
2B21-N681A,B,C,D	TS 3.3.6.1-1 (1.a.)	LFD-2-PCIS-01
2B21-N681A,B,C,D	TS 3.3.6.1-1 (5.d.)	LFD-2-PCIS-32
2B21-N681A,B,C,D	TS 3.3.6.2-1 (1.)	LFD-2-SCIS-01
2B21-N682A,B,C,D	TS 3.3.6.1-1 (5.d.)	LFD-2-PCIS-32
2B21-N682A,B,C,D	TS 3.3.6.2-1 (1.)	LFD-2-SCIS-01
2B21-N685A,B	TS 3.3.3.1-1 (2.a.)	N/A
2B21-N685A,B	TS 3.3.5.1-1 (2.e.)	LFD-2-ECCS-09
2B21-N686A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
2B21-N686A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N687A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
2B21-N687A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N688A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
2B21-N688A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N689A,B,C,D	TRM T3.3.7-1 (3.)	LFD-2-MCREC-04
2B21-N689A,B,C,D	TS 3.3.6.1-1 (1.c.)	LFD-2-PCIS-03
2B21-N690A,B,C,D	TS 3.3.5.1-1 (1.c.)	LFD-2-ECCS-03
2B21-N690A,B,C,D	TS 3.3.5.1-1 (2.c.)	LFD-2-ECCS-07
2B21-N690A,D	TS 3.3.3.1-1 (1.)	N/A
2B21-N690B,C,E,F	TS 3.3.5.1-1 (2.d.)	LFD-2-ECCS-08
2B21-N691A,B,C,D	TRM T3.3.7-1 (1.)	LFD-2-MCREC-02
2B21-N691A,B,C,D	TS 3.3.3.1-1 (2.b.)	N/A
2B21-N691A,B,C,D	TS 3.3.5.1-1 (1.a.)	LFD-2-ECCS-01

TABLE T10.1-1 (SHEET 5 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2B21-N691A,B,C,D	TS 3.3.5.1-1 (2.a.)	LFD-2-ECCS-05
2B21-N691A,B,C,D	TS 3.3.5.1-1 (3.a.)	LFD-2-ECCS-12
2B21-N691A,C	TS 3.3.5.1-1 (4.a.)	LFD-2-ECCS-18
2B21-N691B,D	TS 3.3.5.1-1 (5.a.)	LFD-2-ECCS-18
2B21-N691A,B,C,D	TS 3.3.5.2-1 (1.)	LFD-2-RCIC-01
2B21-N691A,B,C,D	TS LCO 3.3.4.2.a	LFD-2-RPT-03
2B21-N692A,B,C,D	TS 3.3.5.1-1 (3.a.)	LFD-2-ECCS-12
2B21-N692A,B,C,D	TS 3.3.5.2-1 (1.)	LFD-2-RCIC-01
2B21-N692A,B,C,D	TS LCO 3.3.4.2.a.	LFD-2-RPT-03
2B21-N693A,B	TS 3.3.3.1-1 (2.c.)	N/A
2B21-N693A,C	TS 3.3.5.2-1 (2.)	LFD-2-RCIC-02
2B21-N693B,D	TS 3.3.5.1-1 (3.c.)	LFD-2-ECCS-14
2B21-N694A,B,C,D	TS LCO 3.3.4.2.a.	LFD-2-RPT-03
2B21-N695A	TS 3.3.5.2-1 (2.)	LFD-2-RCIC-02
2B21-N695A,B	TS 3.3.3.1-1 (2.c.)	N/A
2B21-N695A	TS 3.3.5.1-1 (4.d.)	LFD-2-ECCS-21
2B21-N695B	TS 3.3.5.1-1 (5.d.)	LFD-2-ECCS-21
2B21-N695B	TS 3.3.5.1-1 (3.c.)	LFD-2-ECCS-14
2B21-R604A,B	TS 3.3.3.1-1 (2.b.)	N/A
2B21-R605	TS 3.3.3.1-1 (2.d.)	N/A
2B21-R623A,B	TS 3.3.3.1-1 (2.a.)	N/A
2B21-R623A,B	TS 3.3.3.1-1 (1.)	N/A
2B21-R623A,B	TS 3.3.3.1-1 (2.b.)	N/A
2B31-F023B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2B31-N014A,B,C,D	TRM T3.3.2-1 (3.a.)	LFD-2-CRB-17
2B31-N014A,B,C,D	TRM T3.3.2-1 (3.f.)	LFD-2-CRB-22
2B31-N014A,B,C,D	TS 3.3.3.1.1-1 (2.b)	LFD-2-RPS-04
2B31-N024A,B,C,D	TRM T3.3.2-1 (3.a.)	LFD-2-CRB-17
2B31-N024A,B,C,D	TRM T3.3.2-1 (3.f.)	LFD-2-CRB-22
2B31-N024A,B,C,D	TS 3.3.3.1.1-1 (2.b)	LFD-2-RPIS-04
2B31-N079A,D	TS 3.3.6.1-1 (6.a.)	LFD-2-PCIS-33

TABLE T10.1-1 (SHEET 6 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2B31-N679A,D	TS 3.3.6.1-1 (6.a.)	LFD-2-PCIS-33
2C11-J600	TS 3.3.2.1-1 (2.)	LFD-2-CRB-07
2C11-N013A,B,C,D	TS 3.3.1.1-1 (7.b.)	LFD-2-RPS-13
2C11-N013E	TRM T3.3.2-1 (4.)	LFD-2-CRB-23
2C11-N060A,B,C,D	TS 3.3.1.1-1 (7.a.)	LFD-2-RPS-12
2C11-N660A,B,C,D	TS 3.3.1.1-1 (7.a.)	LFD-2-RPS-12
2C32-K624A,B,C,	TS LCO 3.3.2.2	LFD-2-RWLH-01
2C32-N004A,B,C	TS LCO 3.3.2.2	LFD-2-RWLH-01
2C41-S1A	TS 3.3.6.1-1 (5.c.)	LFD-2-PCIS-31
2C51-K600A,B,C,D	TRM T3.3.2-1 (1.a.)	LFD-2-CRB-09
2C51-K600A,B,C,D	TRM T3.3.2-1 (1.b.)	LFD-2-CRB-10
2C51-K600A,B,C,D	TRM T3.3.2-1 (1.c.)	LFD-2-CRB-11
2C51-K600A,B,C,D	TRM T3.3.2-1 (1.d.)	LFD-2-CRB-12
2C51-K600A,B,C,D	TS 3.3.1.2-1 (1.)	N/A
2C51-K601A,B,C,D,E,F,G,H	TRM T3.3.2-1 (2.a.)	LFD-2-CRB-13
2C51-K601A,B,C,D,E,F,G,H	TRM T3.3.2-1 (2.b.)	LFD-2-CRB-14
2C51-K601A,B,C,D,E,F,G,H	TRM T3.3.2-1 (2.c.)	LFD-2-CRB-15
2C51-K601A,B,C,D,E,F,G,H	TRM T3.3.2-1 (2.d.)	LFD-2-CRB-16
2C51-K601A,B,C,D,E,F,G,H	TS 3.3.1.1-1 (1.a.)	LFD-2-RPS-01
2C51-K601A,B,C,D,E,F,G,H	TS 3.3.1.1-1 (1.b.)	LFD-2-RPS-02
2C51-K614A,B	TS 3.3.2.1-1 (1.a.)	LFD-2-CRB-01
2C51-K614A,B	TS 3.3.2.1-1 (1.b.)	LFD-2-CRB-02
2C51-K614A,B	TS 3.3.2.1-1 (1.c.)	LFD-2-CRB-03
2C51-K614A,B	TS 3.3.2.1-1 (1.d.)	LFD-2-CRB-04
2C51-K614A,B	TS 3.3.2.1-1 (1.e.)	LFD-2-CRB-05
2C51-K615A,B,C,D	TRM T3.3.2-1 (3.a.)	LFD-2-CRB-17
2C51-K615A,B,C,D	TRM T3.3.2-1 (3.b.)	LFD-2-CRB-18
2C51-K615A,B,C,D	TRM T3.3.2-1 (3.c.)	LFD-2-CRB-19
2C51-K615A,B,C,D	TRM T3.3.2-1 (3.d.)	LFD-2-CRB-20
2C51-K615A,B,C,D	TRM T3.3.2-1 (3.e.)	LFD-2-CRB-21
2C51-K615A,B,C,D	TRM T3.3.2-1 (3.f.)	LFD-2-CRB-22
2C51-K615A,B,C,D	TS 3.3.1.1-1 (2.a.)	LFD-2-RPS-03

TABLE T10.1-1 (SHEET 7 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2C51-K615A,B,C,D	TS 3.3.1.1-1 (2.b.)	LFD-2-RPS-04
2C51-K615A,B,C,D	TS 3.3.1.1-1 (2.c.)	LFD-2-RPS-05
2C51-K615A,B,C,D	TS 3.3.1.1-1 (2.d.)	LFD-2-RPS-06
2C51-K616A,B	TS 3.3.2.1-1 (1.a.)	LFD-2-CRB-01
2C51-K616A,B	TS 3.3.2.1-1 (1.b.)	LFD-2-CRB-02
2C51-K616A,B	TS 3.3.2.1-1 (1.c.)	LFD-2-CRB-03
2C51-K616A,B	TS 3.3.2.1-1 (1.d.)	LFD-2-CRB-04
2C51-K616A,B	TS 3.3.2.1-1 (1.e.)	LFD-2-CRB-05
2C51-K617A,B,C,D	TRM T3.3.2-1 (3.a.)	LFD-2-CRB-17
2C51-K617A,B,C,D	TRM T3.3.2-1 (3.b.)	LFD-2-CRB-18
2C51-K617A,B,C,D	TRM T3.3.2-1 (3.c.)	LFD-2-CRB-19
2C51-K617A,B,C,D	TRM T3.3.2-1 (3.d.)	LFD-2-CRB-20
2C51-K617A,B,C,D	TRM T3.3.2-1 (3.e.)	LFD-2-CRB-21
2C51-K617A,B,C,D	TRM T3.3.2-1 (3.f.)	LFD-2-CRB-22
2C51-K617A,B,C,D	TS 3.3.1.1-1 (2.e.)	LFD-2-RPS-07
2C71-K751A,B,C,D,E,F	TS LCO 3.3.8.2 (OVERVOLTAGE)	LFD-2-EPM-01
2C71-K752A,B,C,D,E,F	TS LCO 3.3.8.2 (UNDERVOLTAGE)	LFD-2-EPM-01
2C71-K756A,B,C,D,E,F	TS LCO 3.3.8.2 (OVERVOLTAGE TIME DELAY)	LFD-2-EPM-01
2C71-K753A,B,C,D,E,F	TS LCO 3.3.8.2 (UNDERFREQUENCY)	LFD-2-EPM-01
2C71-N003A,B,C,D	TS SR 3.3.1.1.11	LFD-2-RPS-18
2C71-N003A,B,C,D	TS SR 3.3.4.1.2	LFD-2-RPT-05
2C71-N005A,B,C,D	TS 3.3.1.1-1 (9.)	LFD-2-RPS-15
2C71-N005A,B,C,D	TS LCO 3.3.4.1.a.2.	LFD-2-RPT-02
2C71-N006A,B,C,D	TS 3.3.1.1-1 (8.)	LFD-2-RPS-14
2C71-N006A,B,C,D	TS LCO 3.3.4.1.a.1.	LFD-2-RPT-01
2C71-N050A,B,C,D	TS 3.3.1.1-1 (6.)	LFD-2-RPS-11
2C71-N050A,B,C,D	TS 3.3.6.1-1 (2.b.)	LFD-2-PCIS-08
2C71-N050A,B,C,D	TS 3.3.6.2-1 (2.)	LFD-2-SCIS-02
2C71-N650A,B,C,D	TS 3.3.1.1-1 (6.)	LFD-2-RPS-11
2C71-N650A,B,C,D	TS 3.3.6.1-1 (2.b.)	LFD-2-PCIS-08
2C71-N650A,B,C,D	TS 3.3.6.2-1 (2.)	LFD-2-SCIS-02
2C71-S1	TS 3.3.1.1-1 (10.)	LFD-2-RPS-16

TABLE T10.1-1 (SHEET 8 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2C71-S1	TS 3.3.2.1-1 (3.)	LFD-2-CRB-08
2C71-S3A,B,C,D	TS 3.3.1.1-1 (11.)	LFD-2-RPS-17
2C82-R001	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-R003	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-R004	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-R005	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-R006	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S1	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S1	TS LCO 3.3.3.2 for RPV Pressure Control	N/A
2C82-S10	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S11	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S12	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S13	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S14	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S15	TS LCO 3.3.3.2 for RPV Pressure Control	N/A
2C82-S16	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S17	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S18	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S18	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S2	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S3	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S4	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S5	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S52	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S53	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S53	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S6	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S7	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2C82-S70	TS LCO 3.3.3.2 for Support Equipment	N/A
2C82-S8	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S80	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2C82-S9	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A

TABLE T10.1-1 (SHEET 9 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2D11-D051	ODCM 3-1 (1.b.)	N/A
2D11-D051	ODCM 3-1 (1.c.)	N/A
2D11-K002	ODCM 2-1 (1.)	LFD-2-PRM-01
2D11-K003	ODCM 2-1 (2.)	N/A
2D11-K026A,B	ODCM 3-1 (1.a.)	N/A
2D11-K601	ODCM 3-1 (4.a.)	N/A
2D11-K602	ODCM 3-1 (4.a.)	N/A
2D11-K603A,B,C,D	TRM TLCO 3.3.11	LFD-2-MSLR-01
2D11-K604	ODCM 2-1 (1.)	LFD-2-PRM-01
2D11-K605	ODCM 2-1 (2.)	N/A
2D11-K609A,B,C,D	TS 3.3.6.1-1 (2.d.)	LFD-2-PCIS-10
2D11-K609A,B,C,D	TS 3.3.6.2-1 (3.)	LFD-2-SCIS-03
2D11-K611A,B,C,D	TS 3.3.6.1-1 (2.e.)	LFD-2-PCIS-11
2D11-K611A,B,C,D	TS 3.3.6.2-1 (4.)	LFD-2-SCIS-04
2D11-K615A,B	TRM T3.3.8-1 (1.)	LFD-2-PRM-03
2D11-K615A,B	TRM T3.3.8-1 (2.)	LFD-2-PRM-04
2D11-K621A,B	TS 3.3.3.1-1 (5.)	N/A
2D11-K621A,B	TS 3.3.6.1-1 (2.c.)	LFD-2-PCIS-09
2D11-K622A,B,C,D	TRM T3.3.3-1 (2.)	N/A
2D11-K630	TS LCO 3.4.5.b.	N/A
2D11-K636A	ODCM 3-1 (1.b.)	N/A
2D11-K636A,B	ODCM 3-1 (1.a.)	LFD-2-PRM-02
2D11-K636A,B	ODCM 3-1 (1.c.)	N/A
2D11-N003A,B	TS 3.3.3.1-1 (5.)	N/A
2D11-N003A,B	TS 3.3.6.1-1 (2.c.)	LFD-2-PCIS-09
2D11-N006A,B,C,D	TRM TLCO 3.3.11	LFD-2-MSLR-01
2D11-N007	ODCM 2-1 (1.)	LFD-2-PRM-01
2D11-N008	ODCM 2-1 (2.)	N/A
2D11-N010A,B,C,D	TS 3.3.6.1-1 (2.d)	LFD-2-PCIS-10
2D11-N010A,B,C,D	TS 3.3.6.2-1 (3.)	LFD-2-SCIS-03
2D11-N012A,B,C,D	TS 3.3.6.1-1 (2.e.)	LFD-2-PCIS-11
2D11-N012A,B,C,D	TS 3.3.6.2-1 (4.)	LFD-2-SCIS-04
2D11-N015A,B	TRM T3.3.8-1 (1.)	LFD-2-PRM-03

TABLE T10.1-1 (SHEET 10 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2D11-N015A,B	TRM T3.3.8-1 (2.)	LFD-2-PRM-04
2D11-N026A,B	ODCM 3-1 (1.a.)	LFD-2-PRM-02
2D11-N035A,B	ODCM 3-1 (1.e.)	N/A
2D11-R001	ODCM 2-1 (1.)	N/A
2D11-R604	ODCM 2-1 (2.)	N/A
2D11-R619	ODCM 3-1 (1.a.)	N/A
2D11-R620A,B	ODCM 3-1 (1.e.)	N/A
2D11-R631	TRM T3.3.3-1 (5.)	N/A
2D21-K002A,D	TRM T3.3.7-1 (4.)	LFD-2-MCREC-05
2D21-N002A,M	TRM T3.3.7-1 (4.)	LFD-2-MCREC-05
2E11-C001B,D	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-C002B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F003B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F004B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F006A,B,C,D	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F007B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F008	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F009	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F015B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F017B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F024B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F028B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F047B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-F048B	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-K125A,B	TS 3.3.5.1-1 (2.a.)	LFD-2-ECCS-05
2E11-K125A,B	TS 3.3.5.1-1 (2.b.)	LFD-2-ECCS-06
2E11-K125A,B	TS 3.3.5.1-1 (2.f.)	LFD-2-ECCS-10
2E11-K126	TS 3.3.5.1-1 (2.a.)	LFD-2-ECCS-05
2E11-K126	TS 3.3.5.1-1 (2.b.)	LFD-2-ECCS-06
2E11-K126	TS 3.3.5.1-1 (2.f.)	LFD-2-ECCS-10
2E11-K70A,B	TS 3.3.5.1-1 (2.a.)	LFD-2-ECCS-05
2E11-K70A,B	TS 3.3.5.1-1 (2.b.)	LFD-2-ECCS-06
2E11-K70A,B	TS 3.3.5.1-1 (2.f.)	LFD-2-ECCS-10

TABLE T10.1-1 (SHEET 11 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2E11-K75A,B	TS 3.3.5.1-1 (2.a.)	LFD-2-ECCS-05
2E11-K75A,B	TS 3.3.5.1-1 (2.b.)	LFD-2-ECCS-06
2E11-K75A,B	TS 3.3.5.1-1 (2.f.)	LFD-2-ECCS-10
2E11-N007A,B	TS 3.3.3.1-1 (12.)	N/A
2E11-N055A,C	TS 3.3.5.1-1 (4.f.)	LFD-2-ECCS-23
2E11-N055B,D	TS 3.3.5.1-1 (5.f.)	LFD-2-ECCS-23
2E11-N056A,C	TS 3.3.5.1-1 (4.f.)	LFD-2-ECCS-23
2E11-N056B,D	TS 3.3.5.1-1 (5.f.)	LFD-2-ECCS-23
2E11-N082A,B	TS 3.3.5.1-1 (2.g.)	LFD-2-ECCS-11
2E11-N094A,B	TS 3.3.6.1-1 (4.d.)	LFD-2-PCIS-24
2E11-N094A,B,C,D	TRM T3.3.7-1 (2.)	LFD-2-MCREC-03
2E11-N094A,B,C,D	TS 3.3.5.1-1 (1.b.)	LFD-2-ECCS-02
2E11-N094A,B,C,D	TS 3.3.5.1-1 (2.b.)	LFD-2-ECCS-06
2E11-N094A,B,C,D	TS 3.3.5.1-1 (3.b.)	LFD-2-ECCS-13
2E11-N094A,C	TS 3.3.5.1-1 (4.b.)	LFD-2-ECCS-19
2E11-N094B,D	TS 3.3.5.1-1 (5.b.)	LFD-2-ECCS-19
2E11-N094C,D	TS 3.3.6.1-1 (3.d.)	LFD-2-PCIS-15
2E11-N655A,C	TS 3.3.5.1-1 (4.f.)	LFD-2-ECCS-23
2E11-N655B,D	TS 3.3.5.1-1 (5.f.)	LFD-2-ECCS-23
2E11-N656A,C	TS 3.3.5.1-1 (4.f.)	LFD-2-ECCS-23
2E11-N656B,D	TS 3.3.5.1-1 (5.f.)	LFD-2-ECCS-23
2E11-N682A,B	TS 3.3.5.1-1 (2.g.)	LFD-2-ECCS-11
2E11-N694A,B	TS 3.3.6.1-1 (4.d.)	LFD-2-PCIS-24
2E11-N694A,B,C,D	TRM T3.3.7-1 (2.)	LFD-2-MCREC-03
2E11-N694A,B,C,D	TS 3.3.5.1-1 (1.b.)	LFD-2-ECCS-02
2E11-N694A,B,C,D	TS 3.3.5.1-1 (2.b.)	LFD-2-ECCS-06
2E11-N694A,B,C,D	TS 3.3.5.1-1 (3.b.)	LFD-2-ECCS-13
2E11-N694A,C	TS 3.3.5.1-1 (4.b.)	LFD-2-ECCS-19
2E11-N694B,D	TS 3.3.5.1-1 (5.b.)	LFD-2-ECCS-19
2E11-N694C,D	TS 3.3.6.1-1 (3.d.)	LFD-2-PCIS-15
2E11-R071	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2E11-R602A,B	TS 3.3.3.1-1 (12.)	N/A
2E21-N051A,B	TS 3.3.5.1-1 (1.d.)	LFD-2-ECCS-04

TABLE T10.1-1 (SHEET 12 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2E21-N052A	TS 3.3.5.1-1 (4.e.)	LFD-2-ECCS-22
2E21-N052B	TS 3.3.5.1-1 (5.e.)	LFD-2-ECCS-22
2E21-N055A	TS 3.3.5.1-1 (4.e.)	LFD-2-ECCS-22
2E21-N055B	TS 3.3.5.1-1 (5.e.)	LFD-2-ECCS-22
2E21-N651A,B	TS 3.3.5.1-1 (1.d.)	LFD-2-ECCS-04
2E21-N652A	TS 3.3.5.1-1 (4.e.)	LFD-2-ECCS-22
2E21-N652B	TS 3.3.5.1-1 (5.e.)	LFD-2-ECCS-22
2E21-N655A	TS 3.3.5.1-1 (4.e.)	LFD-2-ECCS-22
2E21-N655B	TS 3.3.5.1-1 (5.e.)	LFD-2-ECCS-22
2E41-N002	TS 3.3.5.1-1 (3.d.)	LFD-2-ECCS-15
2E41-N003	TS 3.3.5.1-1 (3.d.)	LFD-2-ECCS-15
2E41-N051	TS 3.3.5.1-1 (3.f.)	LFD-2-ECCS-17
2E41-N055A,B,C,D	TS 3.3.6.1-1 (3.c.)	LFD-2-PCIS-14
2E41-N057A,B	TS 3.3.6.1-1 (3.a.)	LFD-2-PCIS-12
2E41-N058A,B,C,D	TS 3.3.6.1-1 (3.b.)	LFD-2-PCIS-13
2E41-N058A,B,C,D	TS 3.3.6.1-1 (3.d.)	LFD-2-PCIS-15
2E41-N062B,D	TS 3.3.5.1-1 (3.e.)	LFD-2-ECCS-16
2E41-N070A,B	TS 3.3.6.1-1 (3.i.)	LFD-2-PCIS-20
2E41-N071A,B	TS 3.3.6.1-1 (3.e.)	LFD-2-PCIS-16
2E41-N651	TS 3.3.5.1-1 (3.f.)	LFD-2-ECCS-17
2E41-N655A,B,C,D	TS 3.3.6.1-1 (3.c.)	LFD-2-PCIS-14
2E41-N657A,B	TS 3.3.6.1-1 (3.a.)	LFD-2-PCIS-12
2E41-N658A,B,C,D	TS 3.3.6.1-1 (3.b.)	LFD-2-PCIS-13
2E41-N658A,B,C,D	TS 3.3.6.1-1 (3.d.)	LFD-2-PCIS-15
2E41-N662B,D	TS 3.3.5.1-1 (3.e.)	LFD-2-ECCS-16
2E41-N670A,B	TS 3.3.6.1-1 (3.i.)	LFD-2-PCIS-20
2E41-N671A,B	TS 3.3.6.1-1 (3.e.)	LFD-2-PCIS-16
2E51-C002-1	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-C002-2	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F007	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F008	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F010	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A

TABLE T10.1-1 (SHEET 13 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2E51-F012	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F013	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F019	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F022	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F029	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F031	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F045	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F046	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-F524	TS LCO 3.3.3.2 for RCIC for RPV Make-up	N/A
2E51-M602A,B	TS 3.3.6.1-1 (4.f.)	LFD-2-PCIS-25
2E51-M602A,B	TS 3.3.6.1-1 (4.f.)	LFD-2-PCIS-27
2E51-M602A,B	TS 3.3.6.1-1 (4.g.)	LFD-2-PCIS-27
2E51-M603A,B	TS 3.3.6.1-1 (3.g.)	LFD-2-PCIS-17
2E51-M603A,B	TS 3.3.6.1-1 (3.g.)	LFD-2-PCIS-19
2E51-N057A,B	TS 3.3.6.1-1 (4.a.)	LFD-2-PCIS-21
2E51-N058A,B,C,D	TS 3.3.6.1-1 (4.b.)	LFD-2-PCIS-22
2E51-N058A,B,C,D	TS 3.3.6.1-1 (4.d.)	LFD-2-PCIS-24
2E51-N060	TS 3.3.5.2-1 (3.)	LFD-2-RCIC-03
2E51-N061	TS 3.3.5.2-1 (3.)	LFD-2-RCIC-03
2E51-N061A,B	TS 3.3.6.1-1 (4.h.)	LFD-2-PCIS-28
2E51-N062A,B	TS 3.3.5.2-1 (4.)	LFD-2-RCIC-04
2E51-N063A,B	TS 3.3.6.1-1 (4.g.)	LFD-2-PCIS-27
2E51-N063C,D	TS 3.3.6.1-1 (3.h.)	LFD-2-PCIS-19
2E51-N064A,B	TS 3.3.6.1-1 (4.g.)	LFD-2-PCIS-27
2E51-N064C,D	TS 3.3.6.1-1 (3.h.)	LFD-2-PCIS-19
2E51-N066A,B	TS 3.3.6.1-1 (4.e.)	LFD-2-PCIS-25
2E51-N066C,D	TS 3.3.6.1-1 (3.f.)	LFD-2-PCIS-17
2E51-N085A,B,C,D	TS 3.3.6.1-1 (4.c.)	LFD-2-PCIS-23
2E51-N657A,B	TS 3.3.6.1-1 (4.a.)	LFD-2-PCIS-21
2E51-N658A,B,C,D	TS 3.3.6.1-1 (4.b.)	LFD-2-PCIS-22
2E51-N658A,B,C,D	TS 3.3.6.1-1 (4.d.)	LFD-2-PCIS-24
2E51-N661A,B	TS 3.3.6.1-1 (4.h.)	LFD-2-PCIS-28
2E51-N663A,B	TS 3.3.6.1-1 (4.g.)	LFD-2-PCIS-27

TABLE T10.1-1 (SHEET 14 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2E51-N663C,D	TS 3.3.6.1-1 (3.h)	LFD-2-PCIS-19
2E51-N664A,B	TS 3.3.6.1-1 (3.g.)	LFD-2-PCIS-27
2E51-N664C,D	TS 3.3.6.1-1 (3.h.)	LFD-2-PCIS-19
2E51-N665A,B	TS 3.3.6.1-1 (4.g.)	LFD-2-PCIS-27
2E51-N665C,D	TS 3.3.6.1-1 (3.h.)	LFD-2-PCIS-19
2E51-N666A,B	TS 3.3.6.1-1 (4.e.)	LFD-2-PCIS-25
2E51-N666C,D	TS 3.3.6.1-1 (3.f.)	LFD-2-PCIS-17
2E51-N685A,B,C,D	TS 3.3.6.1-1 (4.c.)	LFD-2-PCIS-23
2G11-K600	TS LCO 3.4.5.a	N/A
2G11-K601	TS LCO 3.4.5.a	N/A
2G11-M600	TS LCO 3.4.5.a	N/A
2G11-M601	TS LCO 3.4.5.a	N/A
2G11-N001	TS LCO 3.4.5.a	N/A
2G11-N002	TS LCO 3.4.5.a	N/A
2G11-N003	TS LCO 3.4.5.a.	N/A
2G11-N355	ODCM-2-1 (3.a.)	N/A
2G11-N074A,B	TS LCO 3.4.5.a.	N/A
2G11-N079	ODCM 2-1 (1.)	LFD-2-PRM-01
2G11-N238	ODCM 2-1 (3.b.)	N/A
2G11-R337	ODCM 2-1 (3.a.)	N/A
2G11-R045	ODCM 2-1 (3.b.)	N/A
2G11-R600	TS LCO 3.4.5.a	N/A
2G31-N061A,D,E,H,J,M	TS 3.3.6.1-1 (5.b.)	LFD-2-PCIS-30
2G31-N062A,D,E,H,J,M	TS 3.3.6.1-1 (5.a.)	LFD-2-PCIS-29
2G31-N062A,D,E,H,J,M	TS 3.3.6.1-1 (5.b.)	LFD-2-PCIS-30
2G31-N661A,D,E,H,J,M	TS 3.3.6.1-1 (5.b.)	LFD-2-PCIS-30
2G31-N662A,D,E,H,J,M	TS 3.3.6.1-1 (5.a.)	LFD-2-PCIS-29
2G31-N662A,D,E,H,J,M	TS 3.3.6.1-1 (5.b.)	LFD-2-PCIS-30
2G31-N663A,D,E,H,J,M	TS 3.3.6.1-1 (5.b.)	LFD-2-PCIS-30
2H21-P4103	TSR 3.3.10.4.a	N/A
2H21-P4103	TSR 3.3.10.7.a	N/A
2H21-P4104	TSR 3.3.10.4.b	N/A
2H21-P4104	TSR 3.3.10.7.b	N/A

TABLE T10.1-1 (SHEET 15 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2L51-N004	TRM T3.3.6-1 (1.c.)	N/A
2L51-N020	TRM T3.3.6-1 (1.b.)	N/A
2L51-N021	TRM T3.3.6-1 (1.a.)	N/A
2L51-N022	TRM T3.3.6-1 (3.a.)	N/A
2L51-N024	TRM T3.3.6-1 (3.b.)	N/A
2L51-N028	TRM T3.3.6-1 (2.d.)	N/A
2L51-N029	TRM T3.3.6-1 (2.e.)	N/A
2L51-N034	TRM T3.3.6-1 (2.g.)	N/A
2L51-N035	TRM T3.3.6-1 (2.f.)	N/A
2N11-F011 A-D	TSR 3.3.10.3	N/A
2N11-F011 A-D	TSR 3.3.10.6	N/A
2N11-F036 A-D	TSR 3.3.10.2a	N/A
2N11-F036 A-D	TSR 3.3.10.6	N/A
2N32-F4501A	TSR 3.3.10.1	N/A
2N32-F4501A	TSR 3.3.10.5	N/A
2N32-F4501B	TSR 3.3.10.1	N/A
2N32-F4501B	TSR 3.3.10.5	N/A
2N32-F4502A	TSR 3.3.10.1	N/A
2N32-F4502A	TSR 3.3.10.5	N/A
2N32-F4502B	TSR 3.3.10.1	N/A
2N32-F4502B	TSR 3.3.10.5	N/A
2N32-F4503A	TSR 3.3.10.1	N/A
2N32-F4503A	TSR 3.3.10.5	N/A
2N32-F4503B	TSR 3.3.10.1	N/A
2N32-F4503B	TSR 3.3.10.5	N/A
2N32-F4521A	TSR 3.3.10.1	N/A
2N32-F4521A	TSR 3.3.10.5	N/A
2N32-F4521B	TSR 3.3.10.1	N/A
2N32-F4521B	TSR 3.3.10.5	N/A
2N32-F4522A	TSR 3.3.10.1	N/A
2N32-F4522A	TSR 3.3.10.5	N/A
2N32-F4522B	TSR 3.3.10.1	N/A
2N32-F4522B	TSR 3.3.10.5	N/A
2N32-F4523A	TSR 3.3.10.1	N/A

TABLE T10.1-1 (SHEET 16 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2N32-F4523A	TSR 3.3.10.5	N/A
2N32-F4523B	TSR 3.3.10.1	N/A
2N32-F4523B	TSR 3.3.10.5	N/A
2N32-F4531A	TSR 3.3.10.5	N/A
2N32-F4531B	TSR 3.3.10.5	N/A
2N32-F4532A	TSR 3.3.10.5	N/A
2N32-F4532B	TSR 3.3.10.5	N/A
2N32-F4533A	TSR 3.3.10.5	N/A
2N32-F4533B	TSR 3.3.10.5	N/A
2N32-F4541A	TSR 3.3.10.5	N/A
2N32-F4541B	TSR 3.3.10.5	N/A
2N32-F4542A	TSR 3.3.10.5	N/A
2N32-F4542B	TSR 3.3.10.5	N/A
2N32-F4543A	TSR 3.3.10.5	N/A
2N32-F4543B	TSR 3.3.10.5	N/A
2N32-N301A,B,C	TRM TLCO 3.3.13	N/A
2N38-F001 A-D	TSR 3.3.10.2 b	N/A
2N38-F001 A-D	TSR 3.3.10.6	N/A
2N62-N009A,B	TRM TLCO 3.3.9	N/A
2N62-R603	TRM TLCO 3.3.9	N/A
2P33-P001A,B	T3.3.3-1 (6.) (7.)	N/A
2P33-R601A,B	T3.3.3-1 (6.) (7.)	N/A
2P33-R603A,B	T3.3.3-1 (6.)	N/A
2P33-R604A,B	T3.3.3-1 (7.)	N/A
2P41-C001B	TS LCO 3.3.3.2 for Support Equipment	N/A
2P41-R373A,B	ODCM 2-1 (4.)	N/A
2P42-N065A,B	ODCM 2-1 (4.)	N/A
2P42-R002A,B	ODCM 2-1 (4.)	N/A
2P62-K008	ODCM 2-1 (3.b.)	N/A
2P62-R502	ODCM 2-1 (3.b.)	N/A
2R43-M01	TS LCO 3.3.3.2 for “B” DG Equipment	N/A
2R43-R615A	TS 3.3.3.1-1 (11.c.) for “2A” DG	N/A

TABLE T10.1-1 (SHEET 17 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2R43-R615B	TS 3.3.3.1-1 (11.c.) for “B” DG	N/A
2R43-R615C	TS 3.3.3.1-1 (11.c.) for “2C” DG	N/A
2R43-R622A	TS 3.3.3.1-1 (11.b.) for “2A” DG	N/A
2R43-R622B	TS 3.3.3.1-1 (11.b.) for “B” DG	N/A
2R43-R622C	TS 3.3.3.1-1 (11.b.) for “2C” DG	N/A
2R43-R752	TS LCO 3.3.3.2 for “2A” DG Equipment	N/A
2R43-R753	TS LCO 3.3.3.2 for “2A” DG Equipment	N/A
2R43-R755	TS LCO 3.3.3.2 for “2C” DG Equipment	N/A
2R43-R756	TS LCO 3.3.3.2 for “2C” DG Equipment	N/A
2R43-R904	TS 3.3.3.1-1 (11.a.) for “2A” DG	N/A
2R43-R905	TS 3.3.3.1-1 (11.d.) for “2A” DG	N/A
2R43-R910	TS 3.3.3.1-1 (11.a.) for “B” DG	N/A
2R43-R918	TS 3.3.3.1-1 (11.a.) for “2C” DG	N/A
2R43-R919	TS 3.3.3.1-1 (11.d.) for “B” DG	N/A
2R43-R920	TS 3.3.3.1-1 (11.d.) for “2C” DG	N/A
2S32-K790-1,2	TS 3.3.8.1-1 (3.a.)	LFD-2-LOP-03
2S32-K790-1,2	TS 3.3.8.1-1 (3.b.)	LFD-2-LOP-03
2S32-K790-3,6	TS 3.3.8.1-1 (1.a.)	LFD-2-LOP-01
2S32-K790-3,6	TS 3.3.8.1-1 (1.b.)	LFD-2-LOP-01
2S32-K790-4,5	TS 3.3.8.1-1 (2.a)	LFD-2-LOP-02
2S32-K790-4,5	TS 3.3.8.1-1 (2.b.)	LFD-2-LOP-02
2S32-K820-1,2	TS 3.3.8.1-1 (3.a.)	LFD-2-LOP-03
2S32-K820-1,2	TS 3.3.8.1-1 (3.b.)	LFD-2-LOP-03
2S32-K820-3,6	TS 3.3.8.1-1 (1.a.)	LFD-2-LOP-01
2S32-K820-3,6	TS 3.3.8.1-1 (1.b.)	LFD-2-LOP-01
2S32-K820-4,5	TS 3.3.8.1-1 (2.a.)	LFD-2-LOP-02
2S32-K820-4,5	TS 3.3.8.1-1 (2.b.)	LFD-2-LOP-02
2S32-K834-1,2	TS 3.3.8.1-1 (3.a.)	LFD-2-LOP-03
2S32-K834-1,2	TS 3.3.8.1-1 (3.b.)	LFD-2-LOP-03
2S32-K834-3,6	TS 3.3.8.1-1 (1.a.)	LFD-2-LOP-01
2S32-K834-3,6	TS 3.3.8.1-1 (1.b.)	LFD-2-LOP-01
2S32-K834-4,5	TS 3.3.8.1-1 (2.a.)	LFD-2-LOP-02
2S32-K834-4,5	TS 3.3.8.1-1 (2.b.)	LFD-2-LOP-02
2T41-K009	ODCM 3-1 (1.d.)	N/A

TABLE T10.1-1 (SHEET 18 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2T41-N080A,B	ODCM 3-1 (1.d.)	N/A
2T41-N081A,B	ODCM 3-1 (1.d.)	N/A
2T41-R621	ODCM 3-1 (1.d.)	N/A
2T47-B007A,B	TS LCO 3.6.3.3	N/A
2T47-B008A,B	TS LCO 3.6.3.3	N/A
2T47-B009A,B	TS LCO 3.6.3.3	N/A
2T47-N001A,B,J,K	TS 3.3.3.1-1 (10.)	N/A
2T47-N003	TS 3.3.3.1-1 (10.)	N/A
2T47-N009	TS 3.3.3.1-1 (10.)	N/A
2T47-R626	TS 3.3.3.1-1 (10.)	N/A
2T47-R626	TS 3.3.3.1-1 (9.)	N/A
2T47-R627	TS 3.3.3.1-1 (10.)	N/A
2T47-R627	TS 3.3.3.1-1 (9.)	N/A
2T48-N003A,B	TS 3.3.3.1-1 (4.c.)	N/A
2T48-N009A,B,C,D	TS 3.3.3.1-1 (9.)	N/A
2T48-N010A,B	TS 3.3.3.1-1 (3.a.)	N/A
2T48-N020A,B	TS 3.3.3.1-1 (4.b.)	N/A
2T48-N021A,B	TS 3.3.3.1-1 (3.b.)	N/A
2T48-N023A,B	TS 3.3.3.1-1 (4.a.)	N/A
2T48-N301A	TS 3.3.3.1-1 (9.)	N/A
2T48-N302A	TS 3.3.3.1-1 (9.)	N/A
2T48-N303A	TS 3.3.3.1-1 (9.)	N/A
2T48-N304B	TS 3.3.3.1-1 (9.)	N/A
2T48-N305A	TS 3.3.3.1-1 (9.)	N/A
2T48-N306A	TS 3.3.3.1-1 (9.)	N/A
2T48-N307A	TS 3.3.3.1-1 (9.)	N/A
2T48-N308A	TS 3.3.3.1-1 (9.)	N/A
2T48-N309A	TS 3.3.3.1-1 (9.)	N/A
2T48-N310A	TS 3.3.3.1-1 (9.)	N/A
2T48-N311A	TS 3.3.3.1-1 (9.)	N/A
2T48-R070	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2T48-R072	TS LCO 3.3.3.2 for RHR (SDC & SPC)	N/A
2T48-R601A,B	TS 3.3.3.1-1 (4.c.)	N/A

TABLE T10.1-1 (SHEET 19 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2T48-R601A,B	TS 3.3.3.1-1 (5.)	N/A
2T48-R607A,B	TS 3.3.3.1-1 (3.b.)	N/A
2T48-R607A,B	TS 3.3.3.1-1 (4.b.)	N/A
2T48-R608	TRM T3.3.3-1 (1.)	N/A
2T48-R609	TRM T3.3.3-1 (1.)	N/A
2T48-R622A,B	TS 3.3.3.1-1 (3.a.)	N/A
2T48-R631A,B	TS 3.3.3.1-1 (4.a.)	N/A
2T48-R647	TS 3.3.3.1-1 (9.)	N/A
2U61-N101A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N102A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N104A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N105A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N106A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N107A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N108A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N109A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N110A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N111A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N112A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N113A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N114A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N115A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N116A,B,C,D	TS 3.3.6.1-1 (1.f)	LFD-2-PCIS-06
2U61-N117A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N118A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N119A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N120A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N121A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N122A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N123A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N124A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N125A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N126A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06

TABLE T10.1-1 (SHEET 20 OF 20)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY MPL

MPL NUMBERS(S)	SPECIFICATION	LOSS OF FUNCTION DIAGRAMS
2U61-N127A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N128A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N129A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N130A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N131A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
2U61-N132A,B,C,D	TS 3.3.6.1-1 (1.f.)	LFD-2-PCIS-06
SEE TRM TABLE T 10.3-1	TS 3.3.3.1-1 (6.)	N/A

TABLE T10.2-1 (SHEET 1 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
ODCM 2-1 (1.)	2D11-K002	LFD-2-PRM-01
ODCM 2-1 (1.)	2D11-K604	LFD-2-PRM-01
ODCM 2-1 (1.)	2D11-N007	LFD-2-PRM-01
ODCM 2-1 (1.)	2D11-R001	N/A
ODCM 2-1 (1.)	2G11-N079	LFD-2-PRM-01
ODCM 2-1 (2.)	2D11-K003	N/A
ODCM 2-1 (2.)	2D11-K605	N/A
ODCM 2-1 (2.)	2D11-N008	N/A
ODCM 2-1 (2.)	2D11-R604	N/A
ODCM 2-1 (3.a.)	2G11-N355	N/A
ODCM 2-1 (3.a.)	2G11-R337	N/A
ODCM 2-1 (3.b.)	2G11-N238	N/A
ODCM 2-1 (3.b.)	2G11-R045	N/A
ODCM 2-1 (3.b.)	2P62-K008	N/A
ODCM 2-1 (3.b.)	2P62-R502	N/A
ODCM 2-1 (4.)	2P41-R373A,B	N/A
ODCM 2-1 (4.)	2P42-N065A,B	N/A
ODCM 2-1 (4.)	2P42-R002A,B	N/A
ODCM 3-1 (1.a.)	2D11-K026A,B	N/A
ODCM 3-1 (1.a.)	2D11-K636A,B	LFD-2-PRM-02
ODCM 3-1 (1.a.)	2D11-N026A,B	LFD-2-PRM-02
ODCM 3-1 (1.a.)	2D11-R619	N/A
ODCM 3-1 (1.b.)	2D11-D051	N/A
ODCM 3-1 (1.b.)	2D11-K636A	N/A
ODCM 3-1 (1.c.)	2D11-D051	N/A
ODCM 3-1 (1.c.)	2D11-K636A,B	N/A
ODCM 3-1 (1.d.)	2T41-N080A,B	N/A
ODCM 3-1 (1.d.)	2T41-N081A,B	N/A
ODCM 3-1 (1.d.)	2T41-R621	N/A
ODCM 3-1 (1.d.)	2T41-K009	N/A
ODCM 3-1 (1.e.)	2D11-N035A,B	N/A
ODCM 3-1 (1.e.)	2D11-R620A,B	N/A
ODCM 3-1 (3.d.)	1D11-N026A,B	N/A

TABLE T10.2-1 (SHEET 2 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
ODCM 3-1 (3.d.)	1D11-R625	N/A
ODCM 3-1 (3.e.)	1D11-R013	N/A
ODCM 3-1 (4.a.)	2D11-K601	N/A
ODCM 3-1 (4.a.)	2D11-K602	N/A
TRM T3.3.2-1 (1.a.)	2C51-K600A,B,C,D	LFD-2-CRB-09
TRM T3.3.2-1 (1.b.)	2C51-K600A,B,C,D	LFD-2-CRB-10
TRM T3.3.2-1 (1.c.)	2C51-K600A,B,C,D	LFD-2-CRB-11
TRM T3.3.2-1 (1.d.)	2C51-K600A,B,C,D	LFD-2-CRB-12
TRM T3.3.2-1 (2.a.)	2C51-K601A,B,C,D,E,F,G,H	LFD-2-CRB-13
TRM T3.3.2-1 (2.b.)	2C51-K601A,B,C,D,E,F,G,H	LFD-2-CRB-14
TRM T3.3.2-1 (2.c.)	2C51-K601A,B,C,D,E,F,G,H	LFD-2-CRB-15
TRM T3.3.2-1 (2.d.)	2C51-K601A,B,C,D,E,F,G,H	LFD-1-CRB-16
TRM T3.3.2-1 (3.a.)	2B31-N014A,B,C,D	LFD-2-CRB-17
TRM T3.3.2-1 (3.a.)	2B31-N024A,B,C,D	LFD-2-CRB-17
TRM T3.3.2-1 (3.a.)	2C51-K615A,B,C,D	LFD-2-CRB-17
TRM T3.3.2-1 (3.a.)	2C51-K617A,B,C,D	LFD-2-CRB-17
TRM T3.3.2-1 (3.b.)	2C51-K615A,B,C,D	LFD-2-CRB-18
TRM T3.3.2-1 (3.b.)	2C51-K617A,B,C,D	LFD-2-CRB-18
TRM T3.3.2-1 (3.c.)	2C51-K615A,B,C,D	LFD-2-CRB-19
TRM T3.3.2-1 (3.c.)	2C51-K617A,B,C,D	LFD-2-CRB-19
TRM T3.3.2-1 (3.d.)	2C51-K615A,B,C,D	LFD-2-CRB-20
TRM T3.3.2-1 (3.d.)	2C51-K617A,B,C,D	LFD-2-CRB-20
TRM T3.3.2-1 (3.e.)	2C51-K615A,B,C,D	LFD-2-CRB-20
TRM T3.3.2-1 (3.e.)	2C51-K617A,B,C,D	LFD-2-CRB-21
TRM T3.3.2-1 (3.e.)	2C51-K617A,B,C,D	LFD-2-CRB-21
TRM T3.3.2-1 (3.f.)	2B31-N014A,B,C,D	LFD-2-CRB-22
TRM T3.3.2-1 (3.f.)	2B31-N024A,B,C,D	LFD-2-CRB-22
TRM T3.3.2-1 (3.f.)	2C51-K615A,B,C,D	LFD-2-CRB-22
TRM T3.3.2-1 (3.f.)	2C51-K617A,B,C,D	LFD-2-CRB-22
TRM T3.3.2-1 (4.)	2C11-N013E	LFD-2-CRB-23
TRM T3.3.3-1 (1.)	2T48-R608	N/A
TRM T3.3.3-1 (1.)	2T48-R609	N/A
TRM T3.3.3-1 (2.)	2D11-K622A,B,C,D	N/A
TRM T3.3.3-1 (3.)	2B21-N004A,B,C,D,E,F,G,H,K,L,M	N/A

MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TRM T3.3.3-1 (3.)	2B21-N301A,B,C,D,E,F,G,H,K,L,M	N/A
TRM T3.3.3-1 (4.)	1D11-R631	N/A
TRM T3.3.3.-1 (5.)	2D11-R631	N/A
TRM T3.3.3-1 (6.) (7.)	2P33-P001A,B	N/A
TRM T3.3.3-1 (6.) (7.)	2P33-R601A,B	N/A
TRM T3.3.3-1 (6.)	2P33-R603A,B	N/A
TRM T3.3.3-1 (7.)	2P33-R604A,B	N/A
TRM T3.3.6-1 (1.a.)	2L51-N021	N/A
TRM T3.3.6-1 (1.b.)	2L51-N020	N/A
TRM T3.3.6-1 (1.c.)	2L51-N004	N/A
TRM T3.3.6-1 (1.d.)	1L51-N005	N/A
TRM T3.3.6-1 (2.a.)	1L51-N007	N/A
TRM T3.3.6-1 (2.b.)	1L51-N006	N/A
TRM T3.3.6-1 (2.c.)	1L51-N008	N/A
TRM T3.3.6-1 (2.d.)	2L51-N028	N/A
TRM T3.3.6-1 (2.e.)	2L51-N029	N/A
TRM T3.3.6-1 (2.f.)	2L51-N035	N/A
TRM T3.3.6-1 (2.g.)	2L51-N034	N/A
TRM T3.3.6-1 (3.a.)	2L51-N022	N/A
TRM T3.3.6-1 (3.b.)	2L51-N024	N/A
TRM T3.3.6-1 (4.a.)	1L51-N105	N/A
TRM T3.3.7-1 (1.)	2B21-N091A,B,C,D	LFD-2-MCREC-02
TRM T3.3.7-1 (1.)	2B21-N691A,B,C,D	LFD-1-MCREC-02
TRM T3.3.7-1 (2.)	2E11-N094A,B,C,D	LFD-2-MCREC-03
TRM T3.3.7-1 (2.)	2E11-N694A,B,C,D	LFD-2-MCREC-03
TRM T3.3.7-1 (3.)	2B21-N086A,B,C,D	LFD-2-MCREC-04
TRM T3.3.7-1 (3.)	2B21-N087A,B,C,D	LFD-1-MCREC-04
TRM T3.3.7-1 (3.)	2B21-N088A,B,C,D	LFD-1-MCREC-04
TRM T3.3.7-1 (3.)	2B21-N089A,B,C,D	LFD-2-MCREC-04
TRM T3.3.7-1 (3.)	2B21-N686A,B,C,D	LFD-2-MCREC-04
TRM T3.3.7-1 (3.)	2B21-N687A,B,C,D	LFD-2-MCREC-04
TRM T3.3.7-1 (3.)	2B21-N688A,B,C,D	LFD-2-MCREC-04
TRM T3.3.7-1 (3.)	2B21-N689A,B,C,D	LFD-2-MCREC-04
TRM T3.3.7-1 (4.)	2D21-K002A,D	LFD-2-MCREC-05

TABLE T10.2-1 (SHEET 4 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TRM T3.3.7-1 (4.)	2D21-N002A,M	LFD-2-MCREC-05
TRM T3.3.7-1 (5.)	1Z41-N015A,B	LFD-2-MCREC-06
TRM T3.3.7-1 (5.)	1Z41-R615A,B	LFD-2-MCREC-06
TRM T3.3.8-1 (1.)	2D11-K615A,B	LFD-2-PRM-03
TRM T3.3.8-1 (1.)	2D11-N015A,B	LFD-2-PRM-03
TRM T3.3.8-1 (2.)	2D11-K615A,B	LFD-2-PRM-04
TRM T3.3.8-1 (2.)	2D11-N015A,B	LFD-2-PRM-04
TRM TLCO 3.3.11	2D11-K603A,B,C,D	LFD-2-MSLR-01
TRM TLCO 3.3.11	2D11-N006A,B,C,D	LFD-2-MSLR-01
TRM TLCO 3.3.13	2N32-N301A,B,C	N/A
TRM TLCO 3.3.3, REQUIRED ACTION C.1	2B21-N302A,B,C,D,E,F,G,H,K,L,M	LFD-2-LLS-03
TRM TLCO 3.3.9	2N62-N009A,B	N/A
TRM TLCO 3.3.9	2N62-R603	N/A
TS 3.3.1.1-1 (1.a.)	2C51-K601A,B,C,D,E,F,G,H	LFD-2-RPS-01
TS 3.3.1.1-1 (1.b.)	2C51-K601A,B,C,D,E,F,G,H	LFD-2-RPS-02
TS 3.3.1.1-1 (10.)	2C71-S1	LFD-2-RPS-16
TS 3.3.1.1-1 (11.)	2C71-S3A,B,C,D	LFD-2-RPS-17
TS 3.3.1.1-1 (2.a.)	2C51-K615A,B,C,D	LFD-2-RPS-03
TS 3.3.1.1-1 (2.b.)	2B31-N014A,B,C,D	LFD-2-RPS-04
TS 3.3.1.1-1 (2.b.)	2B31-N024A,B,C,D	LFD-2-RPS-04
TS 3.3.1.1-1 (2.b.)	2C51-K615A,B,C,D	LFD-2-RPS-04
TS 3.3.1.1-1 (2.c.)	2C51-K615A,B,C,D	LFD-2-RPS-05
TS 3.3.1.1-1 (2.d.)	2C51-K615A,B,C,D	LFD-2-RPS-06
TS 3.3.1.1-1 (2.e.)	2C51-K617A,B,C,D	LFD-2-RPS-07
TS 3.3.1.1-1 (3.)	2B21-N078A,B,C,D	LFD-2-RPS-08
TS 3.3.1.1-1 (3.)	2B21-N678A,B,C,D	LFD-2-RPS-08
TS 3.3.1.1-1 (4.)	2B21-N080A,B,C,D	LFD-2-RPS-09
TS 3.3.1.1-1 (4.)	2B21-N680A,B,C,D	LFD-2-RPS-09
TS 3.3.1.1-1 (5.)	2B21-F022A,B,C,D	LFD-2-RPS-10
TS 3.3.1.1-1 (5.)	2B21-F028A,B,C,D	LFD-2-RPS-10
TS 3.3.1.1-1 (6.)	2C71-N050A,B,C,D	LFD-2-RPS-11
TS 3.3.1.1-1 (6.)	2C71-N650A,B,C,D	LFD-2-RPS-11
TS 3.3.1.1-1 (7.a.)	2C11-N060A,B,C,D	LFD-2-RPS-12
TS 3.3.1.1-1 (7.a.)	2C11-N660A,B,C,D	LFD-2-RPS-12

MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.1.1-1 (7.b.)	2C11-N013A,B,C,D	LFD-2-RPS-13
TS 3.3.1.1-1 (8.)	2C71-N006A,B,C,D	LFD-2-RPS-14
TS 3.3.1.1-1 (9.)	2C71-N005A,B,C,D	LFD-2-RPS-15
TS 3.3.1.2-1 (1.)	2C51-K600A,B,C,D	N/A
TS 3.3.2.1-1 (1.a.)	2C51-K614A,B	LFD-2-CRB-01
TS 3.3.2.1-1 (1.a.)	2C51-K616A,B	LFD-2-CRB-01
TS 3.3.2.1-1 (1.b.)	2C51-K614A,B	LFD-2-CRB-02
TS 3.3.2.1-1 (1.b.)	2C51-K616A,B	LFD-2-CRB-02
TS 3.3.2.1-1 (1.c.)	2C51-K614A,B,	LFD-2-CRB-02
TS 3.3.2.1-1 (1.c.)	2C51-K616A,B	LFD-2-CRB-03
TS 3.3.2.1-1 (1.d.)	2C51-K614A,B	LFD-2-CRB-04
TS 3.3.2.1-1 (1.d.)	2C51-K616A,B	LFD-2-CRB-04
TS 3.3.2.1-1 (1.e.)	2C51-K614A,B	LFD-2-CRB-05
TS 3.3.2.1-1 (1.e.)	2C51-K616A,B	LFD-2-CRB-05
TS 3.3.2.1-1 (2.)	2C11-J600	LFD-2-CRB-07
TS 3.3.2.1-1 (3.)	2C71-S1	LFD-2-CRB-08
TS 3.3.3.1-1 (1.)	2B21-N090A,D	N/A
TS 3.3.3.1-1 (1.)	2B21-N690A,D	N/A
TS 3.3.3.1-1 (1.)	2B21-R623A,B	N/A
TS 3.3.3.1-1 (10.)	2T47-N001A,B,J,K	N/A
TS 3.3.3.1-1 (10.)	2T47-N003	N/A
TS 3.3.3.1-1 (10.)	2T47-N009	N/A
TS 3.3.3.1-1 (10.)	2T47-R626	N/A
TS 3.3.3.1-1 (10.)	2T47-R627	N/A
TS 3.3.3.1-1 (11.a.) for “2A” DG	2R43-R904	N/A
TS 3.3.3.1-1 (11.a.) for “2C” DG	2R43-R918	N/A
TS 3.3.3.1-1 (11.a.) for “B” DG	2R43-R910	N/A
TS 3.3.3.1-1 (11.b.) for “2A” DG	2R43-R622A	N/A
TS 3.3.3.1-1 (11.b.) for “2C” DG	2R43-R622C	N/A
TS 3.3.3.1-1 (11.b.) for “B” DG	2R43-R622B	N/A
TS 3.3.3.1-1 (11.c.) for “2A” DG	2R43-R615A	N/A
TS 3.3.3.1-1 (11.c.) for “2C” DG	2R43-R615C	N/A
TS 3.3.3.1-1 (11.c.) for “B” DG	2R43-R615B	N/A
TS 3.3.3.1-1 (11.d.) for “2A” DG	2R43-R905	N/A

TABLE T10.2-1 (SHEET 6 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.3.1-1 (11.d.) for "2C" DG	2R43-R920	N/A
TS 3.3.3.1-1 (11.d.) for "B" DG	2R43-R919	N/A
TS 3.3.3.1-1 (12.)	2E11-N007A,B	N/A
TS 3.3.3.1-1 (12.)	2E11-R602A,B	N/A
TS 3.3.3.1-1 (2.a.)	2B21-N085A,B	N/A
TS 3.3.3.1-1 (2.a.)	2B21-N685A,B	N/A
TS 3.3.3.1-1 (2.a.)	2B21-R623A,B	N/A
TS 3.3.3.1-1 (2.b.)	2B21-N091A,B,C,D	N/A
TS 3.3.3.1-1 (2.b.)	2B21-N691A,B,C,D	N/A
TS 3.3.3.1-1 (2.b.)	2B21-R604A,B	N/A
TS 3.3.3.1-1 (2.b.)	2B21-R623A,B	N/A
TS 3.3.3.1-1 (2.c.)	2B21-N093A,B	N/A
TS 3.3.3.1-1 (2.c.)	2B21-N095A,B	N/A
TS 3.3.3.1-1 (2.c.)	2B21-N693A,B	N/A
TS 3.3.3.1-1 (2.c.)	2B21-R695A,B	N/A
TS 3.3.3.1-1 (2.d.)	2B21-N027	N/A
TS 3.3.3.1-1 (2.d.)	2B21-R605	N/A
TS 3.3.3.1-1 (3.a.)	2T48-N010A,B	N/A
TS 3.3.3.1-1 (3.a.)	2T48-R622A,B	N/A
TS 3.3.3.1-1 (3.b.)	2T48-N021A,B	N/A
TS 3.3.3.1-1 (3.b.)	2T48-R607A,B	N/A
TS 3.3.3.1-1 (4.a.)	2T48-N023A,B	N/A
TS 3.3.3.1-1 (4.a.)	2T48-R631A,B	N/A
TS 3.3.3.1-1 (4.b.)	2T48-N020A,B	N/A
TS 3.3.3.1-1 (4.b.)	2T48-R607A,B	N/A
TS 3.3.3.1-1 (4.c.)	2T48-N003A,B	N/A
TS 3.3.3.1-1 (4.c.)	2T48-R601A,B	N/A
TS 3.3.3.1-1 (5.)	2D11-K621A,B	N/A
TS 3.3.3.1-1 (5.)	2D11-N003A,B	N/A
TS 3.3.31-1 (5.)	2T48-R601A,B	N/A
TS 3.3.3.1-1 (6.)	SEE TRM TABLE T 10.3-1	N/A
TS 3.3.3.1-1 (9.)	2T47-R626	N/A
TS 3.3.3.1-1 (9.)	2T47-R627	N/A
TS 3.3.3.1-1 (9.)	2T48-N009A,B,C,D	N/A

TABLE T10.2-1 (SHEET 7 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.3.1-1 (9.)	2T48-N301A	N/A
TS 3.3.3.1-1 (9.)	2T48-N302A	N/A
TS 3.3.3.1-1 (9.)	2T48-N303A	N/A
TS 3.3.3.1-1 (9.)	2T48-N304B	N/A
TS 3.3.3.1-1 (9.)	2T48-N305A	N/A
TS 3.3.3.1-1 (9.)	2T48-N306A	N/A
TS 3.3.3.1-1 (9.)	2T48-N307A	N/A
TS 3.3.3.1-1 (9.)	2T48-N308A	N/A
TS 3.3.3.1-1 (9.)	2T48-N309A	N/A
TS 3.3.3.1-1 (9.)	2T48-N310A	N/A
TS 3.3.3.1-1 (9.)	2T48-N311A	N/A
TS 3.3.3.1-1 (9.)	2T48-R647	N/A
TS 3.3.5.1-1 (1.a.)	2B21-N091A,B,C,D	LFD-2-ECCS-01
TS 3.3.5.1-1 (1.a.)	2B21-N691A,B,C,D	LFD-2-ECCS-01
TS 3.3.5.1-1 (1.b.)	2E11-N094A,B,C,D	LFD-2-ECCS-02
TS 3.3.5.1-1 (1.b.)	2E11-N694A,B,C,D	LFD-2-ECCS-02
TS 3.3.5.1-1 (1.c.)	2B21-N090A,B,C,D	LFD-2-ECCS-03
TS 3.3.5.1-1 (1.c.)	2B21-N690A,B,C,D	LFD-2-ECCS-03
TS 3.3.5.1-1 (1.d.)	2E21-N051A,B	LFD-2-ECCS-04
TS 3.3.5.1-1 (1.d.)	2E21-N651A,B	LFD-2-ECCS-04
TS 3.3.5.1-1 (2.a.)	2B21-N091A,B,C,D	LFD-2-ECCS-05
TS 3.3.5.1-1 (2.a.)	2B21-N691A,B,C,D	LFD-2-ECCS-05
TS 3.3.5.1-1 (2.a.)	2E11-K125A,B	LFD-2-ECCS-05
TS 3.3.5.1-1 (2.a.)	2E11-K126	LFD-2-ECCS-05
TS 3.3.5.1-1 (2.a.)	2E11-K70A,B	LFD-2-ECCS-05
TS 3.3.5.1-1 (2.a.)	2E11-K75A,B	LFD-2-ECCS-05
TS 3.3.5.1-1 (2.b.)	2E11-K125A,B	LFD-2-ECCS-06
TS 3.3.5.1-1 (2.b.)	2E11-K126	LFD-2-ECCS-06
TS 3.3.5.1-1 (2.b.)	2E11-K70A,B	LFD-2-ECCS-06
TS 3.3.5.1-1 (2.b.)	2E11-K75A,B	LFD-2-ECCS-06
TS 3.3.5.1-1 (2.b.)	2E11-N094A,B,C,D	LFD-2-ECCS-06
TS 3.3.5.1-1 (2.b.)	2E11-N694A,B,C,D	LFD-2-ECCS-06
TS 3.3.5.1-1 (2.c.)	2B21-N090A,B,C,D	LFD-2-ECCS-07
TS 3.3.5.1-1 (2.c.)	2B21-N690A,B,C,D	LFD-2-ECCS-07

TABLE T10.2-1 (SHEET 8 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.5.1-1 (2.d.)	2B21-N090B,C,E,F	LFD-2-ECCS-08
TS 3.3.5.1-1 (2.d.)	2B21-N641B,C	LFD-2-ECCS-08
TS 3.3.5.1-1 (2.d.)	2B21-N690B,C,E,F	LFD-2-ECCS-08
TS 3.3.5.1-1 (2.e.)	2B21-N085A,B	LFD-2-ECCS-09
TS 3.3.5.1-1 (2.e.)	2B21-N685A,B	LFD-2-ECCS-09
TS 3.3.5.1-1 (2.f.)	2E11-K125A,B	LFD-2-ECCS-10
TS 3.3.5.1-1 (2.f.)	2E11-K126	LFD-2-ECCS-10
TS 3.3.5.1-1 (2.f.)	2E11-K70A,B	LFD-2-ECCS-10
TS 3.3.5.1-1 (2.f.)	2E11-K75A,B	LFD-2-ECCS-10
TS 3.3.5.1-1 (2.g.)	2E11-N082A,B	LFD-2-ECCS-11
TS 3.3.5.1-1 (2.g.)	2E11-N682A,B	LFD-2-ECCS-11
TS 3.3.5.1-1 (3.a.)	2B21-N091A,B,C,D	LFD-2-ECCS-12
TS 3.3.5.1-1 (3.a.)	2B21-N691A,B,C,D	LFD-2-ECCS-12
TS 3.3.5.1-1 (3.a.)	2B21-N692A,B,C,D	LFD-2-ECCS-12
TS 3.3.5.1-1 (3.b.)	2E11-N094A,B,C,D	LFD-2-ECCS-13
TS 3.3.5.1-1 (3.b.)	2E11-N694A,B,C,D	LFD-2-ECCS-13
TS 3.3.5.1-1 (3.c.)	2B21-N093B	LFD-2-ECCS-14
TS 3.3.5.1-1 (3.c.)	2B21-N095B	LFD-2-ECCS-14
TS 3.3.5.1-1 (3.c.)	2B21-N693B,D	LFD-2-ECCS-14
TS 3.3.5.1-1 (3.c.)	2B21-N695B	LFD-2-ECCS-14
TS 3.3.5.1-1 (3.d.)	2E41-N002	LFD-2-ECCS-15
TS 3.3.5.1-1 (3.d.)	2E41-N003	LFD-2-ECCS-15
TS 3.3.5.1-1 (3.e.)	2E41-N062B,D	LFD-2-ECCS-16
TS 3.3.5.1-1 (3.e.)	2E41-N662B,D	LFD-2-ECCS-16
TS 3.3.5.1-1 (3.f.)	2E41-N051	LFD-2-ECCS-17
TS 3.3.5.1-1 (3.f.)	2E41-N651	LFD-2-ECCS-17
TS 3.3.5.1-1 (4.a.)	2B21-K752A	LFD-2-ECCS-18
TS 3.3.5.1-1 (4.a.)	2B21-K754A	LFD-2-ECCS-18
TS 3.3.5.1-1 (4.a.)	2B21-K756A	LFD-2-ECCS-18
TS 3.3.5.1-1 (4.a.)	2B21-N091A,C	LFD-2-ECCS-18
TS 3.3.5.1-1 (4.a.)	2B21-N691A,C	LFD-2-ECCS-18
TS 3.3.5.1-1 (4.b.)	2B21-K752A	LFD-2-ECCS-19
TS 3.3.5.1-1 (4.b.)	2E11-N094A,C	LFD-2-ECCS-19
TS 3.3.5.1-1 (4.b.)	2E11-N694A,C	LFD-2-ECCS-19

TABLE T10.2-1 (SHEET 9 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.5.1-1 (4.c.)	2B21-K752A	LFD-2-ECCS-20
TS 3.3.5.1-1 (4.d.)	2B21-K752A	LFD-2-ECCS-21
TS 3.3.5.1-1 (4.d.)	2B21-N095A	LFD-2-ECCS-21
TS 3.3.5.1-1 (4.d.)	2B21-N695A	LFD-2-ECCS-21
TS 3.3.5.1-1 (4.e.)	2E21-N052A	LFD-2-ECCS-22
TS 3.3.5.1-1 (4.e.)	2E21-N055A	LFD-2-ECCS-22
TS 3.3.5.1-1 (4.e.)	2E21-N652A	LFD-2-ECCS-22
TS 3.3.5.1-1 (4.e.)	2E21-N655A	LFD-2-ECCS-22
TS 3.3.5.1-1 (4.f.)	2E11-N055A,C	LFD-2-ECCS-23
TS 3.3.5.1-1 (4.f.)	2E11-N056A,C	LFD-2-ECCS-23
TS 3.3.5.1-1 (4.f.)	2E11-N655A,C	LFD-2-ECCS-23
TS 3.3.5.1-1 (4.f.)	2E11-N656A,C	LFD-2-ECCS-23
TS 3.3.5.1-1 (4.g.)	2B21-K754A	LFD-2-ECCS-24
TS 3.3.5.1-1 (4.g.)	2B21-K756A	LFD-2-ECCS-24
TS 3.3.5.1-1 (5.a.)	2B21-K752B	LFD-2-ECCS-18
TS 3.3.5.1-1 (5.a.)	2B21-K754B	LFD-2-ECCS-18
TS 3.3.5.1-1 (5.a.)	2B21-K756B	LFD-2-ECCS-18
TS 3.3.5.1-1 (5.a.)	2B21-N091B,D	LFD-2-ECCS-18
TS 3.3.5.1-1 (5.a.)	2B21-N691B,D	LFD-2-ECCS-18
TS 3.3.5.1-1 (5.b.)	2B21-K752B	LFD-2-ECCS-19
TS 3.3.5.1-1 (5.b.)	2E11-N094B,D	LFD-2-ECCS-19
TS 3.3.5.1-1 (5.b.)	2E11-N694B,D	LFD-2-ECCS-19
TS 3.3.5.1-1 (5.c.)	2B21-K752B	LFD-2-ECCS-20
TS 3.3.5.1-1 (5.d.)	2B21-K752B	LFD-2-ECCS-21
TS 3.3.5.1-1 (5.d.)	2B21-N095B	LFD-2-ECCS-21
TS 3.3.5.1-1 (5.d.)	2B21-N695B	LFD-2-ECCS-21
TS 3.3.5.1-1 (5.e.)	2E21-N052B	LFD-2-ECCS-22
TS 3.3.5.1-1 (5.e.)	2E21-N055B	LFD-2-ECCS-22
TS 3.3.5.1-1 (5.e.)	2E21-N652B	LFD-2-ECCS-22
TS 3.3.5.1-1 (5.e.)	2E21-N655B	LFD-2-ECCS-22
TS 3.3.5.1-1 (5.f.)	2E11-N055B,D	LFD-2-ECCS-23
TS 3.3.5.1-1 (5.f.)	2E11-N056B,D	LFD-2-ECCS-23
TS 3.3.5.1-1 (5.f.)	2E11-N655B,D	LFD-2-ECCS-23

TABLE T10.2-1 (SHEET 10 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.5.1-1 (5.f.)	2E11-N656B,D	LFD-2-ECCS-23
TS 3.3.5.1-1 (5.g.)	2B21-K754B	LFD-2-ECCS-24
TS 3.3.5.1-1 (5.g.)	2B21-K756B	LFD-2-ECCS-24
TS 3.3.5.2-1 (1.)	2B21-N091A,B,C,D	LFD-2-RCIC-01
TS 3.3.5.2-1 (1.)	2B21-N691A,B,C,D	LFD-2-RCIC-01
TS 3.3.5.2-1 (1.)	2B21-N692A,B,C,D	LFD-2-RCIC-01
TS 3.3.5.2-1 (2.)	2B21-N093A	LFD-2-RCIC-02
TS 3.3.5.2-1 (2.)	2B21-N095A	LFD-2-RCIC-02
TS 3.3.5.2-1 (2.)	2B21-N693A,C	LFD-2-RCIC-02
TS 3.3.5.2-1 (2.)	2B21-N695A	LFD-2-RCIC-02
TS 3.3.5.2-1 (3.)	2E51-N060	LFD-2-RCIC-03
TS 3.3.5.2-1 (3.)	2E51-N061	LFD-2-RCIC-03
TS 3.3.5.2-1 (4.)	2E51-N062A,B	LFD-2-RCIC-04
TS 3.3.6.1-1 (1.a.)	2B21-N081A,B,C,D	LFD-2-PCIS-01
TS 3.3.6.1-1 (1.a.)	2B21-N681A,B,C,D	LFD-2-PCIS-01
TS 3.3.6.1-1 (1.b.)	2B21-N015A,B,C,D	LFD-2-PCIS-02
TS 3.3.6.1-1 (1.c.)	2B21-N086A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.c.)	2B21-N087A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.c.)	2B21-N088A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.c.)	2B21-N089A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.c.)	2B21-N686A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.c.)	2B21-N687A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.c.)	2B21-N688A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.c.)	2B21-N689A,B,C,D	LFD-2-PCIS-03
TS 3.3.6.1-1 (1.d.)	2B21-N056A,B,C,D	LFD-2-PCIS-04
TS 3.3.6.1-1 (1.e.)	2B21-N123A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.e.)	2B21-N124A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.e.)	2B21-N125A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.e.)	2B21-N126A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.e.)	2B21-N623A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.e.)	2B21-N624A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.e.)	2B21-N625A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.e.)	2B21-N626A,B,C,D	LFD-2-PCIS-05
TS 3.3.6.1-1 (1.f.)	2U61-N101A,B,C,D	LFD-2-PCIS-06

TABLE T10.2-1 (SHEET 11 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.6.1-1 (1.f.)	2U61-N102A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N103A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N104A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N105A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N106A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N107A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N108A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N109A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N110A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N111A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N112A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N113A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N114A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N115A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N116A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N117A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N118A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N119A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N120A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N121A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N122A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N123A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N124A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N125A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N126A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N127A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N128A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N129A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N130A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N131A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (1.f.)	2U61-N132A,B,C,D	LFD-2-PCIS-06
TS 3.3.6.1-1 (2.a.)	2B21-N080A,B,C,D	LFD-2-PCIS-07
TS 3.3.6.1-1 (2.a.)	2B21-N680A,B,C,D	LFD-2-PCIS-07
TS 3.3.6.1-1 (2.b.)	2C71-N050A,B,C,D	LFD-2-PCIS-08

TABLE T10.2-1 (SHEET 12 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.6.1-1 (2.b.)	2C71-N650A,B,C,D	LFD-2-PCIS-08
TS 3.3.6.1-1 (2.c.)	2D11-K621A,B	LFD-2-PCIS-09
TS 3.3.6.1-1 (2.c.)	2D11-N003A,B	LFD-2-PCIS-09
TS 3.3.6.1-1 (2.d.)	2D11-K609A,B,C,D	LFD-2-PCIS-10
TS 3.3.6.1-1 (2.d.)	2D11-N010A,B,C,D	LFD-2-PCIS-10
TS 3.3.6.1-1 (2.e.)	2D11-K611A,B,C,D	LFD-2-PCIS-11
TS 3.3.6.1-1 (2.e.)	2D11-N012A,B,C,D	LFD-2-PCIS-11
TS 3.3.6.1-1 (3.a.)	2E41-N057A,B	LFD-2-PCIS-12
TS 3.3.6.1-1 (3.a.)	2E41-N657A,B	LFD-2-PCIS-12
TS 3.3.6.1-1 (3.b.)	2E41-N058A,B,C,D	LFD-2-PCIS-13
TS 3.3.6.1-1 (3.b.)	2E41-N658A,B,C,D	LFD-2-PCIS-13
TS 3.3.6.1-1 (3.c.)	2E41-N055A,B,C,D	LFD-2-PCIS-14
TS 3.3.6.1-1 (3.c.)	2E41-N655A,B,C,D	LFD-2-PCIS-14
TS 3.3.6.1-1 (3.d.)	2E11-N094C,D	LFD-2-PCIS-15
TS 3.3.6.1-1 (3.d.)	2E11-N694C,D	LFD-2-PCIS-15
TS 3.3.6.1-1 (3.d.)	2E41-N058A,B,C,D	LFD-2-PCIS-15
TS 3.3.6.1-1 (3.d.)	2E41-N658A,B,C,D	LFD-2-PCIS-15
TS 3.3.6.1-1 (3.e.)	2E41-N071A,B	LFD-2-PCIS-16
TS 3.3.6.1-1 (3.e.)	2E41-N671A,B	LFD-2-PCIS-16
TS 3.3.6.1-1 (3.f.)	2E51-N066C,D	LFD-2-PCIS-17
TS 3.3.6.1-1 (3.f.)	2E51-N666C,D	LFD-2-PCIS-17
TS 3.3.6.1-1 (3.g.)	2E51-M603A,B	LFD-2-PCIS-17
TS 3.3.6.1-1 (3.g.)	2E51-M603A,B	LFD-2-PCIS-19
TS 3.3.6.1-1 (3.h.)	2E51-N063C,D	LFD-2-PCIS-19
TS 3.3.6.1-1 (3.h.)	2E51-N064C,D	LFD-2-PCIS-19
TS 3.3.6.1-1 (3.h.)	2E51-N663C,D	LFD-2-PCIS-19
TS 3.3.6.1-1 (3.h.)	2E51-N664C,D	LFD-2-PCIS-19
TS 3.3.6.1-1 (3.h.)	2E51-N665C,D	LFD-2-PCIS-19
TS 3.3.6.1-1 (3.i.)	2E41-N070A,B,	LFD-2-PCIS-20
TS 3.3.6.1-1 (3.i.)	2E41-N670A,B	LFD-2-PCIS-20
TS 3.3.6.1-1 (4.a.)	2E51-N057A,B	LFD-2-PCIS-21
TS 3.3.6.1-1 (4.a.)	2E51-N657A,B	LFD-2-PCIS-21
TS 3.3.6.1-1 (4.b.)	2E51-N058A,B,C,D	LFD-2-PCIS-22

TABLE T10.2-1 (SHEET 13 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.6.1-1 (4.b.)	2E51-N658A,B,C,D	LFD-2-PCIS-22
TS 3.3.6.1-1 (4.c.)	2E51-N085A,B,C,D	LFD-2-PCIS-23
TS 3.3.6.1-1 (4.c.)	2E51-N685A,B,C,D	LFD-2-PCIS-23
TS 3.3.6.1-1 (4.d.)	2E11-N094A,B	LFD-2-PCIS-24
TS 3.3.6.1-1 (4.d.)	2E11-N694A,B	LFD-2-PCIS-24
TS 3.3.6.1-1 (4.d.)	2E51-N058A,B,C,D	LFD-2-PCIS-24
TS 3.3.6.1-1 (4.d.)	2E51-N658A,B,C,D	LFD-2-PCIS-24
TS 3.3.6.1-1 (4.e.)	2E51-N066A,B	LFD-2-PCIS-25
TS 3.3.6.1-1 (4.e.)	2E51-N666A,B	LFD-2-PCIS-25
TS 3.3.6.1-1 (4.f.)	2E51-M602A,B	LFD-2-PCIS-25
TS 3.3.6.1-1 (4.f.)	2E51-M602A,B	LFD-2-PCIS-27
TS 3.3.6.1-1 (4.g.)	2E51-M602A,B	LFD-2-PCIS-27
TS 3.3.6.1-1 (4.g.)	2E51-N063A,B	LFD-2-PCIS-27
TS 3.3.6.1-1 (4.g.)	2E51-N064A,B	LFD-2-PCIS-27
TS 3.3.6.1-1 (4.g.)	2E51-N663A,B	LFD-2-PCIS-27
TS 3.3.6.1-1 (4.g.)	2E51-N664A,B	LFD-2-PCIS-27
TS 3.3.6.1-1 (4.g.)	2E51-N665A,B	LFD-2-PCIS-27
TS 3.3.6.1-1 (4.h.)	2E51-N061A,B	LFD-2-PCIS-28
TS 3.3.6.1-1 (4.h.)	2E51-N661A,B	LFD-2-PCIS-28
TS 3.3.6.1-1 (5.a.)	2G31-N062A,D,E,H,J,M	LFD-2-PCIS-29
TS 3.3.6.1-1 (5.a.)	2G31-N662A,D,E,H,J,M	LFD-2-PCIS-29
TS 3.3.6.1-1 (5.b.)	2G31-N061A,D,E,H,J,M	LFD-2-PCIS-30
TS 3.3.6.1-1 (5.b.)	2G31-N062A,D,E,H,J,M	LFD-2-PCIS-30
TS 3.3.6.1-1 (5.b.)	2G31-N661A,D,E,H,J,M	LFD-2-PCIS-30
TS 3.3.6.1-1 (5.b.)	2G31-N662A,D,E,H,J,M	LFD-2-PCIS-30
TS 3.3.6.1-1 (5.b.)	2G31-N663A,D,E,H,J,M	LFD-2-PCIS-30
TS 3.3.6.1-1 (5.c.)	2C41-S1A	LFD-2-PCIS-31
TS 3.3.6.1-1 (5.d.)	2B21-N081A,B,C,D	LFD-2-PCIS-32
TS 3.3.6.1-1 (5.d.)	2B21-N681A,B,C,D	LFD-2-PCIS-32
TS 3.3.6.1-1 (5.d.)	2B21-N682A,B,C,D	LFD-2-PCIS-32
TS 3.3.6.1-1 (6.a.)	2B31-N079A,D	LFD-2-PCIS-33
TS 3.3.6.1-1 (6.a.)	2B31-N679A,D	LFD-2-PCIS-33
TS 3.3.6.1-1 (6.b.)	2B21-N080A,B,C,D	LFD-2-PCIS-34
TS 3.3.6.1-1 (6.b.)	2B21-N680A,B,C,D	LFD-2-PCIS-24

TABLE T10.2-1 (SHEET 14 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.6.2-1 (1.)	2B21-N081A,B,C,D	LFD-2-SCIS-01
TS 3.3.6.2-1 (1.)	2B21-N681A,B,C,D	LFD-2-SCIS-01
TS 3.3.6.2-1 (1.)	2B21-N682A,B,C,D	LFD-2-SCIS-01
TS3.3.6.2-1 (2.)	2C71-N050A,B,C,D	LFD-2-SCIS-02
TS 3.3.6.2-1 (2.)	2C71-N650A,B,C,D	LFD-2-SCIS-02
TS 3.3.6.2-1 (3.)	2D11-K609A,B,C,D	LFD-2-SCIS-03
TS 3.3.6.2-1 (3.)	2D11-N010A,B,C,D	LFD-2-SCIS-03
TS 3.3.6.2-1 (4.)	2D11-K611A,B,C,D	LFD-2-SCIS-04
TS 3.3.6.2-1 (4.)	2D11-N012A,B,C,D	LFD-2-SCIS-04
TS 3.3.6.3-1 (1.)	2B21-N120A,B,C,D	LFD-2-LLS-01
TS 3.3.6.3-1 (1.)	2B21-N620A,B,C,D	LFD-2-LLS-01
TS 3.3.6.3-1 (2.)	2B21-N120A,B,C,D	LFD-2-LLS-02
TS 3.3.6.3-1 (2.)	2B21-N122A,B,C,D	LFD-2-LLS-02
TS 3.3.6.3-1 (2.)	2B21-N620A,B,C,D	LFD-2-LLS-02
TS 3.3.6.3-1 (2.)	2B21-N621A,B,C,D	LFD-2-LLS-02
TS 3.3.6.3-1 (2.)	2B21-N622A,B,C,D	LFD-2-LLS-02
TS 3.3.6.3-1 (2.)	2B21-N643A,B	LFD-2-LLS-02
TS 3.3.6.3-1 (3.)	2B21-N301A,B,C,D,E,F,G,H,K,L,M	LFD-2-LLS-03
TS 3.3.6.3-1 (3.)	2B21-N302A,B,C,D,E,F,G,H,K,L,M	LFD-2-LLS-03
TS 3.3.8.1-1 (1.a.)	2S32-K790-3,6	LFD-2-LOP-01
TS 3.3.8.1-1 (1.a.)	2S32-K820-3,6	LFD-2-LOP-01
TS 3.3.8.1-1 (1.a.)	2S32-K834-3,6	LFD-2-LOP-01
TS 3.3.8.1-1 (1.b.)	2S32-K790-3,6	LFD-2-LOP-01
TS 3.3.8.1-1 (1.b.)	2S32-K820-3,6	LFD-2-LOP-01
TS 3.3.8.1-1 (1.b.)	2S32-K834-3,6	LFD-2-LOP-01
TS 3.3.8.1-1 (2.a.)	2S32-K790-4,5	LFD-2-LOP-02
TS 3.3.8.1-1 (2.a.)	2S32-K820-4,5	LFD-2-LOP-02
TS 3.3.8.1-1 (2.a.)	2S32-K834-4,5	LFD-2-LOP-02
TS 3.3.8.1-1 (2.b.)	2S32-K790-4,5	LFD-2-LOP-02
TS 3.3.8.1-1 (2.b.)	2S32-K820-4,5	LFD-2-LOP-02
TS 3.3.8.1-1 (2.b.)	2S32-K834-4,5	LFD-2-LOP-02
TS 3.3.8.1-1 (3.a.)	2S32-K790-1,2	LFD-2-LOP-03
TS 3.3.8.1-1 (3.a.)	2S32-K820-1,2	LFD-2-LOP-03

TABLE T10.2-1 (SHEET 15 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS 3.3.8.1-1 (3.a.)	2S32-K834-1,2	LFD-2-LOP-03
TS 3.3.8.1-1 (3.b.)	2S32-K790-1,2	LFD-2-LOP-03
TS 3.3.8.1-1 (3.b.)	2S32-K820-1,2	LFD-2-LOP-03
TS 3.3.8.1-1 (3.b.)	2S32-K834-1,2	LFD-2-LOP-03
TS LCO 3.3.2.2	2C32-K624A,B,C	LFD-2-RWLH-01
TS LCO 3.3.2.2	2C32-N004A,B,C	LFD-2-RWLH-01
TS LCO 3.3.3.2 for “2A” DG Equipment	2R43-R752	N/A
TS LCO 3.3.3.2 for “2A” DG Equipment	2R43-R753	N/A
TS LCO 3.3.3.2 for “2C” DG Equipment	2R43-R755	N/A
TS LCO 3.3.3.2 for “2C” DG Equipment	2R43-R756	N/A
TS LCO 3.3.3.2 for “B” DG Equipment	1R43-R766B	N/A
TS LCO 3.3.3.2 for “B” DG Equipment	1R43-R769B	N/A
TS LCO 3.3.3.2 for “B” DG Equipment	2R43-M01	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-R001	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-R003	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-R005	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S18	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S2	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S3	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S4	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S5	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S53	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S6	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2C82-S7	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-C002-1	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-C002-2	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F007	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F008	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F010	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F012	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F013	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F019	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F022	N/A

TABLE T10.2-1 (SHEET 16 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F029	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F031	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F045	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F046	N/A
TS LCO 3.3.3.2 for RCIC for RPV Make-up	2E51-F524	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2B31-F023B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-R004	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-R006	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S1	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S10	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S11	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S12	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S13	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S14	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S16	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S17	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S18	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S52	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S53	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S8	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S80	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2C82-S9	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-C001B,D	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-C002B	N/A
TS LCO 3.3.3.2 fo RHR (SDC & SPC)	2E11-F003B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F004B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F006A,B,C,D	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F007B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F008	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F009	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F015B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F017B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F024B	N/A

TABLE T10.2-1 (SHEET 17 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F028B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-F047B	N/A
TS LCO 3.3.3.2 forRHR (SDC & SPC)	2E11-F048B	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2E11-R071	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2T48-R070	N/A
TS LCO 3.3.3.2 for RHR (SDC & SPC)	2T48-R072	N/A
TS LCO 3.3.3.2 for RPV Pressure Control	2B21-F013B,F	N/A
TS LCO 3.3.3.2 for RPV Pressure Control	2C82-S1	N/A
TS LCO 3.3.3.2 for RPV Pressure Control	2C82-S15	N/A
TS LCO 3.3.3.2 for Support Equipment	2C82-S70	N/A
TS LCO 3.3.3.2 for Support Equipment	2P41-C001B	N/A
TS LCO 3.3.4.1.a.1.	2C71-N006A,B,C,D	LFD-2-RPT-01
TS LCO 3.3.4.1.a.2.	2C71-N005A,B,C,D	LFD-2-RPT-02
TS LCO 3.3.4.2.a.	2B21-N091A,B,C,D	LFD-2-RPT-03
TS LCO 3.3.4.2.a.	2B21-N691A,B,C,D	LFD-2-RPT-03
TS LCO 3.3.4.2.a.	2B21-N692A,B,C,D	LFD-2-RPT-03
TS LCO 3.3.4.2.a.	2B21-N694A,B,C,D	LFD-2-RPT-03
TS LCO 3.3.4.2.b.	2B21-N120A,B	LFD-2-RPT-04
TS LCO 3.3.4.2.b.	2B21-N122A,B	LFD-2-RPT-04
TS LCO 3.3.4.2.b.	2B21-N620A,B	LFD-2-RPT-04
TS LCO 3.3.4.2.b.	2B21-N642A,B	LFD-2-RPT-04
TS LCO 3.3.4.2.b.	2B21-N643A,B	LFD-2-RPT-04
TS LCO 3.3.7.1	1Z41-N015A,B	LFD-2-MCREC-01
TS LCO 3.3.7.1	1Z41-R615A,B	LFD-2-MCREC-01
TS LCO 3.3.8.2 (OVERVOLTAGE)	2C71-K751A,B,C,D,E,F	LFD-2-EPM-01
TS LCO 3.3.8.2 (OVERVOLTAGE TIME DELAY)	2C71-K756A,B,C,D	LFD-2-EPM-01
TS LCO 3.3.8.2 (UNDERFREQUENCY)	2C71-K753A,B,C,D,E,F	LFD-2-EPM-01
TS LCO 3.3.8.2 (UNDERVOLTAGE)	2C71-K752A,B,C,D,E,F	LFD-2-EPM-01
TS LCO 3.4.5.a	2G11-K600	N/A
TS LCO 3.4.5.a	2G11-K601	N/A
TS LCO 3.4.5.a	2G11-M600	N/A
TS LCO 3.4.5.a	2G11-M601	N/A
TS LCO 3.4.5.a	2G11-N001	N/A
TS LCO 3.4.5.a	2G11-N002	N/A

TABLE T10.2-1 (SHEET 18 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TS LCO 3.4.5.a	2G11-N003	N/A
TS LCO 3.4.5.a.	2G11-N074A,B	N/A
TS LCO 3.4.5.a	2G11-R600	N/A
TS LCO 3.4.5.b.	2D11-K630	N/A
TS LCO 3.6.3.3	2T47-B007A,B	N/A
TS LCO 3.6.3.3	2T47-B008A,B	N/A
TS LCO 3.6.3.3	2T47-B009A,B	N/A
TS SR 3.3.1.1.11	2C71-N003A,B,C,D	LFD-2-RPS-18
TS SR 3.3.4.1.2	2C71-N003A,B,C,D	LFD-2-RPT-05R
TSR 3.3.10.1	2N32-F4501A	N/A
TSR 3.3.10.1	2N32-F4501B	N/A
TSR 3.3.10.1	2N32-F4502A	N/A
TSR 3.3.10.1	2N32-F4502B	N/A
TSR 3.3.10.1	2N32-F4503A	N/A
TSR 3.3.10.1	2N32-F4503B	N/A
TSR 3.3.10.1	2N32-F4521A	N/A
TSR 3.3.10.1	2N32-F4521B	N/A
TSR 3.3.10.1	2N32-F4522A	N/A
TSR 3.3.10.1	2N32-F4522B	N/A
TSR 3.3.10.1	2N32-F4523A	N/A
TSR 3.3.10.1	2N32-F4523B	N/A
TSR 3.3.10.2 a	2N11-F036A-D	N/A
TSR 3.3.10.2 b	2N38-F001A-D	N/A
TSR 3.3.10.3	2N11-F011A-D	N/A
TSR 3.3.10.4.a	2H21-P4103	N/A
TSR 3.3.10.4.b	2H21-P4104	N/A
TSR 3.3.10.5	2N32-F4501A	N/A
TSR 3.3.10.5	2N32-F4501B	N/A
TSR 3.3.10.5	2N32-F4502A	N/A
TSR 3.3.10.5	2N32-F4502B	N/A
TSR 3.3.10.5	2N32-F4503A	N/A
TSR 3.3.10.5	2N32-F4503B	N/A
TSR 3.3.10.5	2N32-F4521A	N/A

TABLE T10.2-1 (SHEET 19 OF 19)
MASTER EQUIPMENT CROSS REFERENCE – SORTED BY SPECIFICATION

SPECIFICATION	MPL NUMBER(S)	LOSS OF FUNCTION DIAGRAMS
TSR 3.3.10.5	2N32-F4521B	N/A
TSR 3.3.10.5	2N32-F4522A	N/A
TSR 3.3.10.5	2N32-F4522B	N/A
TSR 3.3.10.5	2N32-F4523A	N/A
TSR 3.3.10.5	2N32-F4523B	N/A
TSR 3.3.10.5	2N32-F4531A	N/A
TSR 3.3.10.5	2N32-F4531B	N/A
TSR 3.3.10.5	2N32-F4532A	N/A
TSR 3.3.10.5	2N32-F4532B	N/A
TSR 3.3.10.5	2N32-F4533A	N/A
TSR 3.3.10.5	2N32-F4533B	N/A
TSR 3.3.10.5	2N32-F4541A	N/A
TSR 3.3.10.5	2N32-F4541B	N/A
TSR 3.3.10.5	2N32-F4542A	N/A
TSR 3.3.10.5	2N32-F4542B	N/A
TSR 3.3.10.5	2N32-F4543A	N/A
TSR 3.3.10.5	2N32-F4543B	N/A
TSR 3.3.10.6	2N11-F036A-D	N/A
TSR 3.3.10.6	2N38-F001A-D	N/A
TSR 3.3.10.6	2N11-F011A-D	N/A
TSR 3.3.10.7.a	2H21-P4103	N/A
TSR 3.3.10.7.b	2H21-P4104	N/A

TABLE T10.3-1 (Sheet 1 of 7)
QUALIFIED POST ACCIDENT MONITORING INSTRUMENTATION

Function	Required Channels[a]	Sensor	Indicator
1. Reactor Steam Dome Pressure	2	2B21-N090A	2B21-N690A
			2B21-N623A
		2B21-N090D	2B21-R623B
			2B21-N690D
2. Vessel Level			
a. -317 to -17	2	2B21-N085A	2B21-R623A
			2B21-N685A
		2B21-N085B	2B21-R623B
			2B21-N685B
b. -150 to +60	2[b]	2B21-N091A	2B21-N691A
			2B21-R604A
		2B21-N091B	2B21-N691B
			2B21-R604B
		2B21-N091C	2B21-N691C
			2B21-R623A
		2B21-N091D	2B21-N691D
			2B21-R623B
c. 0 to +60	2[c]	2B21-N093A	2B21-N693A
		2B21-N093B	2B21-N693B
		2B21-N095A	2B21-N695A
		2B21-N095B	2B21-N695B
d. 0 to +400	1	2B21-N027	2B21-R605

(a) A channel consists of a sensor and at least one indication of that sensed variable.

(b) One from system A (N091A & C) and one from system B (N091B &D).

(c) One from system A (N093A & N095B) and one from system B (N093B & N095A).

TABLE T10.3-1 (Sheet 2 of 7)
QUALIFIED POST ACCIDENT MONITORING INSTRUMENTATION

Function	Required Channels[a]	Sensor	Indicator
3. Suppression Pool Water Level			
a. 0 to 300	2	2T48-N010A 2T48-N010B	2T48-R622A 2T48-R622B
b. 133 to 163	2	2T48-N021A 2T48-N021B	2T48-R607A 2T48-R607B
4. Drywell Pressure			
a. -10 to +90	2	2T48-N023A 2T48-N023B	2T48-R631A 2T48-R631B
b. -5 to +5	2	2T48-N020A 2T48-N020B	2T48-R607A 2T48-R607B
c. 0 to +250	2	2T48-N003A 2T48-N003B	2T48-R601A 2T48-R601B
5. Drywell Area Radiation (High Range)	2	2D11-N003A	2D11-K621A 2T48-R601A
		2D11-N003B	2D11-K621B 2T48-R601B

(a) A channel consists of a sensor and at least one indication of that sensed variable.

TABLE T10.3-1 (Sheet 3 of 7)
QUALIFIED POST ACCIDENT MONITORING INSTRUMENTATION

Function

6. Primary Containment Isolation Valve (PCIV) Position[(d)]

2B21-F022A
2B21-F022B
2B21-F022C
2B21-F022D
2B21-F028A
2B21-F028B
2B21-F028C
2B21-F028D
2B21-F016
2B21-F019

2B31-F019
2B31-F020
TIP ball valve associated with 2C51-J004A
TIP ball valve associated with 2C51-J004B
TIP ball valve associated with 2C51-J004C
TIP ball valve associated with 2C51-J004D

2D11-F050
2D11-F051
2D11-F052
2D11-F053

2E11-F008
2E11-F011A
2E11-F011B
2E11-F015A

2E11-F015B
2E11-F016A
2E11-F016B
2E11-F026A
2E11-F026B
2E11-F028A
2E11-F028B

2E21-F015A
2E21-F015B
2E41-F002
2E41-F003

2E41-F012
2E41-F042

2E41-F104
2E41-F111

2E51-F007
2E51-F008
2E51-F019

2E51-F104

(d) Control room indication of the listed valve positions satisfies the Technical Specifications requirement. Inoperabilities must be addressed individually for the applicable penetration flow path.

TABLE T10.3-1 (Sheet 4 of 7)
QUALIFIED POST ACCIDENT MONITORING INSTRUMENTATION

Function

6. PCIV Position (Continued)

2E51-F105
2G11-F003
2G11-F004
2G11-F019
2G11-F020
2G31-F001
2G31-F004
2G51-F011
2G51-F012

2P33-F002
2P33-F003
2P33-F004
2P33-F005
2P33-F006
2P33-F007
2P33-F010
2P33-F011
2P33-F012
2P33-F013
2P33-F014
2P33-F015

2P70-F002
2P70-F003
2P70-F004
2P70-F005
2P70-F066
2P70-F067
2T48-F103
2T48-F104

2T48-F118A
2T48-F118B
2T48-F209
2T48-F210
2T48-F211
2T48-F212
2T48-F307
2T48-F308
2T48-F309

2T48-F318
2T48-F319
2T48-F320

2T48-F324

2T48-F326

2T48-F332A
2T48-F332 B
2T48-F333A
2T48-F333B
2T48-F334A
2T48-F334B
2548-F335A
2T48-F335B
2T48-F338
2T48-F339
2T48-F340
2T48-F341

TABLE T10.3-1 (Sheet 5 of 7)
QUALIFIED POST ACCIDENT MONITORING INSTRUMENTATION

Function	Required Channels[a]	Sensor	Indicator
7. Drywell Hydrogen Concentration	2	2P33-P001A	2P33-R604A
			2P33-R601A
		2P33-P001B	2P33-R604B
			2P33-R601B
8. Drywell O_2 Concentration	2	2P33-P001A	2P33-R603A
			2P33-R601A
		2P33-P001B	2P33-R603B
			2P33-R601B
9. Suppression Pool Water Temp	2[e]		
	Quadrant A:	2T48-N009C	2T47-R626
		2T48-N301A	2T48-R647
		2T48-N311A	2T48-R647
	Quadrant B:	2T48-N009B	2T47-R627
		2T48-N302A	2T48-R647
		2T48-N303A	2T48-R647
		2T48-N304B	2T48-R647

(a) A channel consists of a sensor and at least one indication of that sensed variable.

(e) Suppression Pool Water Temperature constitutes one Function. The N009 series constitutes one channel of this Function, and the N300 series constitutes the second channel of this Function. One OPERABLE N300 series sensor in each of the four quadrants is sufficient for that channel to be OPERABLE. For the Specification requirement for two channels to be satisfied, a minimum of one N009 series instrument and one N300 series instrument in each quadrant must be OPERABLE.

TABLE T10.3-1 (Sheet 6 of 7)
QUALIFIED POST ACCIDENT MONITORING INSTRUMENTATION

Function	Required Channels[a]	Sensor	Indicator
9. Suppression Pool Water Temp (Continued)	Quadrant C:	2T48-N009A	2T47-R626
		2T48-N305A	2T48-R647
		2T48-N306A	2T48-R647
	Quadrant D:	2T48-N009D	2T47-R627
		2T48-N307A	2T48-R647
		2T48-N308A	2T48-R647
		2T48-N309A	2T48-R647
		2T48-N310A	2T48-R647
10. Drywell Temp (in vicinity of reference leg)	6	2T47-N001A	2T47-R626
		2T47-N001B	2T47-R626
		2T47-N009	2T47-R626
		2T47-N001J	2T47-R627
		2T47-N001K	2T47-R627
		2T47-N003	2T47-R627
11. DG Parameters			
a. Output Voltage			
2A	1		2R43-R904
1B	1		2R43-R910
2C	1		2R43-R918
b. Output Current			
2A	1		2R43-R622A
1B	1		2R43-R622B
2C	1		2R43-R622C

(a) A channel consists of a sensor and at least one indication of that sensed variable.

TABLE T10.3-1 (Sheet 7 of 7)
QUALIFIED POST ACCIDENT MONITORING INSTRUMENTATION

Function	Required Channels[a]	Sensor	Indicator
11. DG Parameters (Continued)			
d. Battery Voltage			
2A	1		2R43-R905
1B	1		2R43-R919
c. Output Power			
2A	1		2R43-R615A
1B	1		2R43-R615B
2C	1		2R43-R615C
2C	1		2R43-R920
12. RHR Service Water Flow	2	2E11-N007A 2E11-N007B	2E11-R602A 2E11-R602B

(a) A channel consists of a sensor and at least one indication of that sensed variable.

T 11.0 LOSS OF FUNCTION DIAGRAMS

A. Purpose

Loss of Function Diagrams (LFDs) provide a means for evaluating the affects of the loss of one or more instrument channels on the capability of the associated instrument logic to perform its intended safety function. In fulfilling this purpose, the LFDs provide the following:

- The number of channels associated with a given instrument function.
- The configuration of the instrument channels in the trip systems.
- The number and combinations of channels required to be operable in order for instrument function capability to be maintained.

B. General Rules for Use:

- LFDs are “channel-based,” that is, they are designed to be used to determine instrument function capability given a loss of one or more <u>channels.</u> For the purposes of determining loss of function, the LFDs show what constitutes a channel. However, in identifying the beginning and end of a channel for the purpose of determining channel functional test scope, the LFD should not be used for this purpose; instead, the TRM definition “Channel Functional Test Scope” should be used.
- As in typical elementary logic, the energy trace is from the sensor to the actuated device. Consequently, inoperability of a component in the energy trace can directly or indirectly affect the ability of a downstream component in the trace to function. However, the opposite is not always true; that is, the downstream component since it does not provide input to the upstream component does not affect the ability of the upstream component to function. As such, loss of a component anywhere other than in the channel cannot in all cases be traced back to evaluate the affect of the loss on a channel(s). Consequently, since the LFDs are “channel-based,” in such cases, the LFD cannot be used to determine instrument function capability. Instead, the elementary logic must be consulted to determine the affect of the loss on the supported system.
- LFDs are designed to be used with the instrumentation specifications found in the Technical Specifications, the TRM, and the ODCM. Typically, an LFD is provided for each instrumentation specification line item. However, some instruments provide more than one instrument function and an LFD may not provide sufficient information to ascertain all of the functions provided by the instrument. In order to identify all instrument functions performed by a particular instrument, Table 10.1-1, Master Equipment Cross Reference, Sorted by MPL, must be consulted. For a given MPL, this sort will identify all LFDs for the instrument functions that are served by the instrument.
- The complete logic from sensor to the actuation logic/actuated device is not reflected in the LFDs. A dashed line is used to denote cases where the logic was not included. Elementary diagrams used to develop the LFD are referenced on the LFD in the event information on the omitted logic is needed.

- The drawings show the channels and the trip logics associated with a particular instrument function and how the channels and the trip logics are related in the trip systems.

- The LFDs are ordered alphabetically by the system abbreviation and then sequentially by the sketch number.

- The LFD sketches are condensed elementaries and, therefore, the same rules of use that apply to elementaries also apply to the LFDs.

- The loss of function statement typically found at the bottom of the LFD identifies the channel combinations required to be operable in order for instrument function capability as defined in the instrumentation specification to be maintained. In some cases, the associated instrument specification contains an action statement that requires tripping the inoperable channel within a prescribed period of time. The LFD takes credit for this requirement in that it specifies for these cases that in order for instrument function to be maintained, the prescribed combinations of channels must be either operable or maintained in the tripped condition.

- The following is a list of abbreviations and their meanings used in the drawings that may be unfamiliar to the user:

  AU - Alarm Unit
  EPM - RPS Electric Power Monitoring
  ITU - Indicating Trip Unit
  LRM - Log Radiation Monitor
  MTU - Master Trip Unit
  PRM - Process Radiation Monitoring
  PS - Pressure Switch
  RWLH - Reactor Water Level High
  RIS - Radiation Indicating Switch
  SAU - Single Alarm Unit
  STU - Slave Trip Unit

T 11.0 LOSS OF FUNCTION DIAGRAMS

LIST OF DIAGRAMS

List of Diagrams (Continued)

List of Diagrams (Continued)

List of Diagrams (Continued)

List of Diagrams (Continued)

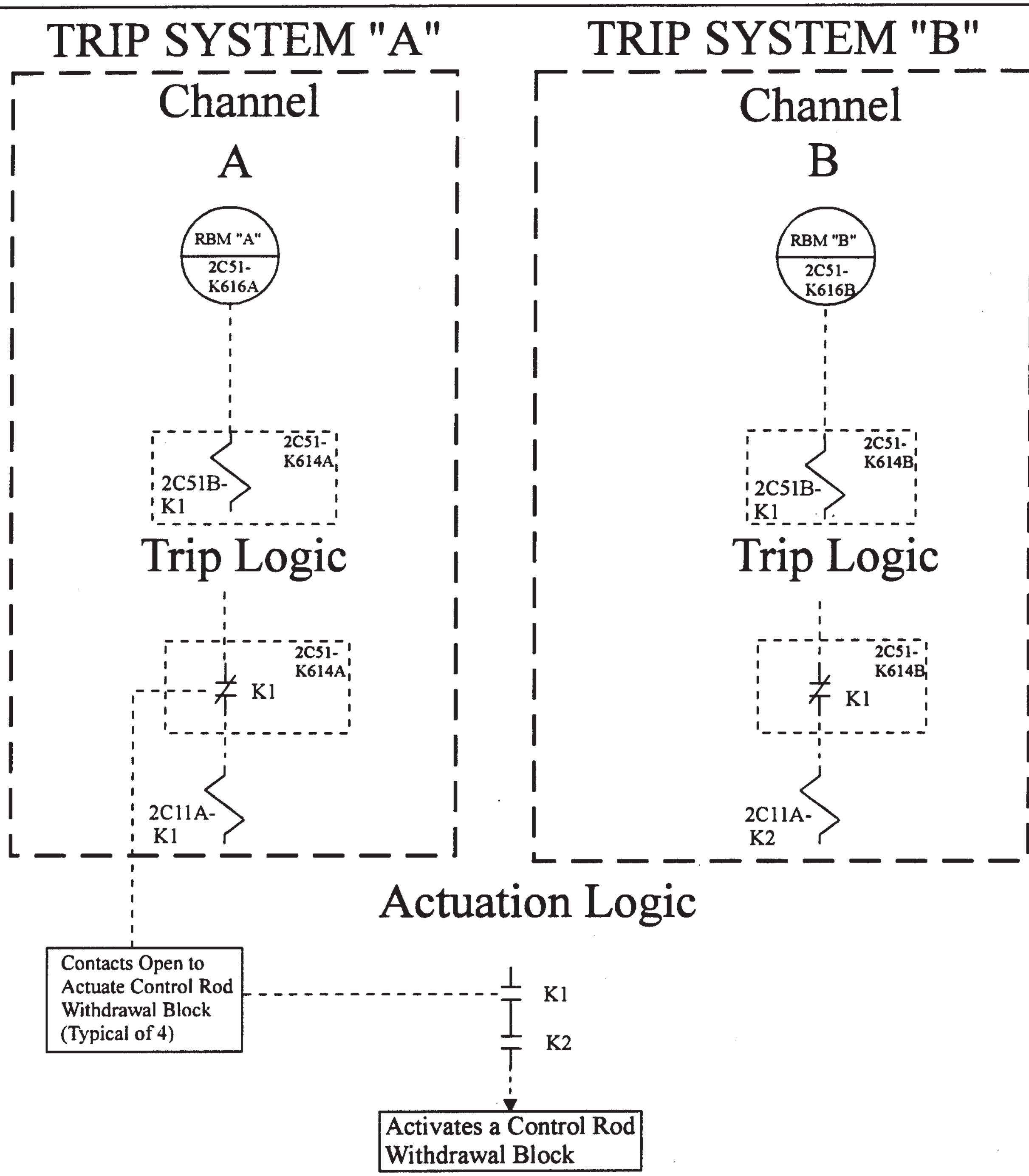
List of Diagrams (Continued)

List of Diagrams (Continued)

List of Diagrams (Continued)

List of Diagrams (Continued)

List of Diagrams (Continued)



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an RBM Low Power Range - Upscale condition, one channel must be operable or maintained in the tripped condition.

Elem. Ref.
H-27504
H-27509
H-52007
H-52008
H-52011

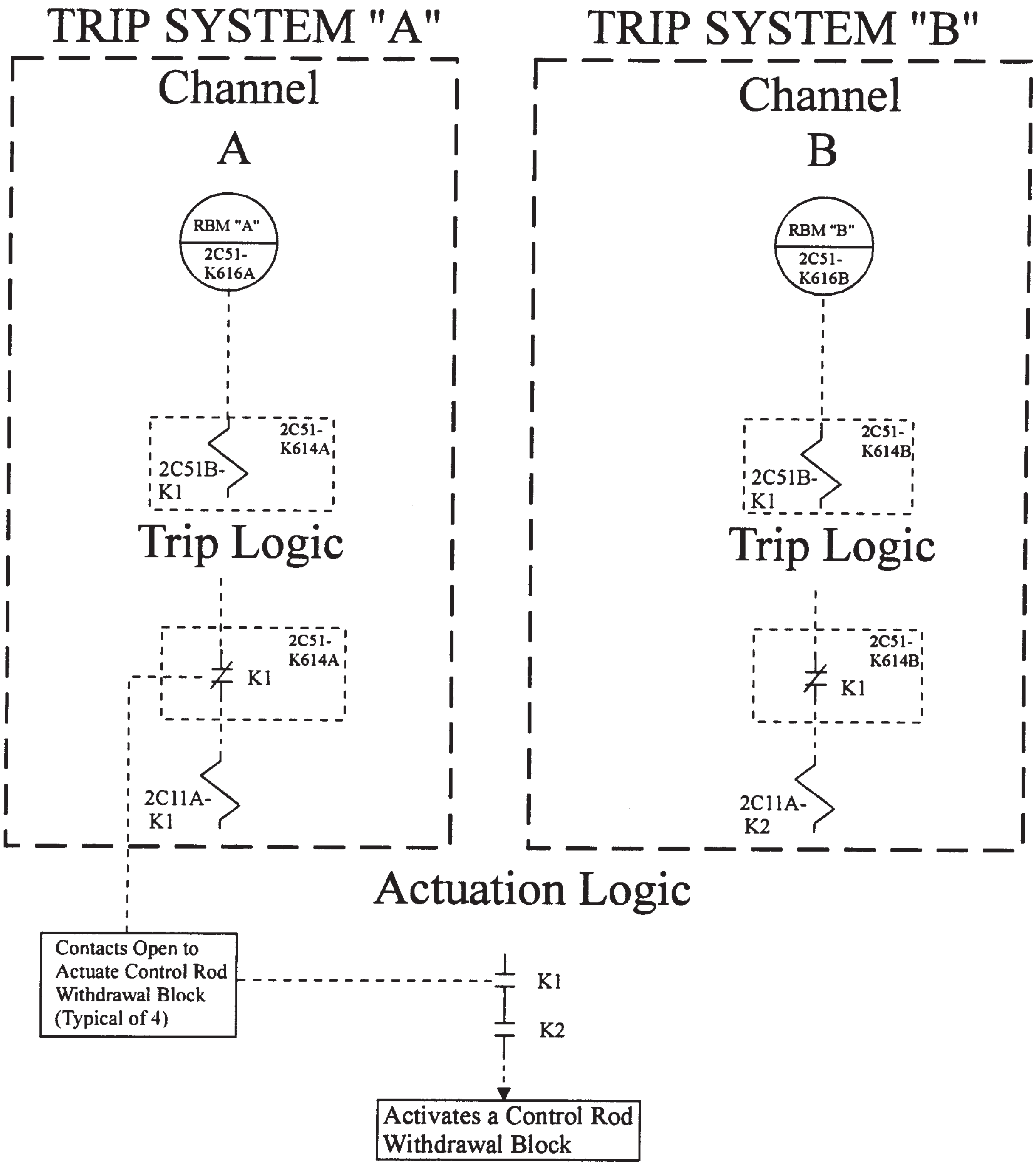
Prepared By: S.P. Bums

Reviewed By: Kathryn Wilkins

LFD-2-CRB-01

TS 3.3.2.1-1, Item 1.a
Control Rod Block,
Rod Block Monitor
Low Power
Range - Upscale

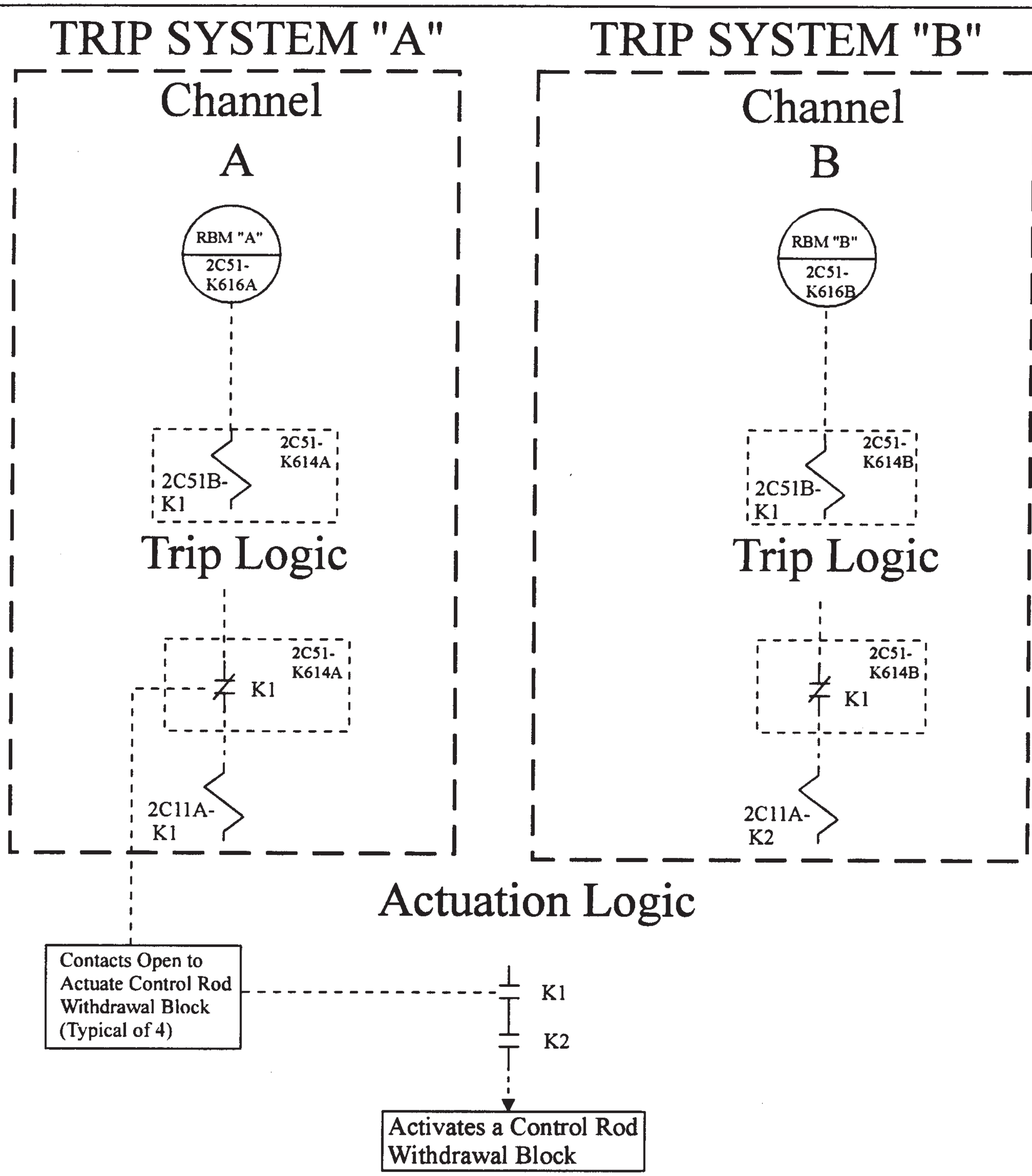
TRM Rev. 13



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an RBM Intermediate Power Range - Upscale condition, one channel must be operable or maintained in the tripped condition.

Elem. Ref.	LFD-2-CRB-02
H-27504 H-27509 H-52007 H-52008 H-52011	TS 3.3.2.1-1, Item 1.b Control Rod Block, Rod Block Monitor Intermediate Power Range - Upscale
Prepared By: S.E. Brun Reviewed By: Kathryn Wilkins	TRM Rev. 13



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an RBM High Power Range - Upscale condition, one channel must be operable or maintained in the tripped condition.

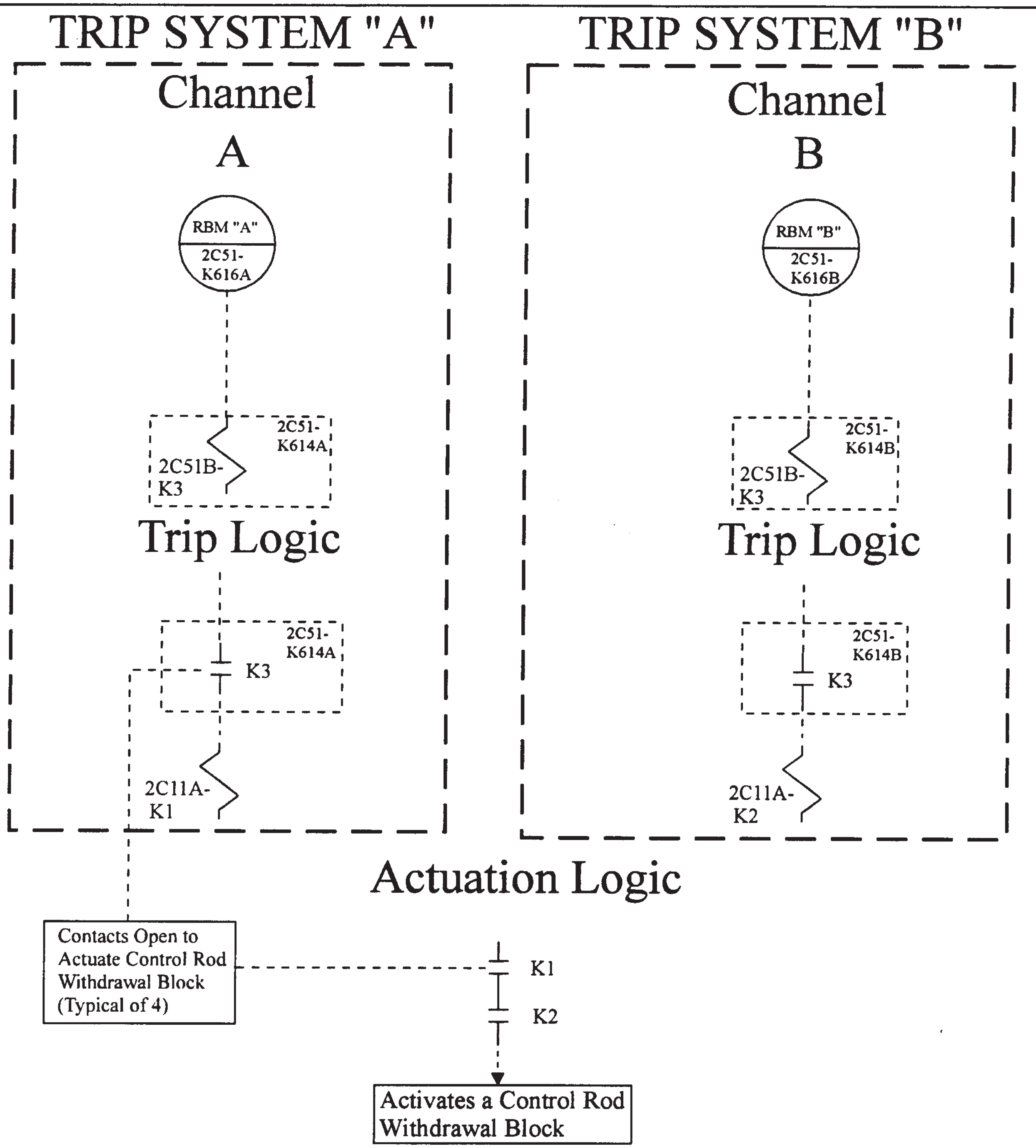
Elem. Ref.
H-27504
H-27509
H-52007
H-52008
H-52011

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-CRB-03

TS 3.3.2.1-1, Item 1.c
Control Rod Block,
Rod Block Monitor
High Power
Range - Upscale

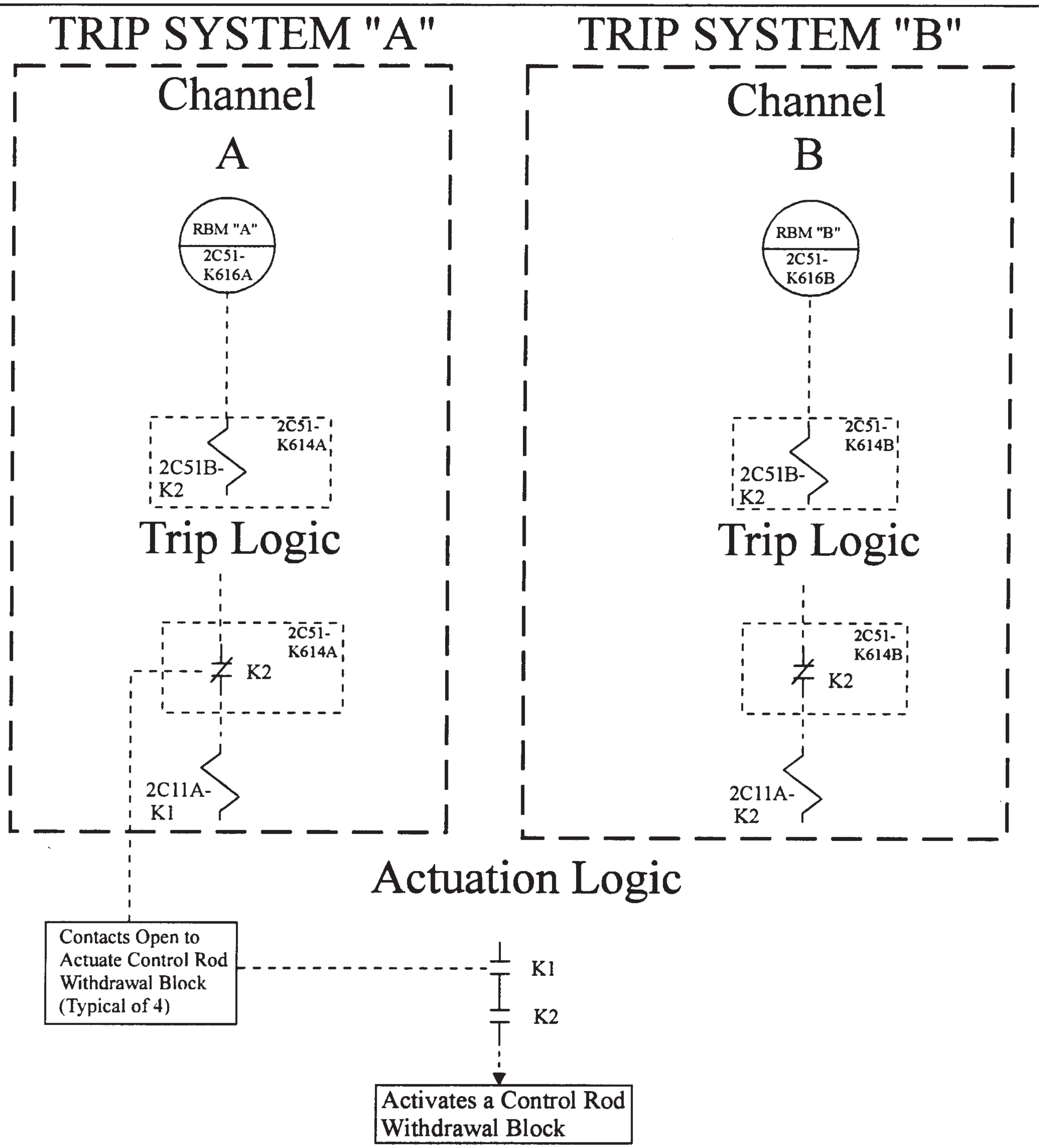
TRM Rev. 13



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an RBM Inoperable condition, one channel must be operable or maintained in the tripped condition.

Elem. Ref.		
H-27504 H-27509 H-52007 H-52008 H-52011	Prepared By: S.R. Brunn Reviewed By: Kathryn Wilkie	LFD-2-CRB-04 TS 3.3.2.1-1, Item 1.d Control Rod Block, Rod Block Monitor – Inop TRM Rev. 13



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an RBM Downscale condition, one channel must be operable or maintained in the tripped condition.

Elem. Ref.
H-27504
H-27509
H-52007
H-52008
H-52011

Prepared By:
Reviewed By:

LFD-2-CRB-05
TS 3.3.2.1-1, Item 1.e Control Rod Block, Rod Block Monitor - Downscale
TRM Rev. 13

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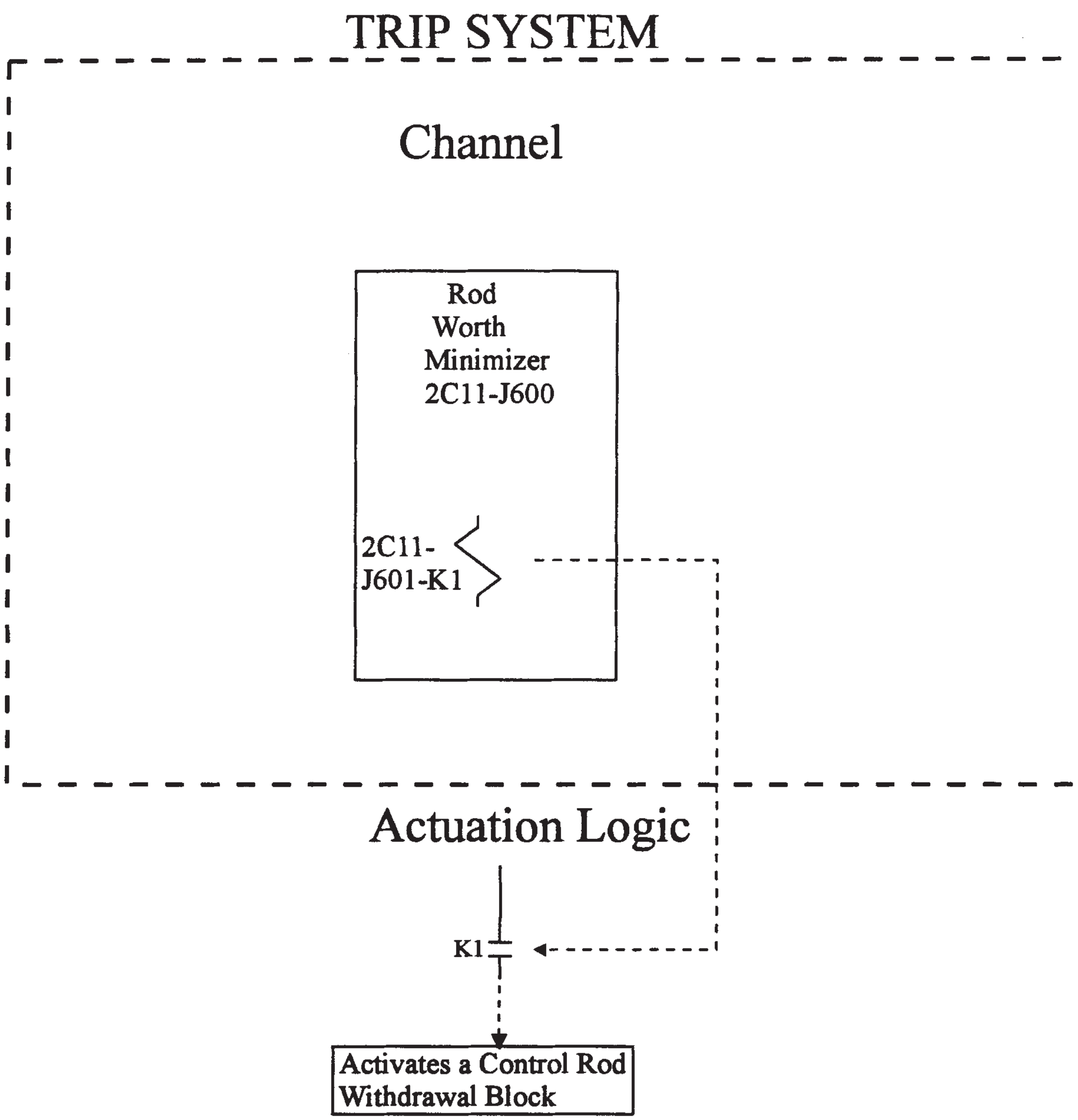
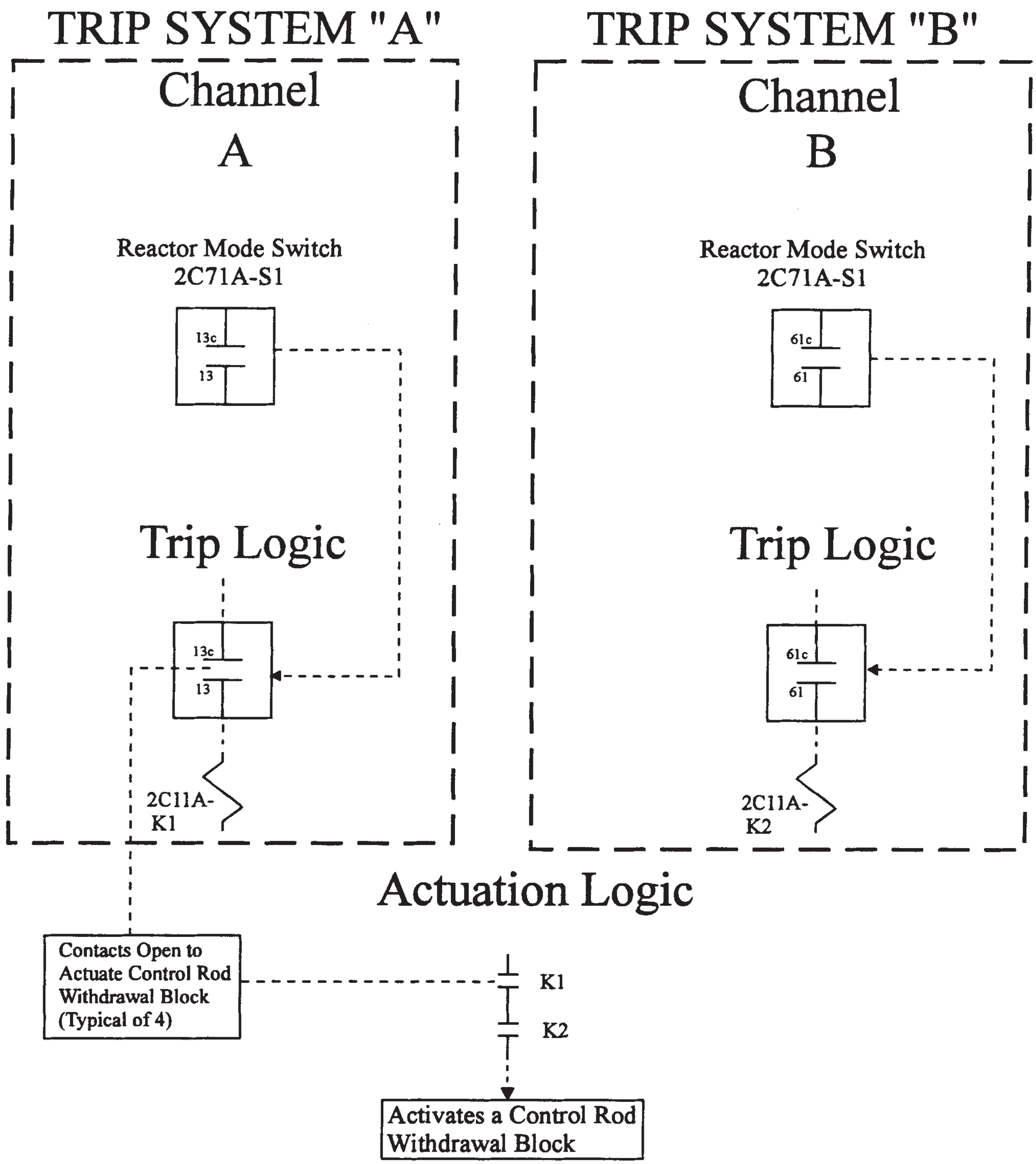
	LFD-2-CRB-06
	N/A
Prepared By: N/A Reviewed By: N/A	TRM Rev. 13



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability associated with the Rod Worth Minimizer, the one channel must be operable or maintained in the tripped condition.

Elem. Ref.	LFD-2-CRB-07
H-27478 H-27509	TS 3.3.2.1-1, Item 2 Control Rod Block, Rod Worth Minimizer
Prepared By: Royce Clark Reviewed By: S. C. Barnes	Rev. 0 12/8/94



Minimum Channel Requirements for System Initiation Capability:

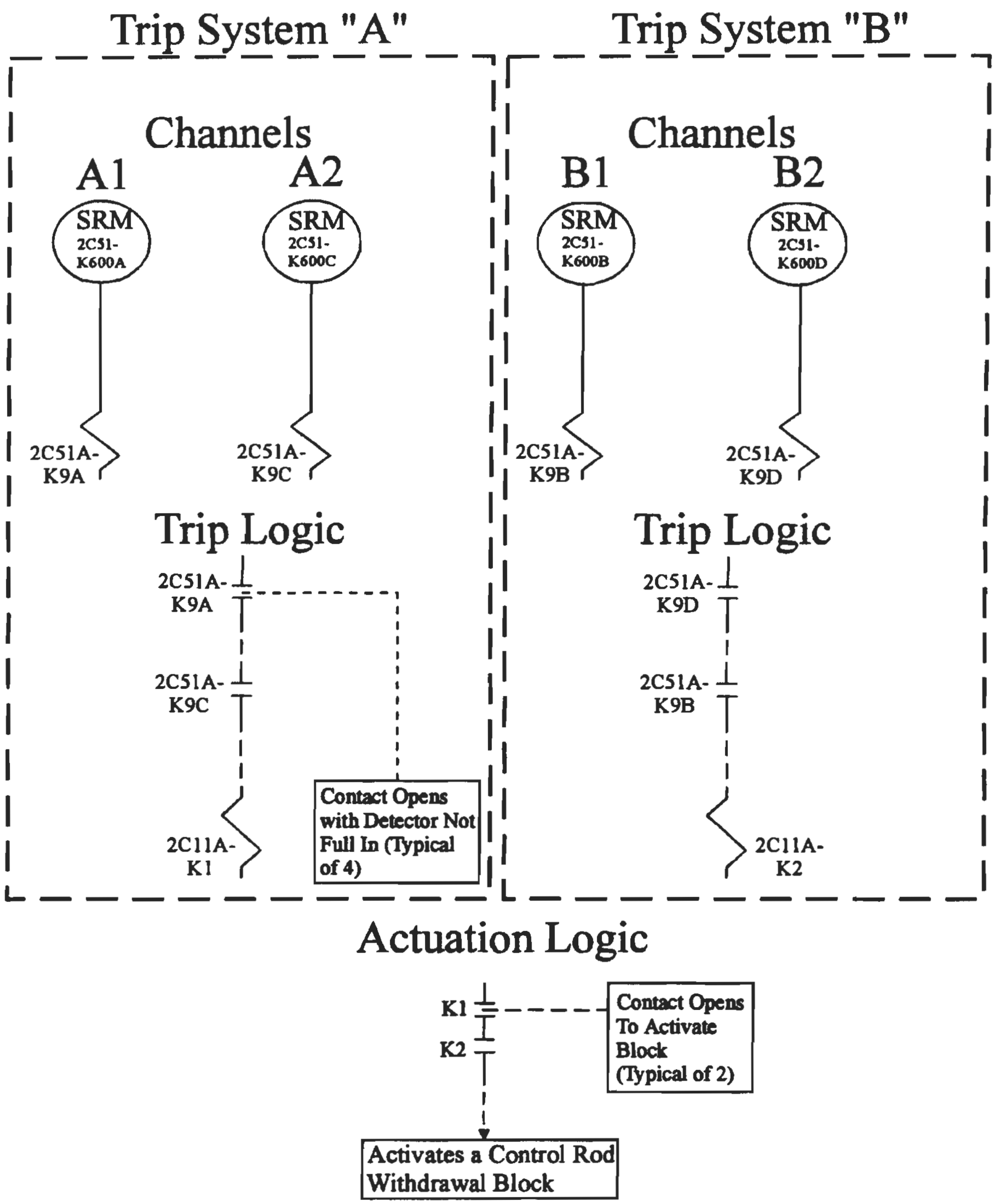
In order to maintain Control Rod Withdrawal Block capability on Reactor Mode Switch in Shutdown, one channel must be operable or maintained in the tripped condition.

LFD-2-CRB-08	
TS 3.3.2.1-1, Item 3 Control Rod Block, Reactor Mode Switch - Shutdown Position	
Rev. 0	12/8/94

Prepared By: [signature]

Reviewed By: [signature]

Elem. Ref.
H-27504
H-27509



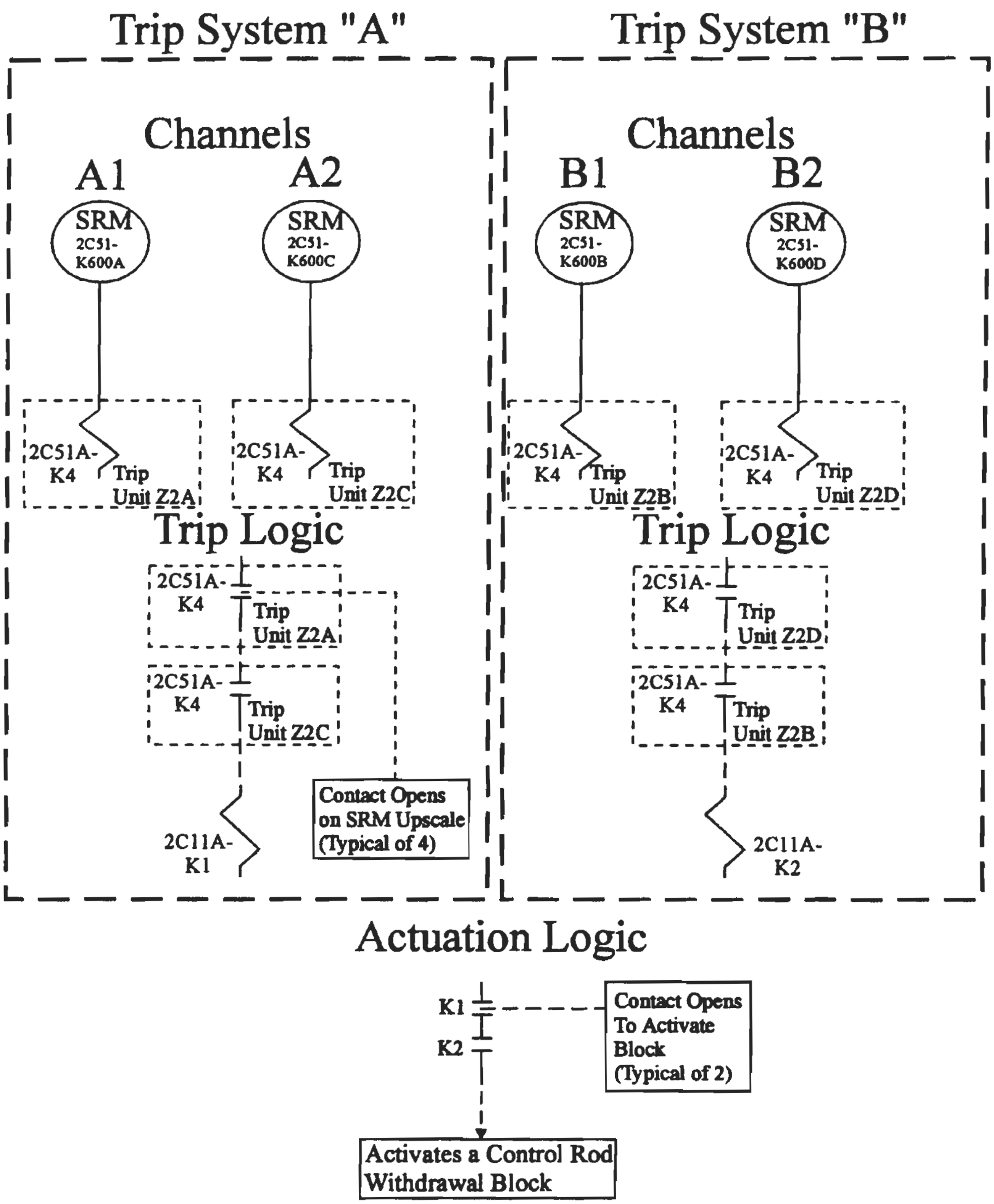
Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an SRM detector-not-full-in condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27504 H-27589
H-27509 H-27590
H-27536

Prepared By:
Reviewed By:

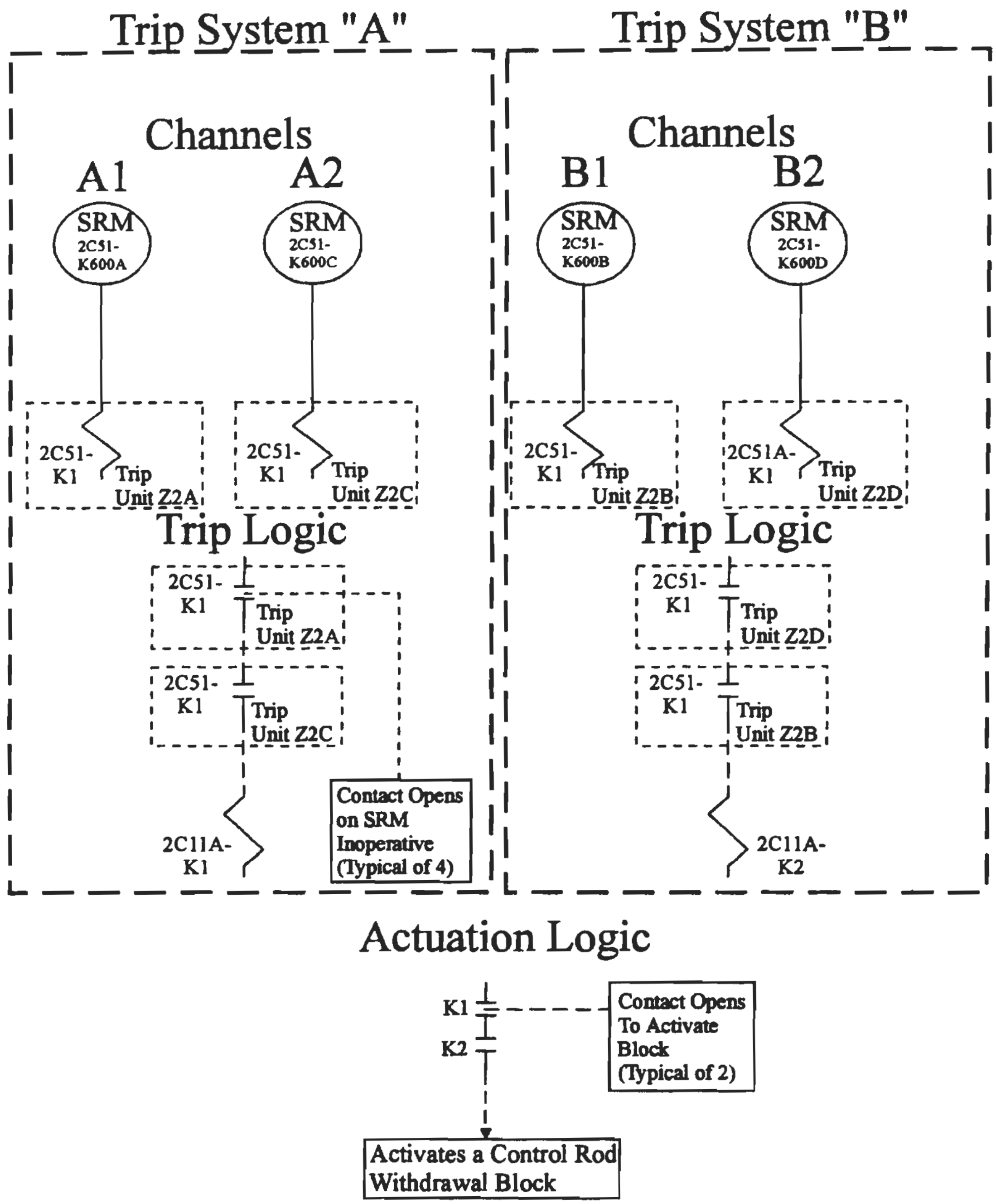
LFD-2-CRB-09
TRM T3.3.2-1, Item 1.a
Control Rod Block Instrumentation, SRM - Detector Not Full In



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an SRM upscale condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref. H-27504 H-27509 H-27528 H-27536	Prepared By: RLC Reviewed By: [signature]	LFD-2-CRB-10 TRM T3.3.2-1, Item 1.b Control Rod Block Instrumentation, SRM - Upscale TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

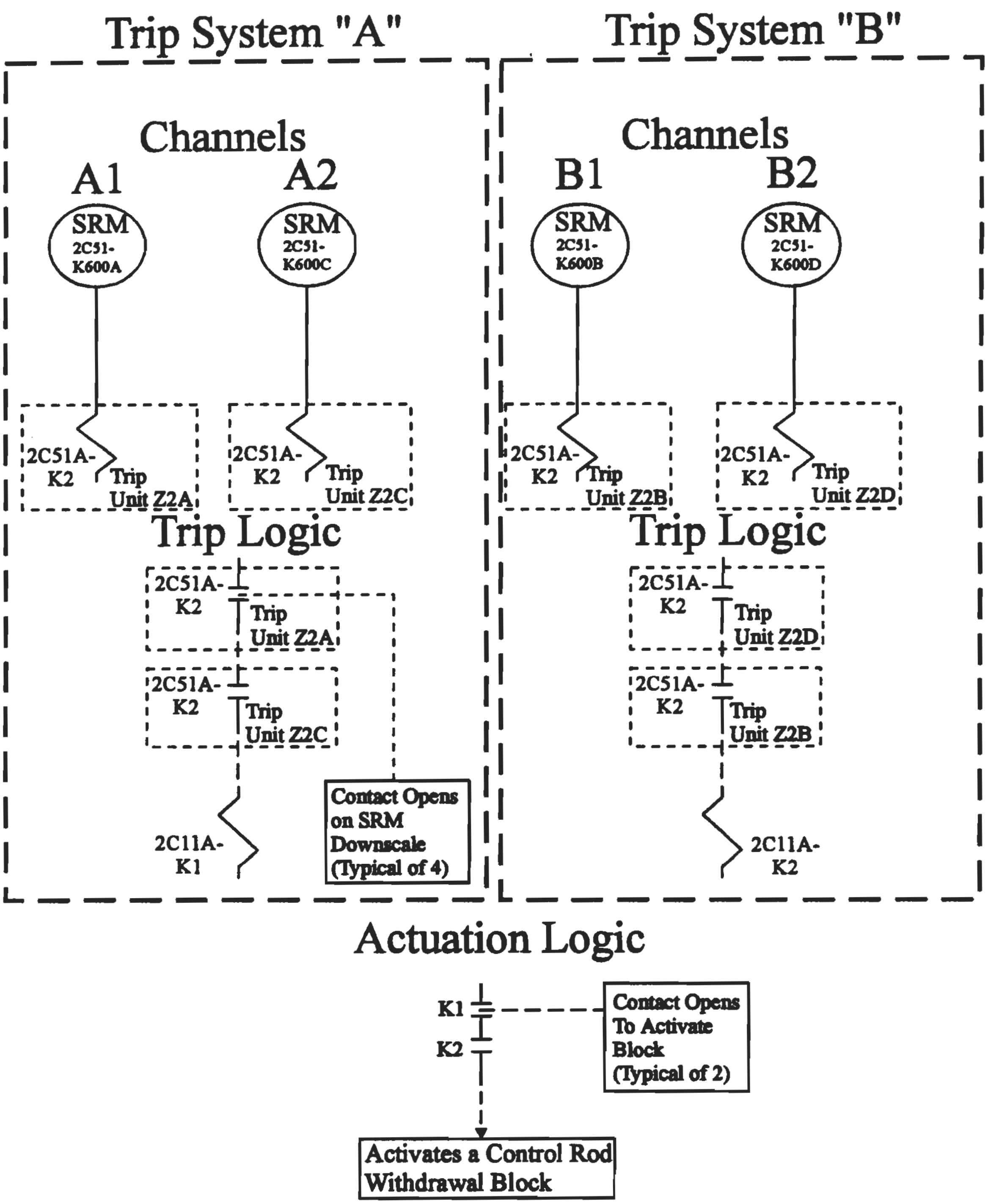
In order to maintain Control Rod Withdrawal Block capability on an SRM inoperative condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27504
H-27509
H-27528
H-27536

Prepared By: RLC
Reviewed By: Rdd1P

LFD-2-CRB-11
TRM T3.3.2-1, Item 1.c
Control Rod Block Instrumentation, SRM - Inoperative

TRM REV. 62



<u>Minimum Channel Requirements for System Initiation Capability:</u>

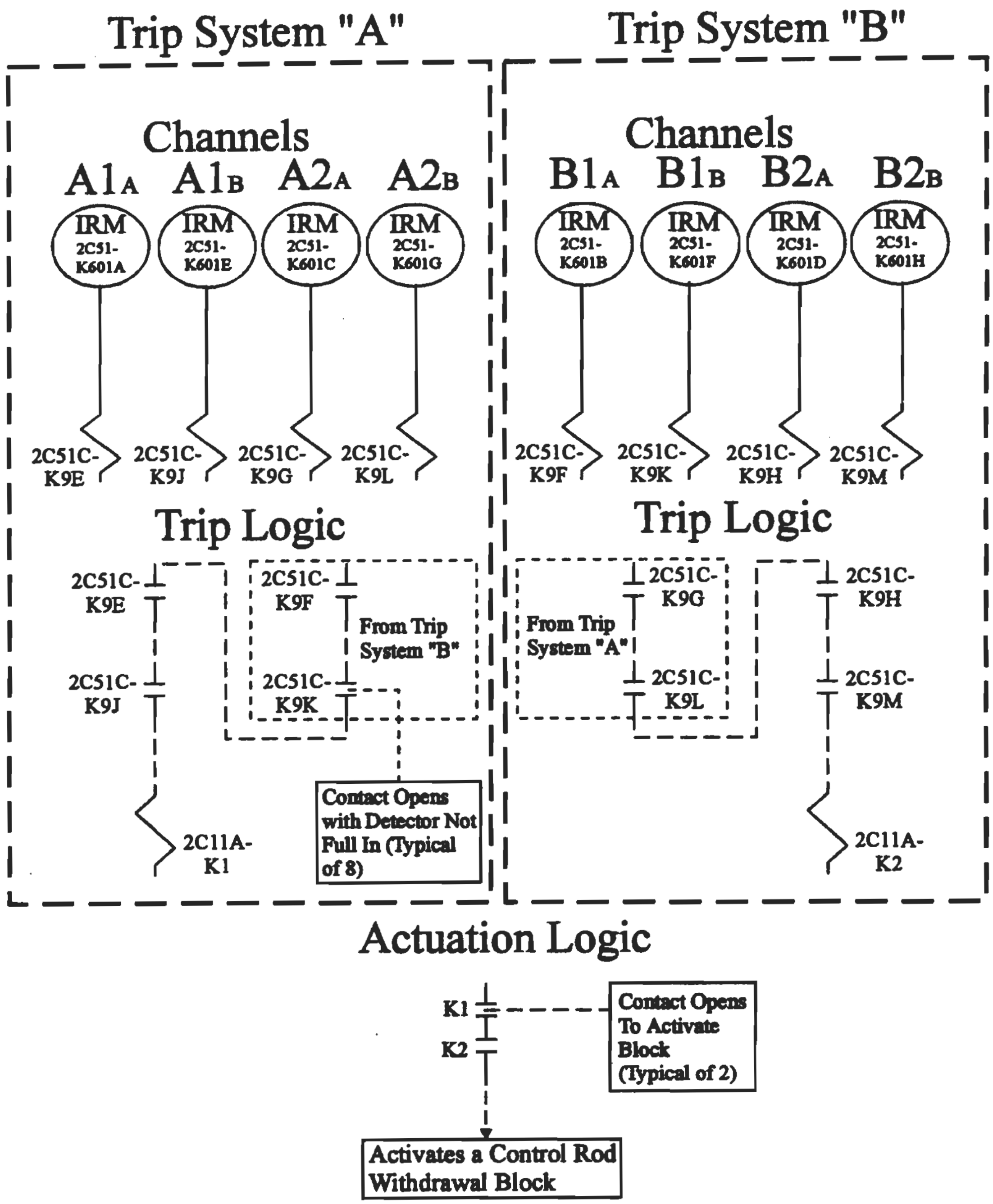
In order to maintain Control Rod Withdrawal Block capability on an SRM downscale condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27504
H-27509
H-27528
H-27536

Prepared By: RLC

Reviewed By: [signature]

LFD-2-CRB-12
TRM T3.3.2-1, Item 1.d Control Rod Block Instrumentation, SRM - Downscale
TRM REV. 62



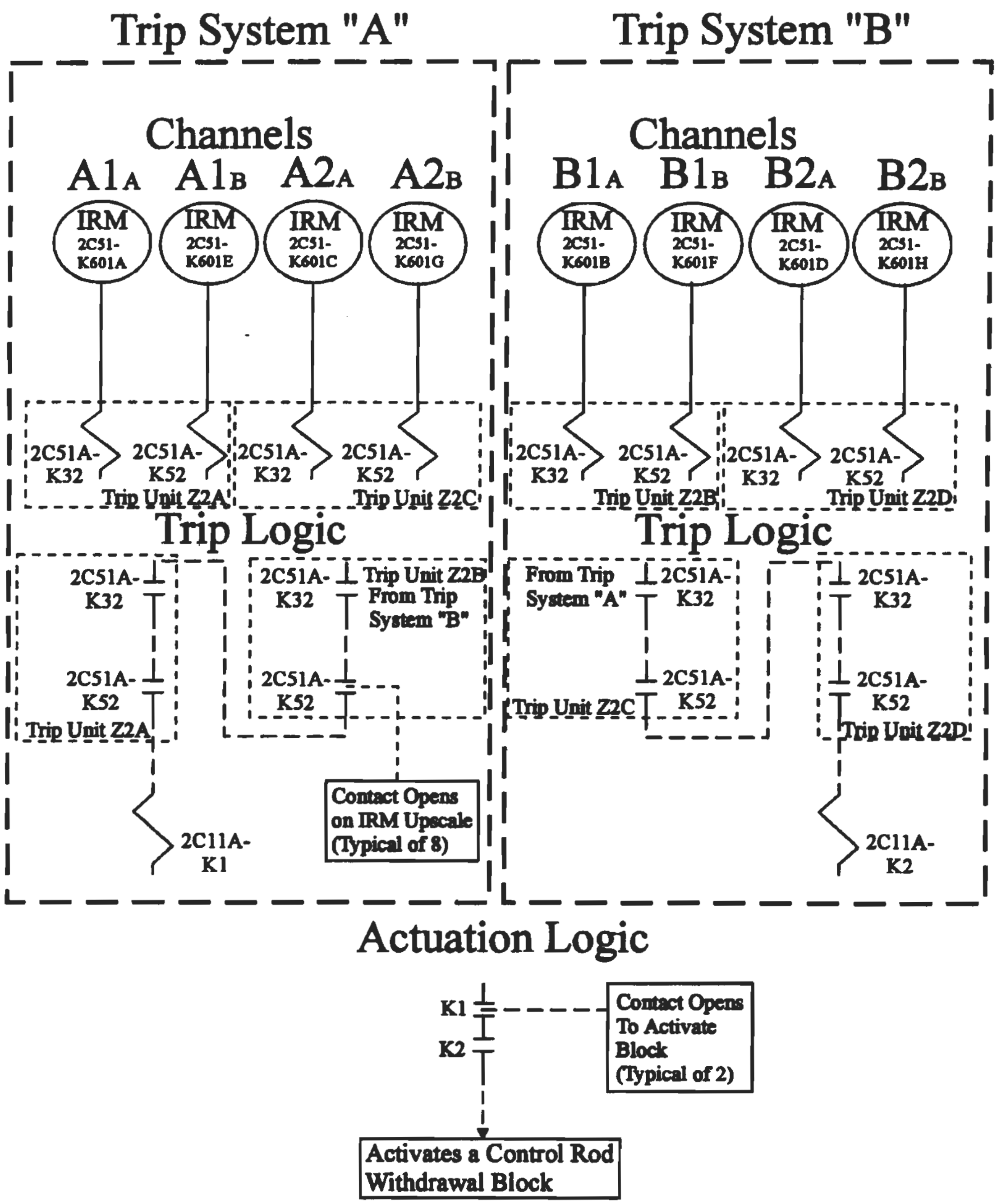
Minimum Channel Requirements for System Initiation Capability

In order to maintain Control Rod Withdrawal Block capability on an IRM not full in condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27504
H-27509
H-27536
H-27591
H-27592

Prepared By: RLC
Reviewed By:

LFD-2-CRB-13
TRM T3.3.2-1, Item 2.a
Control Rod Block Instrumentation, IRM - Detector Not Full In
TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

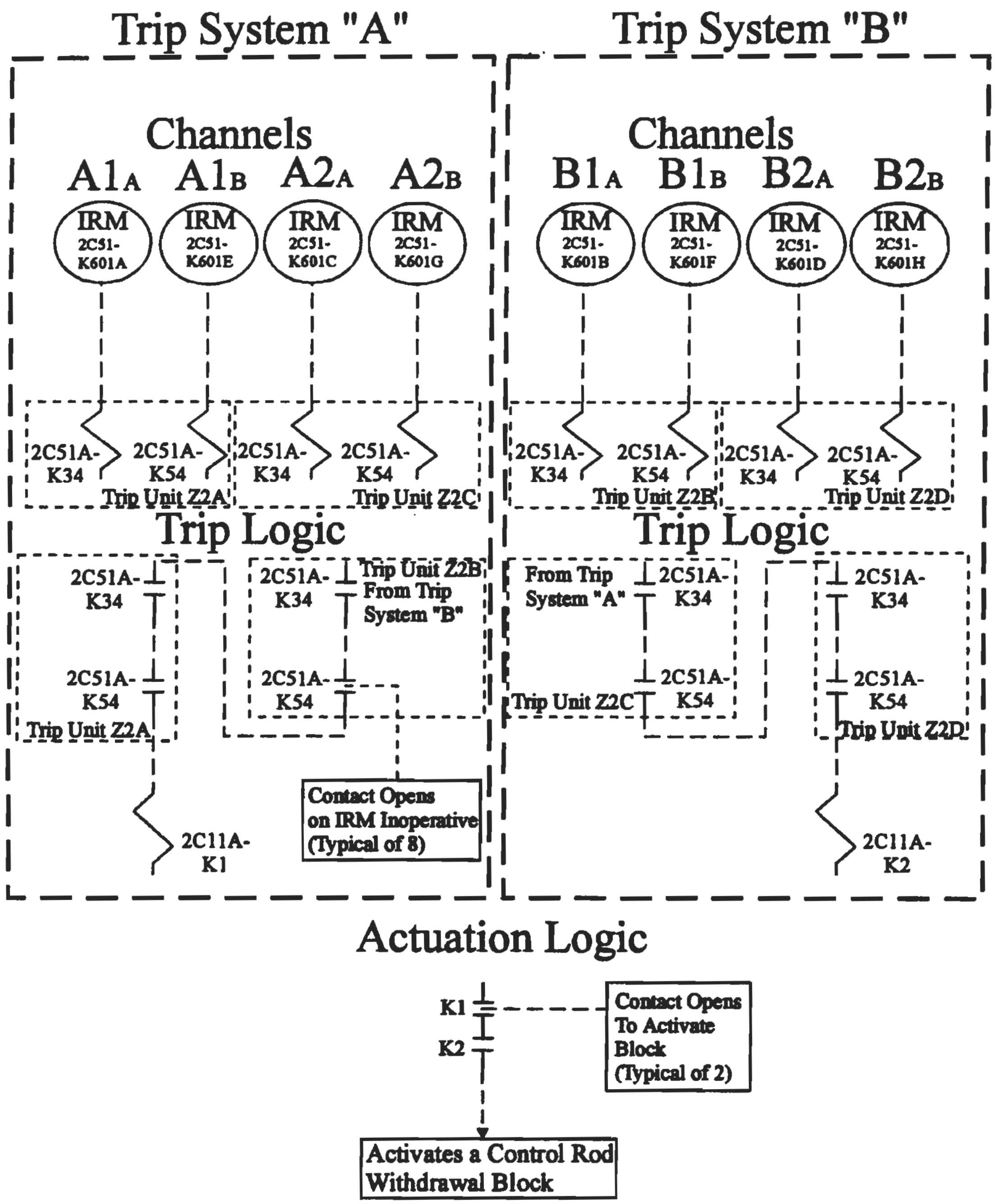
In order to maintain Control Rod Withdrawal Block capability on an IRM upscale condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27504
H-27509
H-27530
H-27531
H-27536

Prepared By:

Reviewed By:

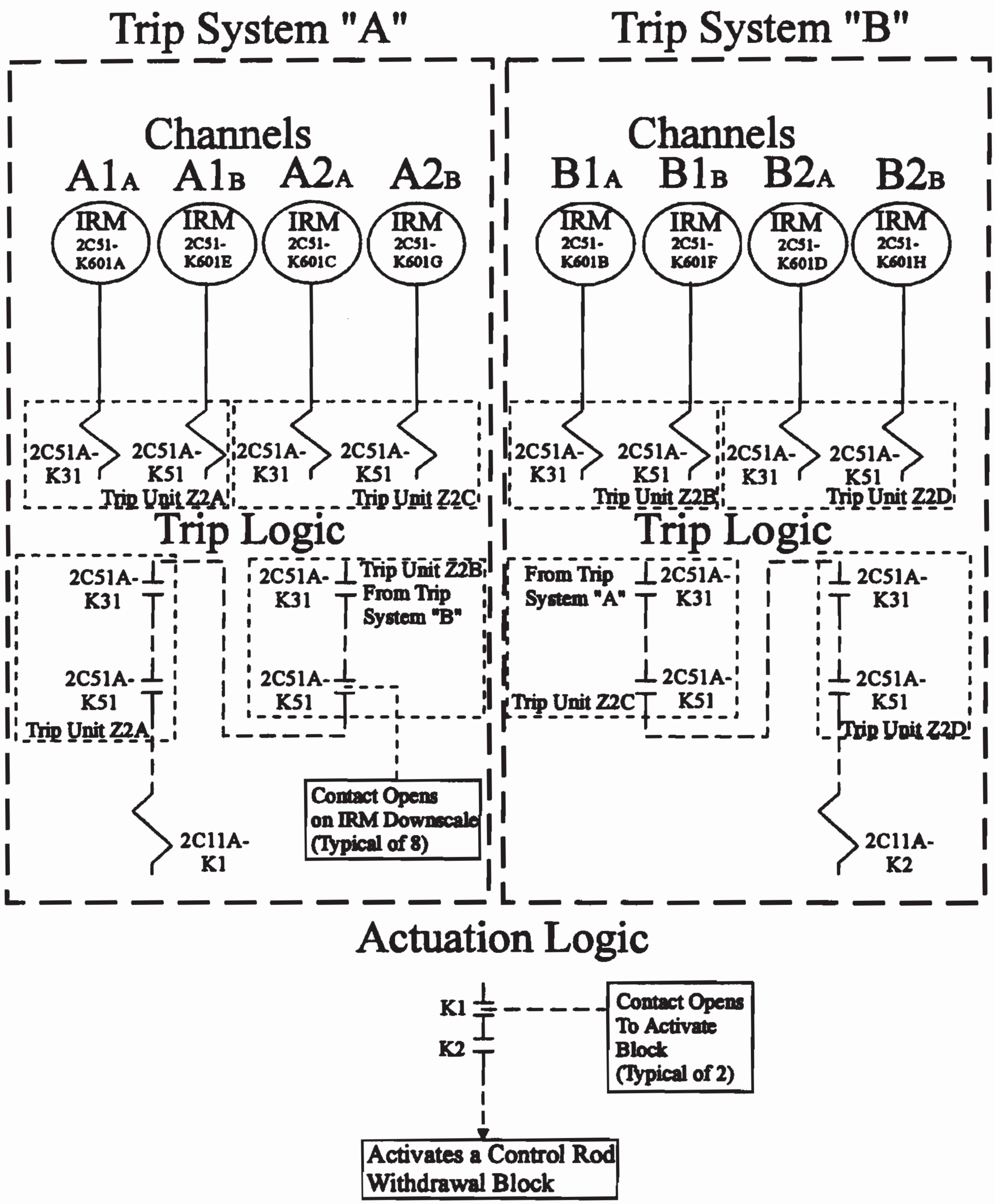
LFD-2-CRB-14
TRM T3.3.2-1, Item 2.b Control Rod Block Instrumentation, IRM - Upscale
TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an IRM inoperative condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.			
H-27504 H-27532 H-27509 H-27533 H-27530 H-27536 H-27531	Prepared By: RLC Reviewed By: [signature]	LFD-2-CRB-15 TRM T3.3.2-1, Item 2.c Control Rod Block Instrumentation, IRM - Inoperative	TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an IRM downscale condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27504
H-27509
H-27530
H-27531
H-27536

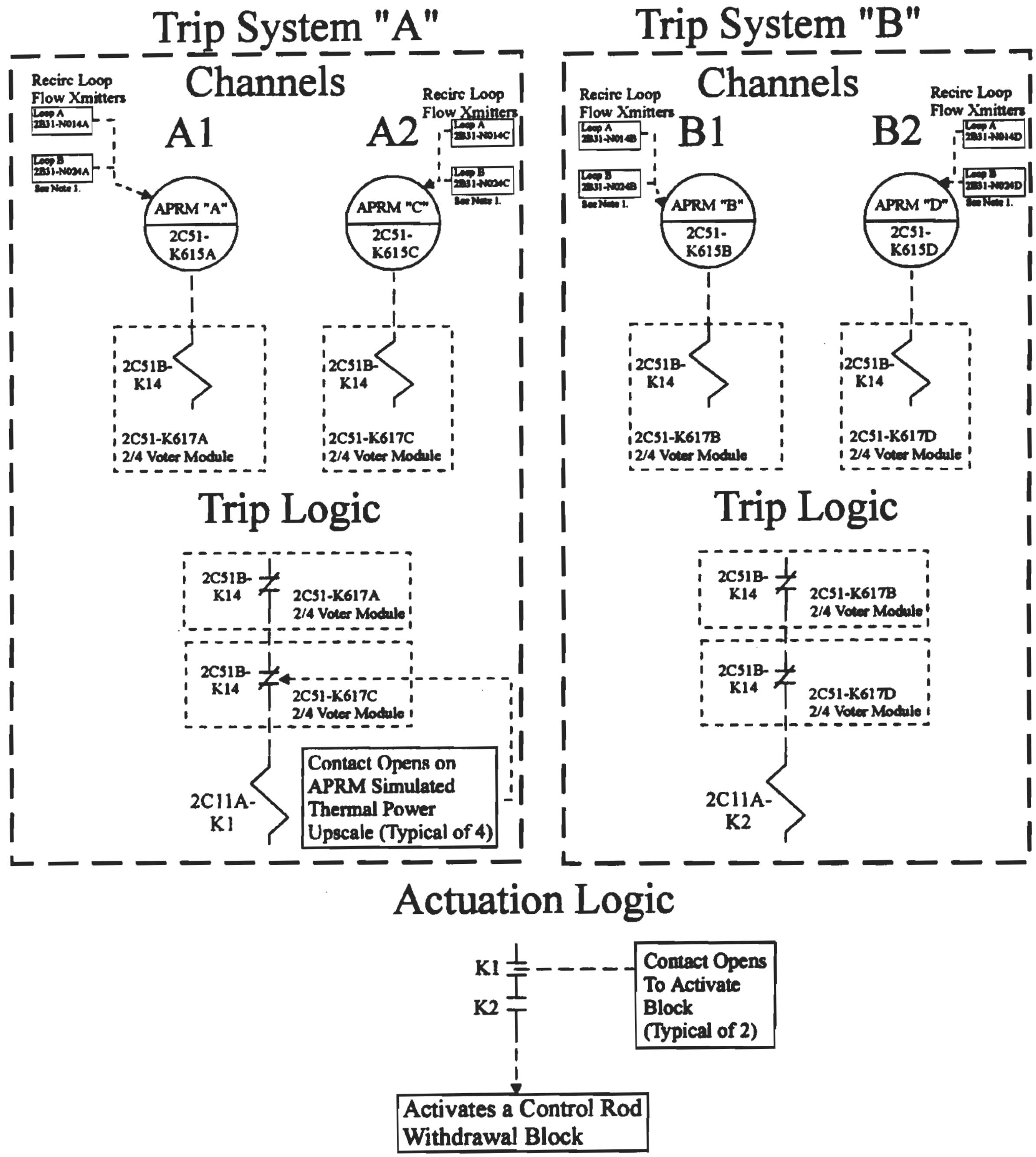
Prepared By: RLC

Reviewed By: [signature]

LFD-2-CRB-16

TRM T3.3.2-1, Item 2.d Control Rod Block Instrumentation, IRM - Downscale

TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an APRM Simulated Thermal Power Upscale condition, one channel must be functional or maintained in the tripped condition.

Note 1: For the STP Upscale function of an APRM to be considered operable, both of the associated Recirc Flow transmitters must be operable.

Elem. Ref.	
H-27504	H-52005
H-27509	H-52006
H-52003	H-52011
H-52004	

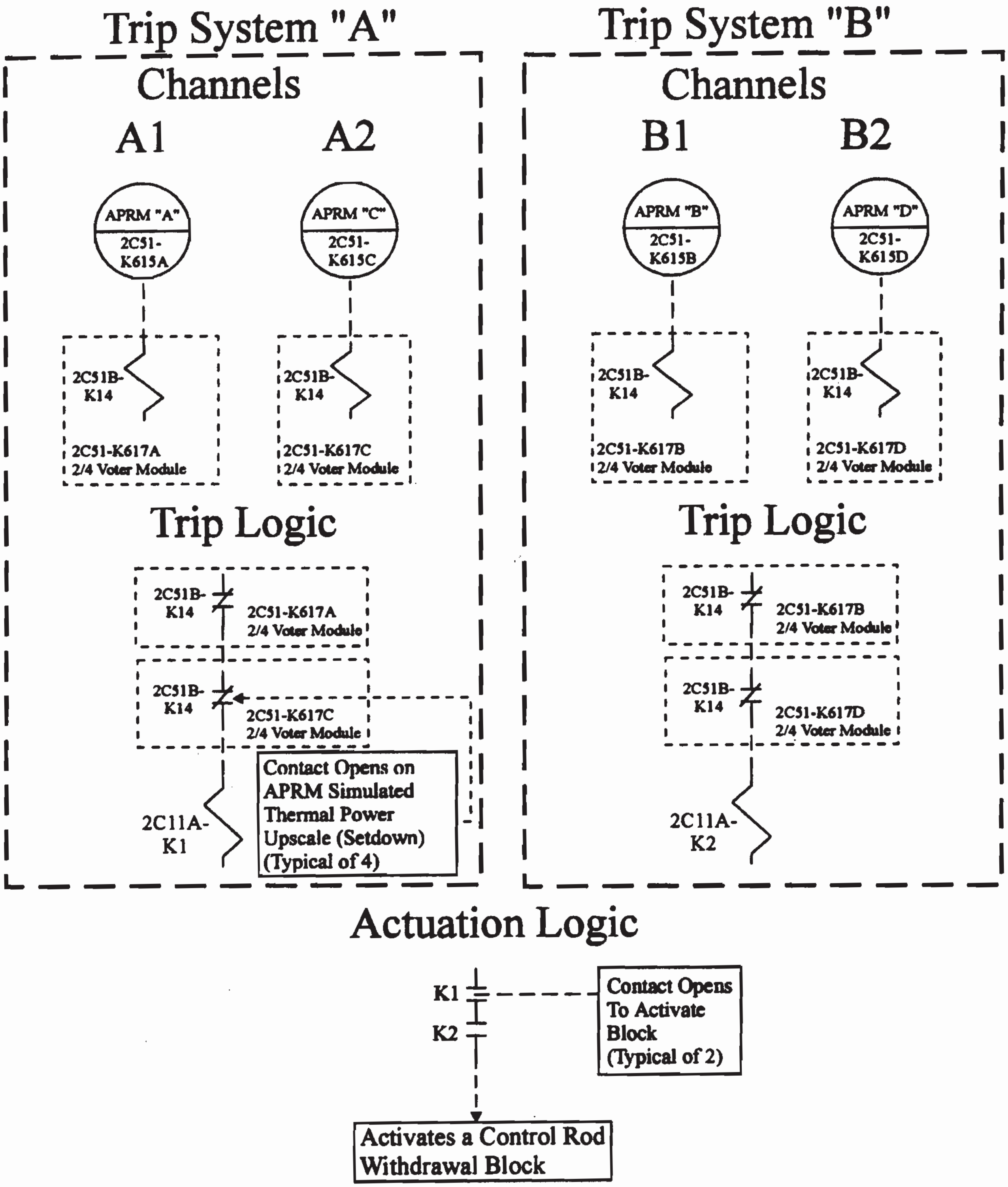
Prepared By: [signature]

Reviewed By: [signature]

LFD-2-CRB-17

TRM T3.3.2-1, Item 3.a
Control Rod Block Instrumentation, APRM - Simulated Thermal Power Upscale (Setdown)

TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an APRM Simulated Thermal Power Upscale (Setdown) condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.	
H-27504	H-52005
H-27509	H-52006
H-52003	H-52011
H-52004	

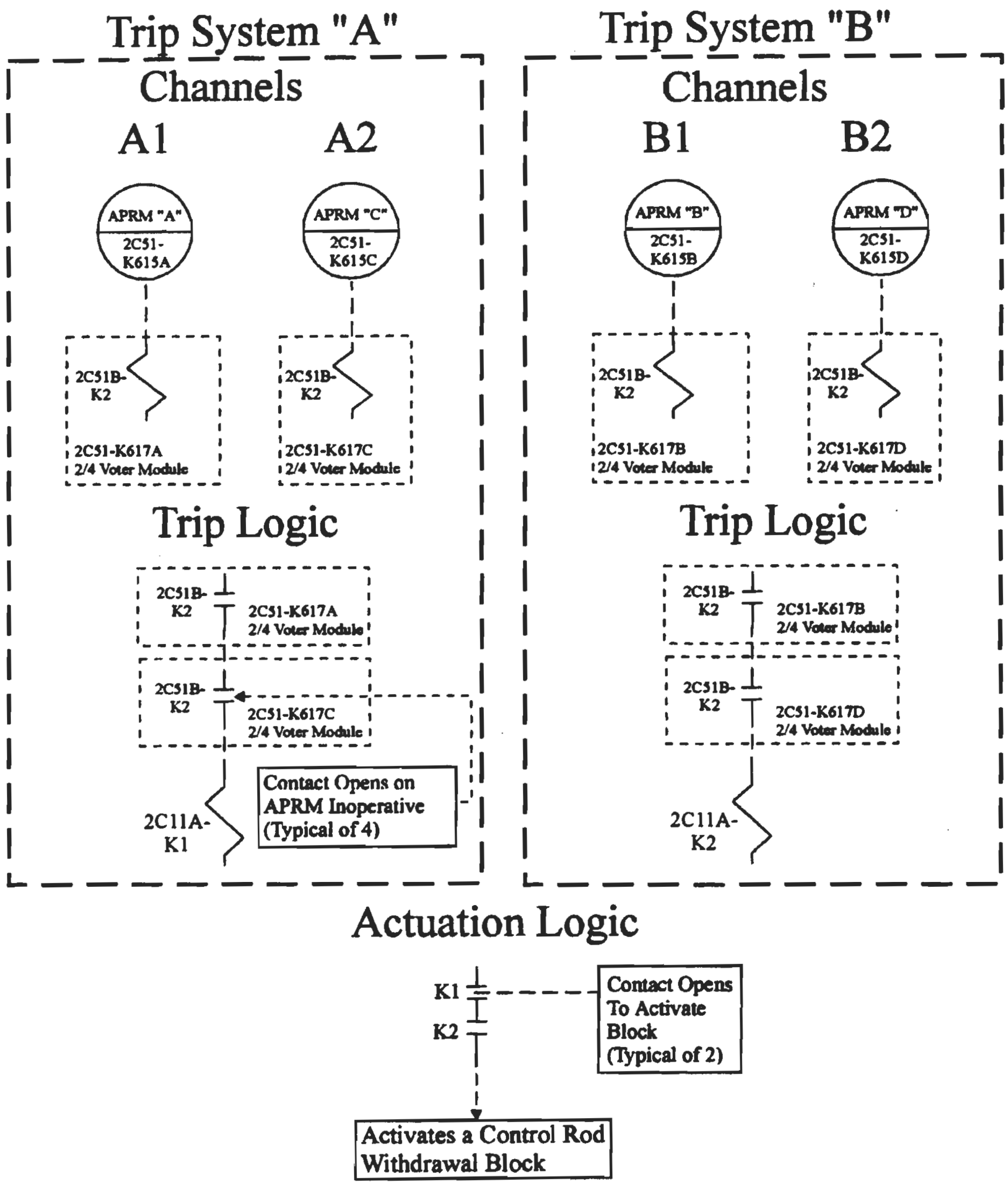
Prepared By: RLC

Reviewed By: [signature]

LFD-2-CRB-18

TRM T3.3.2-1, Item 3.b Control Rod Block Instrumentation, APRM - Simulated Thermal Power Upscale (Setdown)

TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an APRM Inoperative condition, one channel must be functional or maintained in the tripped condition.

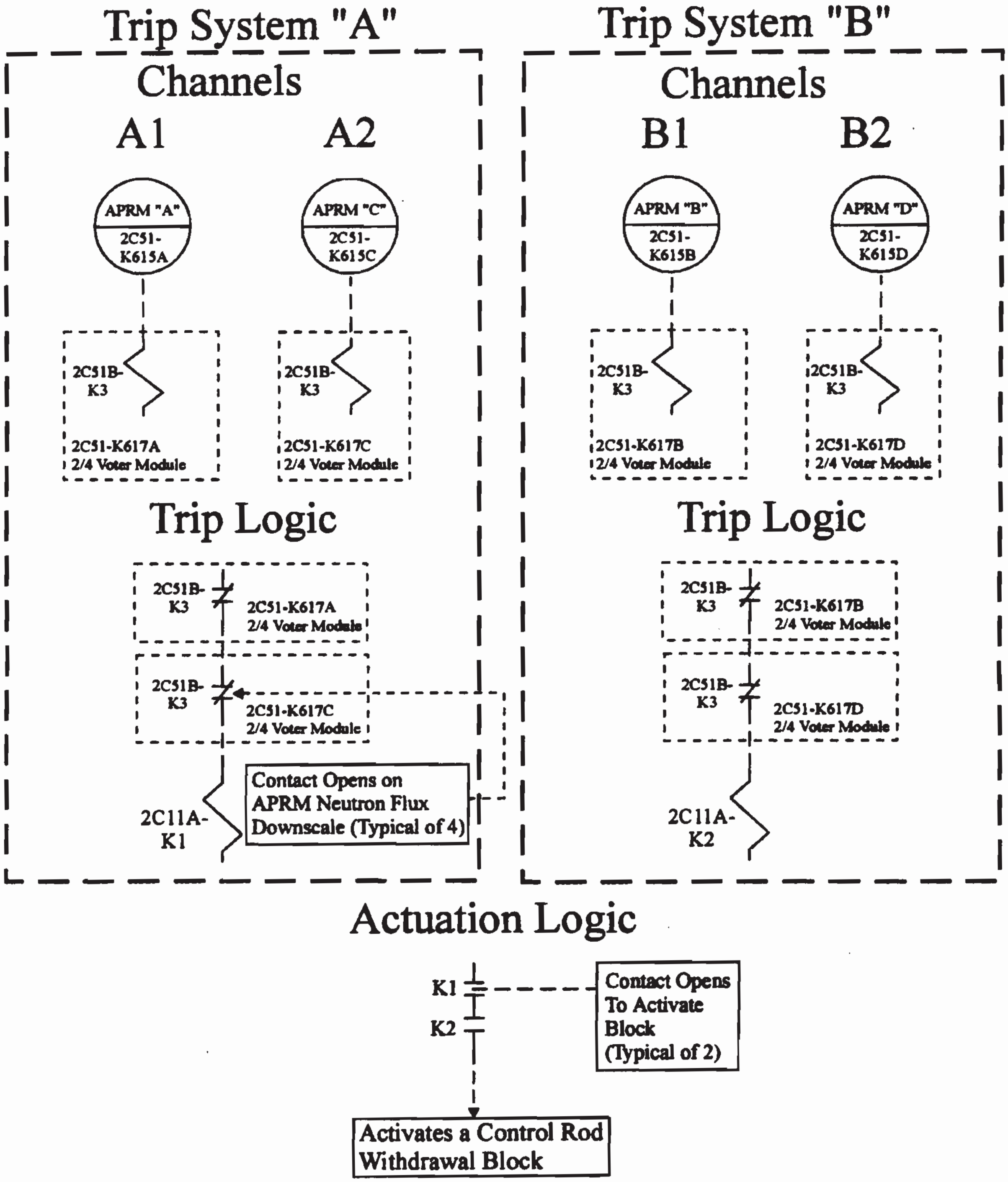
LFD-2-CRB-19
TRM T3.3.2-1, Item 3.c Control Rod Block Instrumentation, APRM - Inoperative
TRM REV. 62

Elem. Ref.

H-27504	H-52005
H-27509	H-52006
H-52003	H-52011
H-52004	

Prepared By: [signature]

Reviewed By: [signature]



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on an APRM Neutron Flux Downscale condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.	
H-27504	H-27504
H-27509	H-27509
H-52003	H-52006
H-52004	H-52011

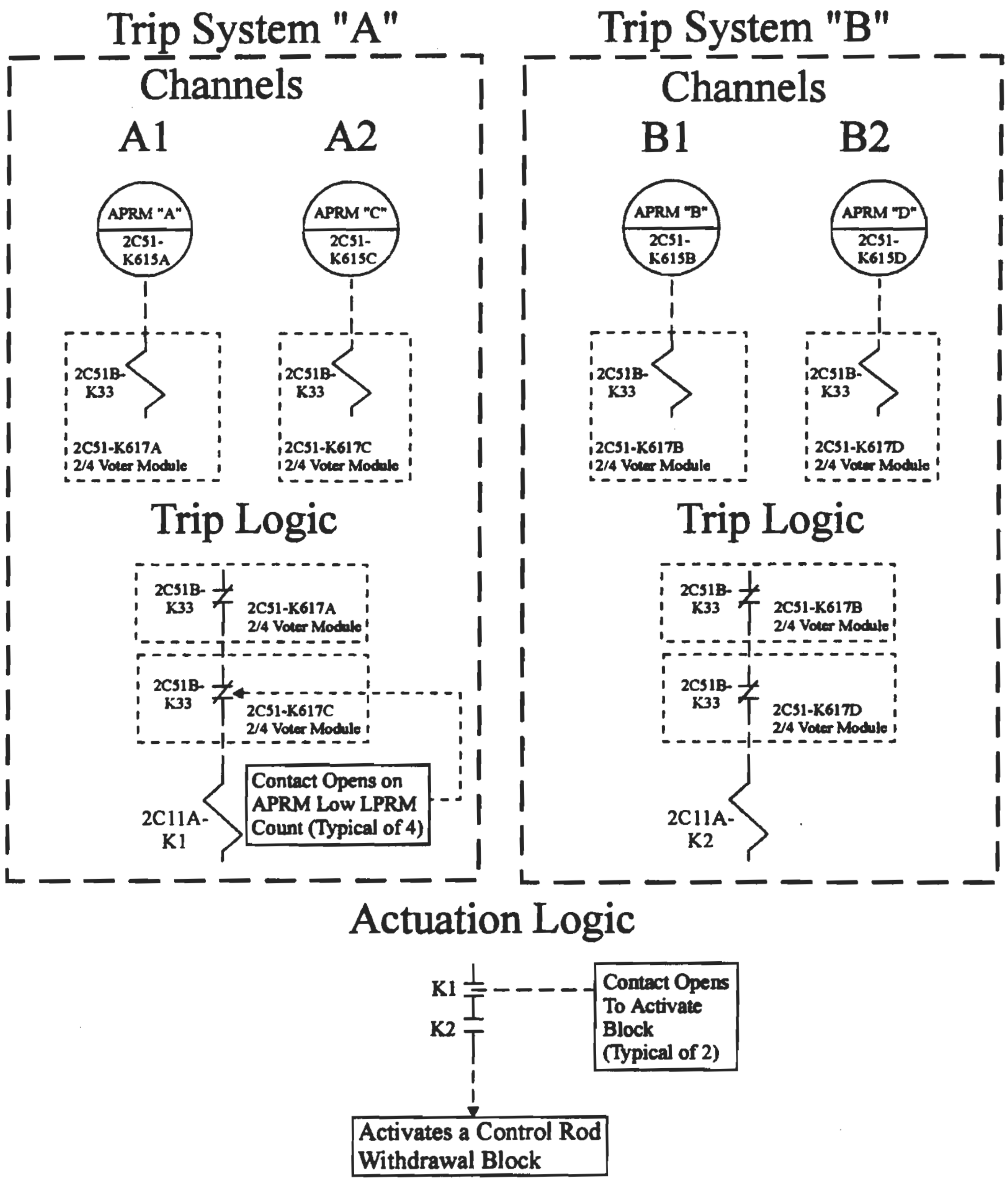
Prepared By: RLC

Reviewed By: [signature]

LFD-2-CRB-20

TRM T3.3.2-1, Item 3.d Control Rod Block Instrumentation, APRM - Neutron Flux Downscale

TRM REV. 62



<u>Minimum Channel Requirements for System Initiation Capability:</u>

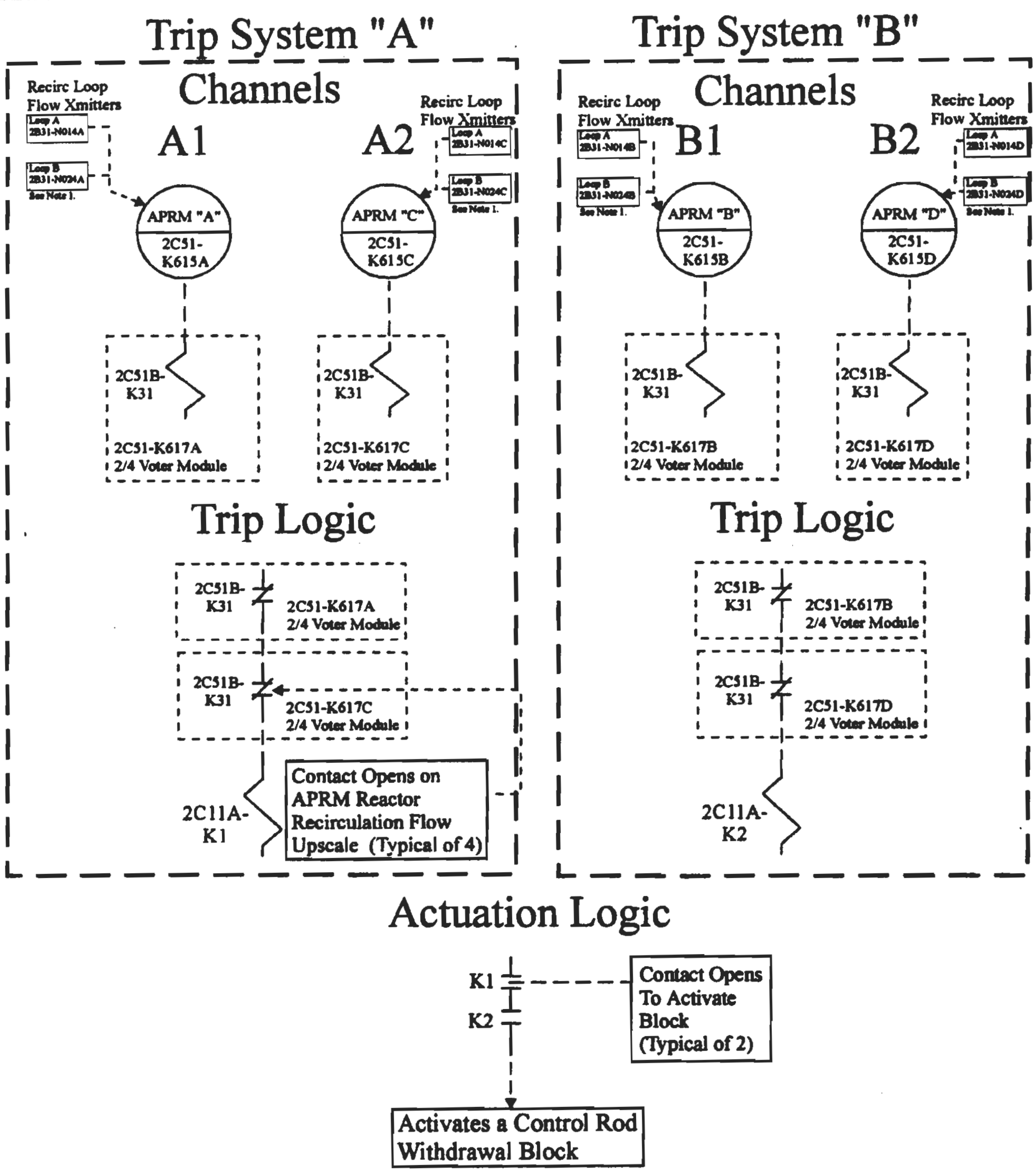
In order to maintain Control Rod Withdrawal Block capability on an APRM Low LPRM Count condition, one channel must be functional or maintained in the tripped condition.

Elem. Ref.	
H-27504	H-52005
H-27509	H-52006
H-52003	H-52011
H-52004	

Prepared By: [signature]

Reviewed By: [signature]

LFD-2-CRB-21
TRM T3.3.2-1, Item 3.e Control Rod Block Instrumentation, APRM - Low LPRM Count
TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

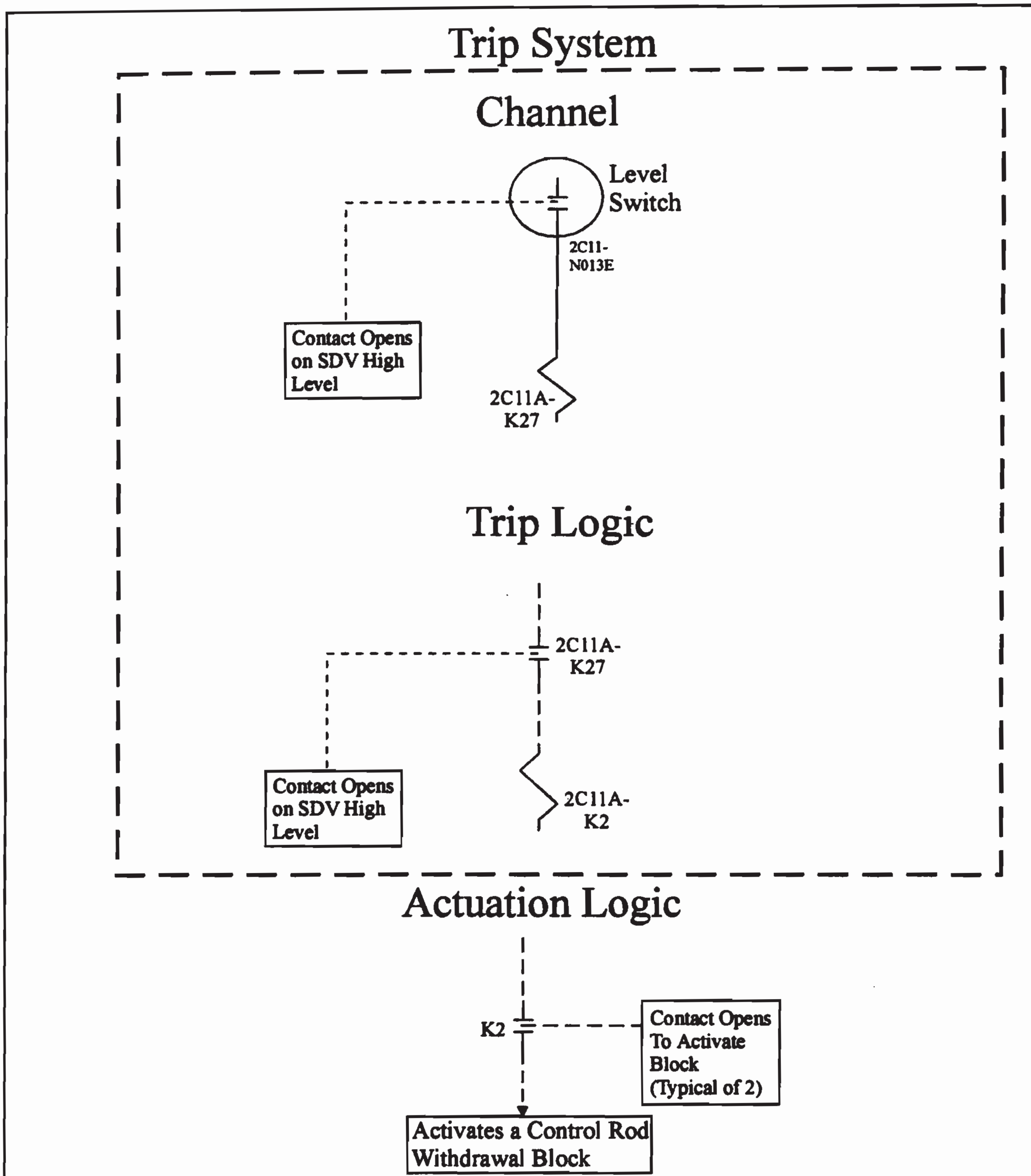
In order to maintain Control Rod Withdrawal Block capability on an APRM Reactor Recirculation Flow Upscale condition, one channel must be functional or maintained in the tripped condition.

Note 1: For the Reactor Recirc ulation Flow Upscale function of an APRM to be considered operable, both of the associated Recirc Flow transmitters must be operable.

Elem. Ref.	
H-27504	H-52005
H-27509	H-52006
H-52003	H-52011
H-52004	

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-CRB-22
TRM T3.3.2-1, Item 3.f Control Rod Block Instrumentation, APRM - Reactor Recirculation Flow Upscale
TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Control Rod Withdrawal Block capability on a Scram Discharge Volume high level condition, the one channel must be functional or maintained in the tripped condition.

Elem. Ref.

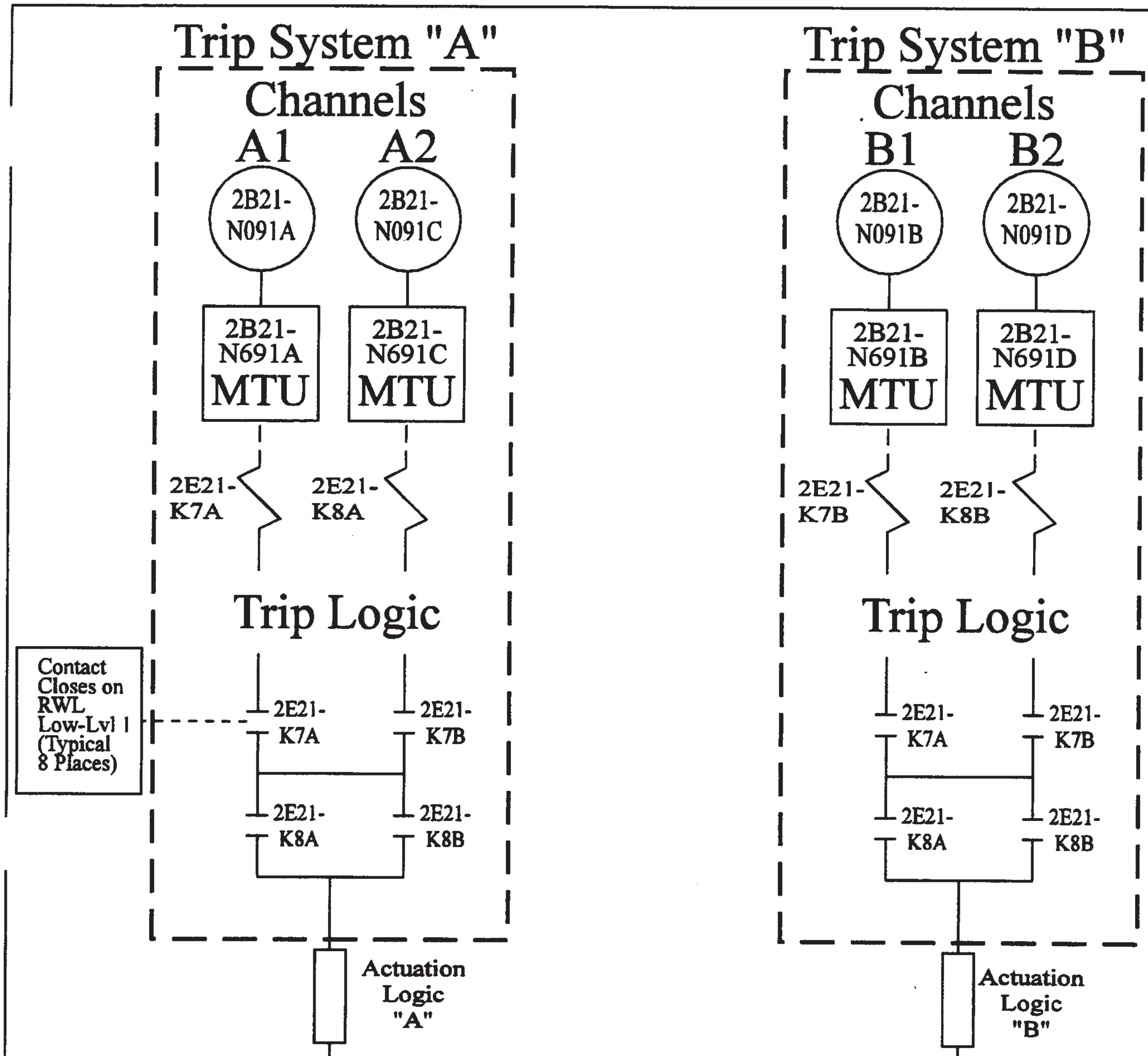
H-27504
H-27509
H-27510

Prepared By:

Reviewed By:

LFD-2-CRB-23

TRM T3.3.2-1, Item 4
Control Rod Block Instrumentation, SDV Level - High



Initiation of CS Subsystems "A" and "B" (Except Valve 2E21-F004B Does Not Receive an Open Signal and Valve 2E21-F015B Does Not Receive a Closed Signal); EDG's 2A, 2C, 1B; PSW 2P41-F316A,B,C,D Valves; Lock-out Auto-start of Cond. and Cond. Booster Pumps for 50 secs.; Trip of CRD Pump "A"; Trip of D/W Cooling System; Trip of T/B Chiller "A"; Trip of Cooling Tower ACB 135506.

Initiation of CS Subsystems "A" and "B" (Except Valve 2E21-F004A Does Not Receive an Open Signal and Valve 2E21-F015A Does Not Receive a Closed Signal); EDG's 2A, 2C, 1B; PSW 2P41-F316A,B,C,D Valves; Lock-out Auto-start of Cond. and Cond. Booster Pumps for 50 secs.; Trip of CRD Pump "B"; Trip of D/W Cooling System; Trip of T/B Chiller "B"; Trip of Cooling Tower ACB 135496.

Minimum Channel Requirements for System Initiation Capability:

In order to maintain initiation capability for Core Spray, the EDG's, PSW turbine building isolation valves, and the above noted load shed and sequence logic on a RWL-Level 1 signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

Elem. Ref.		
H-23629	H-24429	H-27770
H-23672	H-24432	H-27802
H-24423	H-27517	H-27803
H-24426	H-27660	

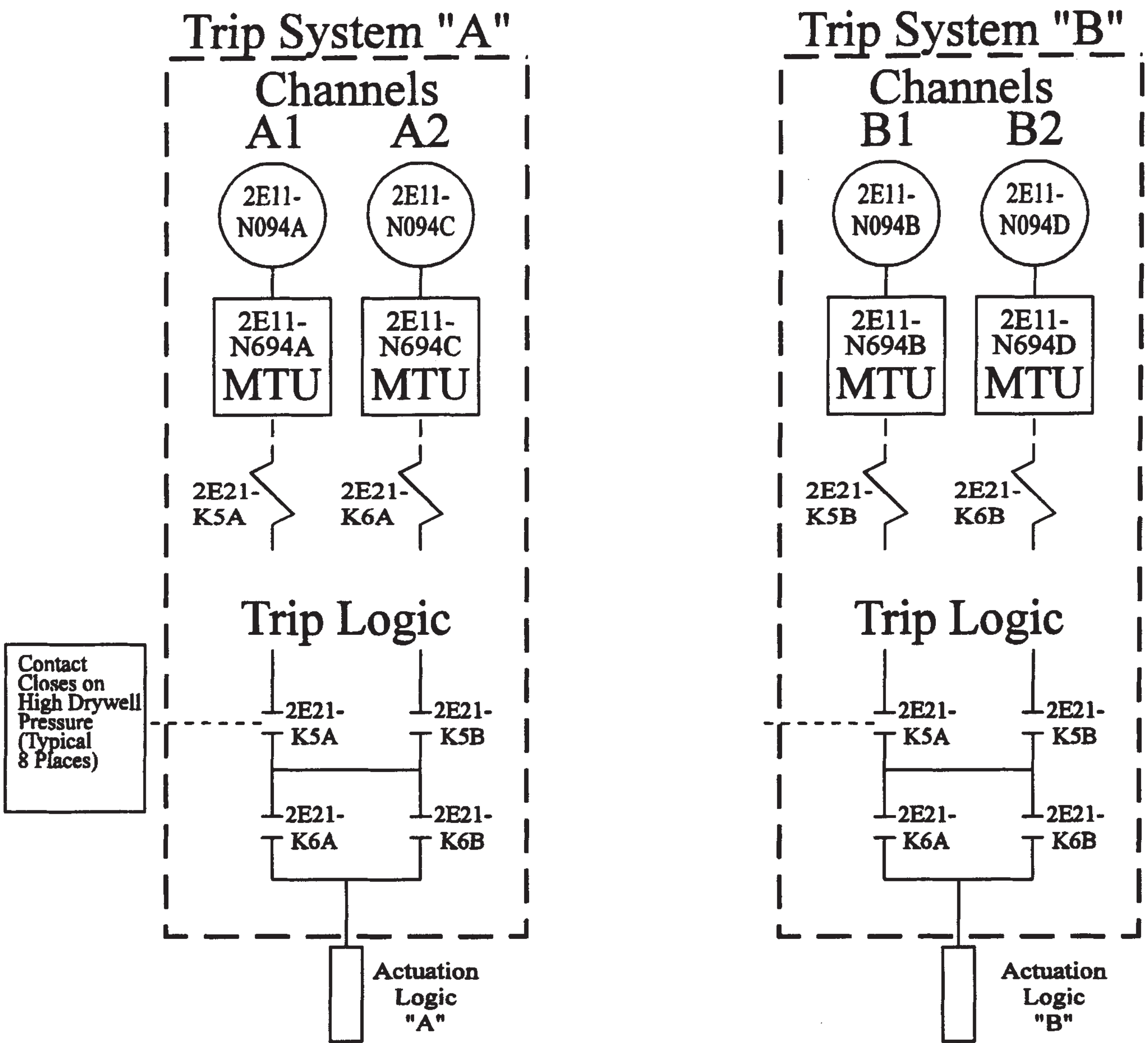
Prepared By: [signature]

Reviewed By: [signature]

LFD-2-ECCS-01

TS 3.3.5.1-1, Item 1.a
Core Spray System
RWL-Low Low Low,
Level 1

TRM Rev. 7



Initiation of CS Subsystems "A" and "B" (Except Valve 2E21-F004B Does Not Receive an Open Signal and Valve 2E21-F015B Does Not Receive a Closed Signal); EDG's 2A, 2C, 1B; PSW 2P41-F316A,B,C,D Valves; Lock-out Auto-start of Cond. and Cond. Booster Pumps for 50 secs.; Trip of CRD Pump "A"; Trip of D/W Cooling System; Trip of T/B Chiller "A"; Trip of Cooling Tower ACB 135506.

Initiation of CS Subsystems "A" and "B" (Except Valve 2E21-F004A Does Not Receive an Open Signal and Valve 2E21-F015A Does Not Receive a Closed Signal); EDG's 2A, 2C, 1B; PSW 2P41-F316A,B,C,D Valves; Lock-out Auto-start of Cond. and Cond. Booster Pumps for 50 secs.; Trip of CRD Pump "B"; Trip of D/W Cooling System; Trip of T/B Chiller "B"; Trip of Cooling Tower ACB 135496.

Minimum Channel Requirements for System Initiation Capability:

In order to maintain initiation capability for Core Spray, the EDG'S, PSW turbine building isolation valves, and the above noted load shed and sequence logic on a Drywell Pressure-High signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

Elem. Ref.

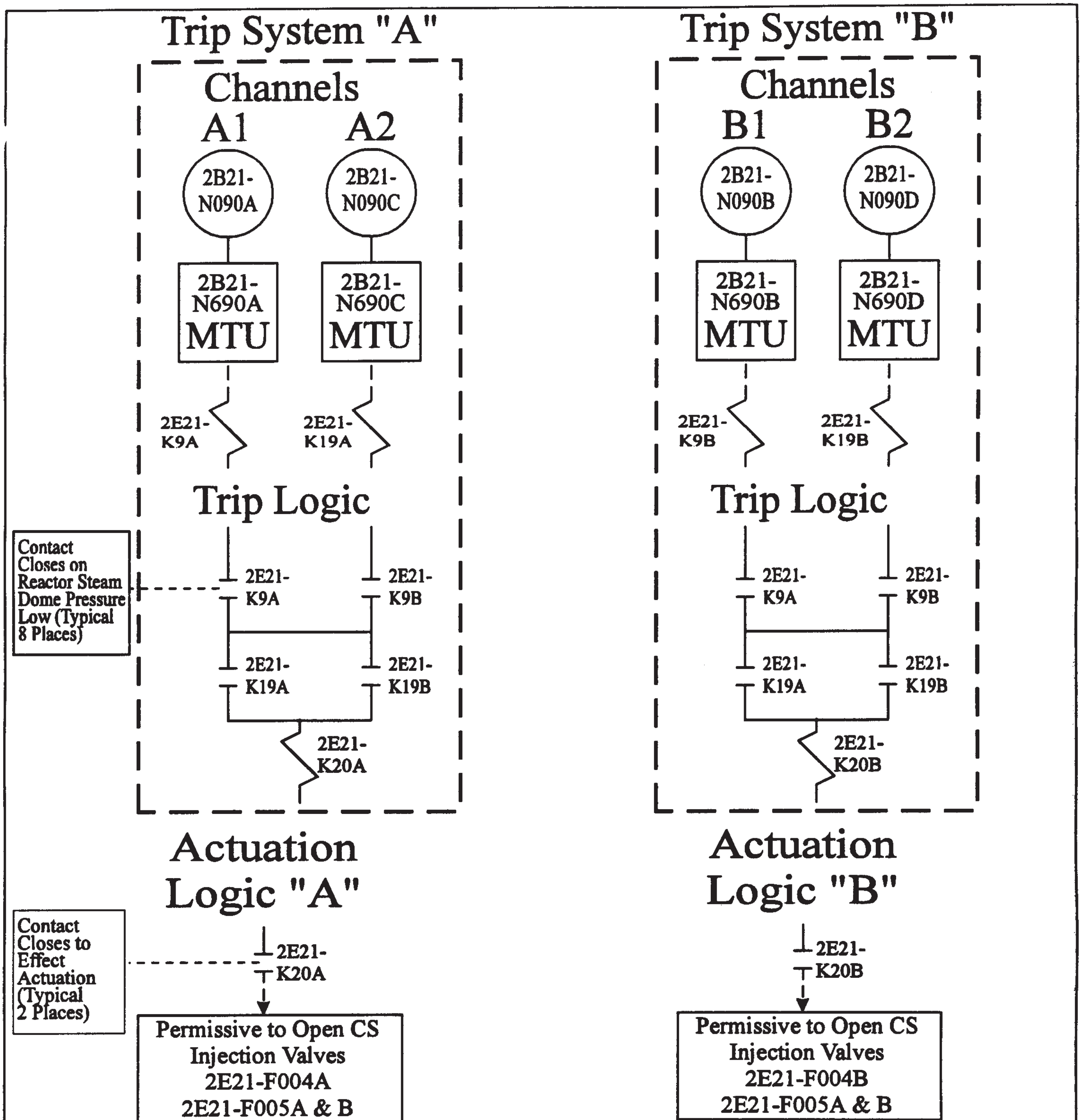
H-23629	H-24430	H-27770
H-23672	H-27517	H-27802
H-24427	H-27660	H-27803

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-ECCS-02

TS 3.3.5.1-1, Item 1.b
Core Spray System
Drywell Pressure-High

Rev. 0 3/16/95



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Core Spray system initiation capability on a Reactor Steam Dome Pressure-Low signal, channels in one of the following combinations must be either operable or maintained in the tripped condition for modes 4 and 5. Credit cannot be taken for tripped channels in modes 1, 2, and 3.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

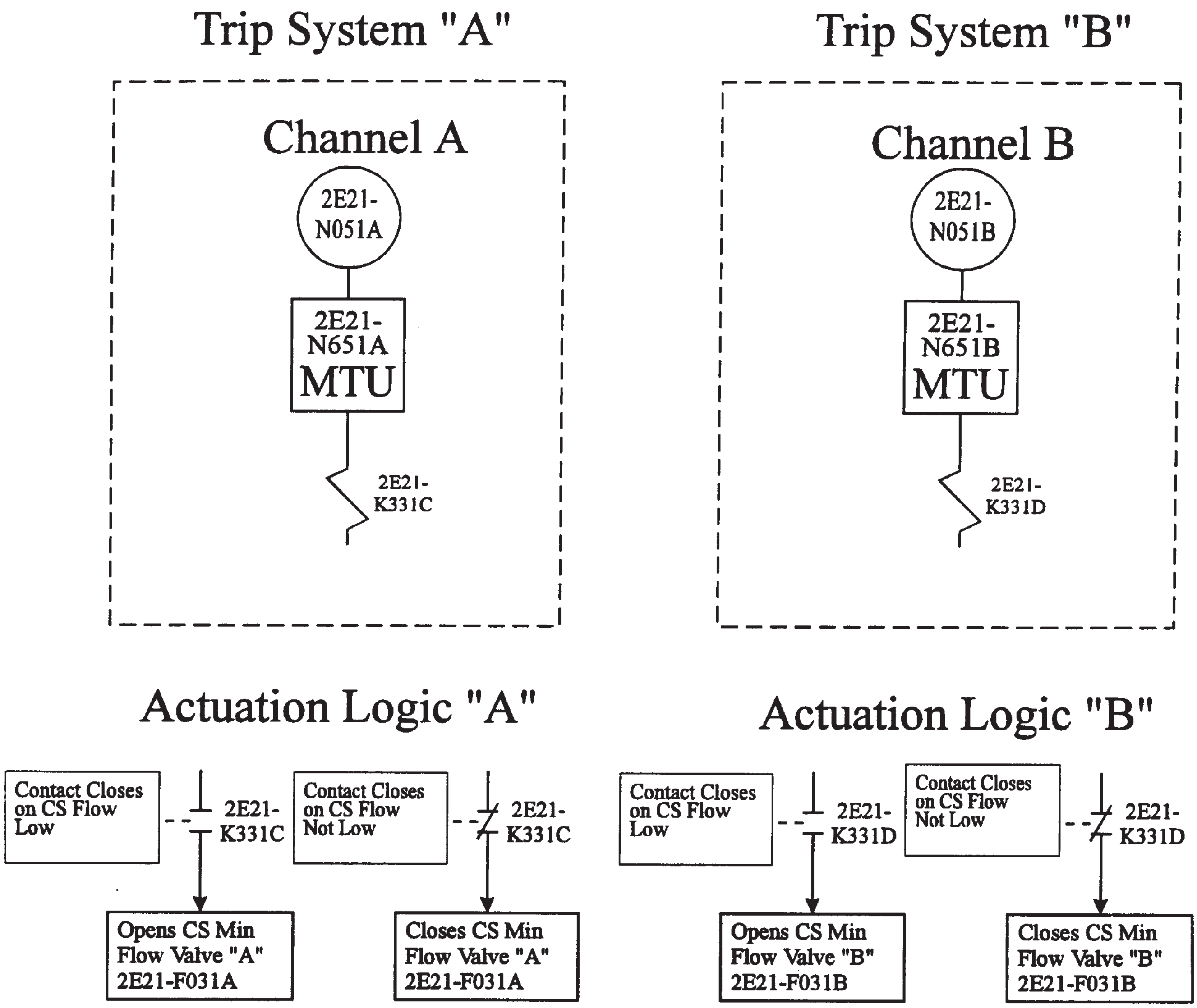
Elem. Ref.
H-24427
H-24430
H-27660

Prepared By: JDB
Reviewed By: JGR

LFD-2-ECCS-03

TS 3.3.5.1-1, Item 1.c
Core Spray System
Reactor Steam Dome
Pressure-Low

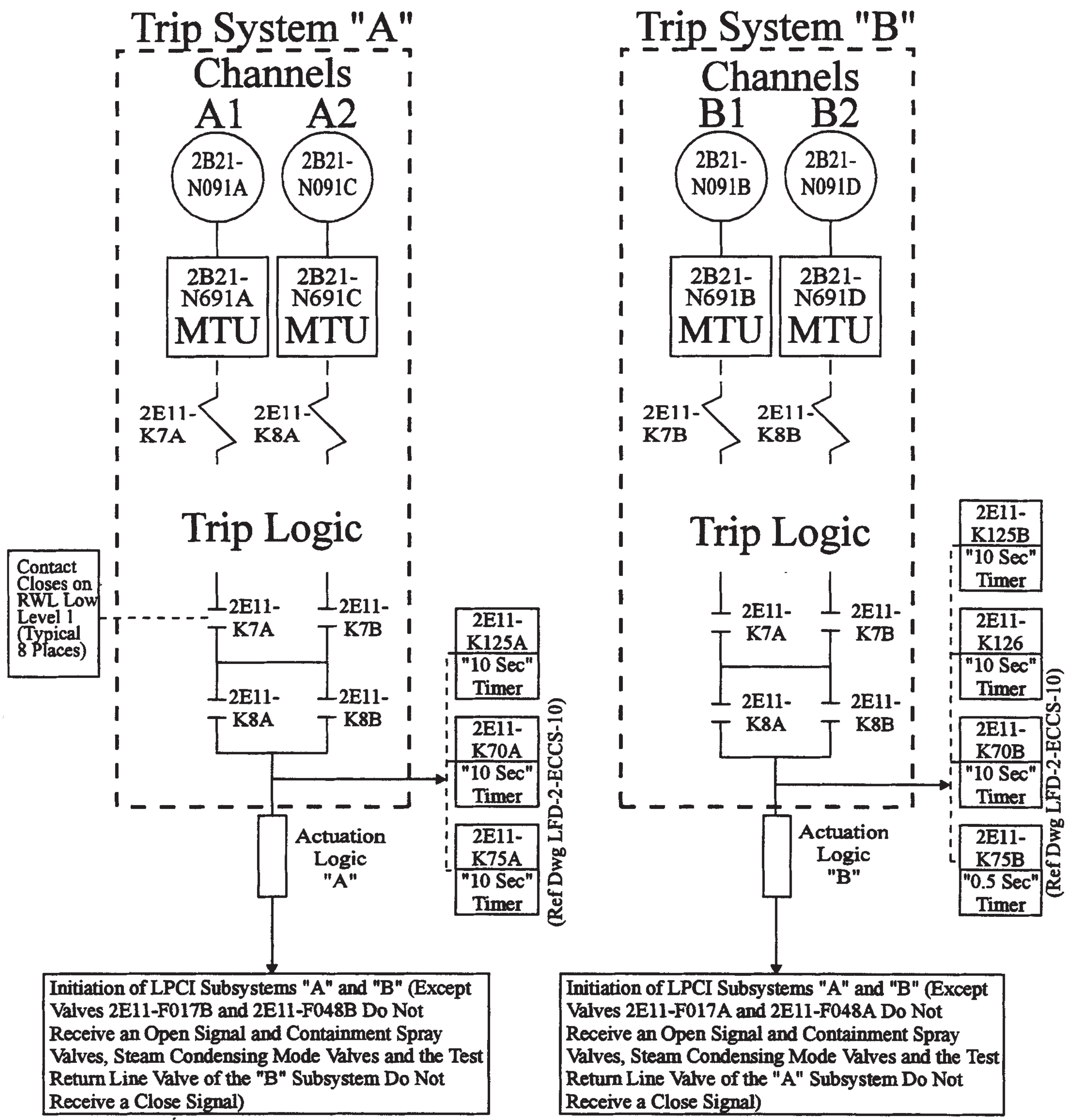
Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capabilities:

In order to maintain Core Spray system initiation capability with regard to minimum flow valve operability, channel A or B must be operable.

Elem. Ref.	LFD-2-ECCS-04
H-24428 H-24431 H-27662	TS 3.3.5.1-1, Item 1.d Core Spray System Core Spray Pump Discharge Flow-Low
Prepared By: JSB Reviewed By:	Rev. 0 11/16/94

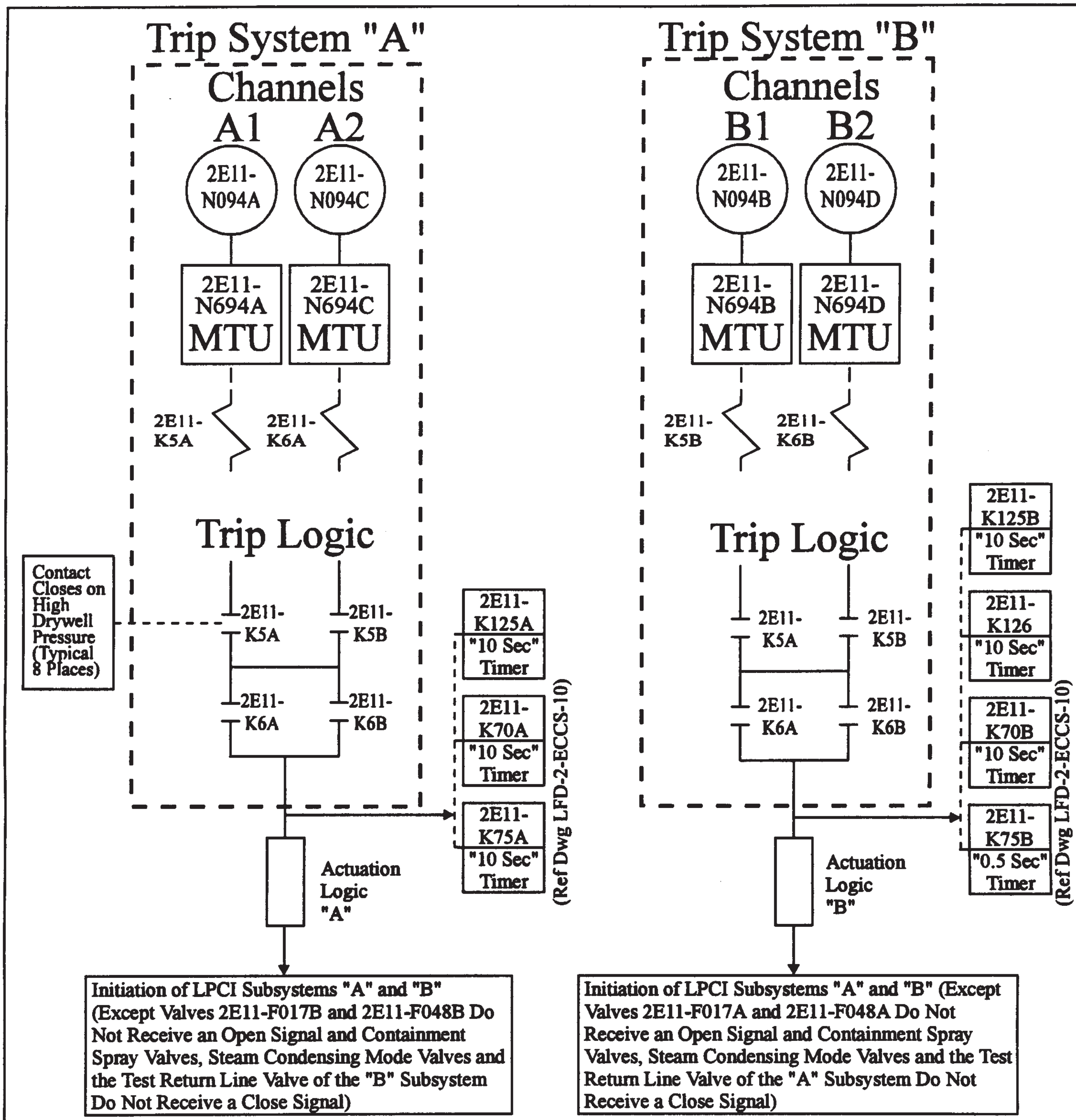


Minimum Channel Requirements for System Initiation Capability:

In order to maintain initiation capability for the LPCI system on a RWL-Level 1 signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

Elem. Ref. H-24423 H-24432 H-24426 H-27638 H-24429 H-27641	Prepared By: [signature] Reviewed By: [signature]	LFD-2-ECCS-05 TS 3.3.5.1-1, Item 2.a LPCI System RWL- Low Low Low, Level 1 TRM Rev. 7



Minimum Channel Requirements for System Initiation Capability:

In order to maintain initiation capability for the LPCI system on a Drywell Pressure-High signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

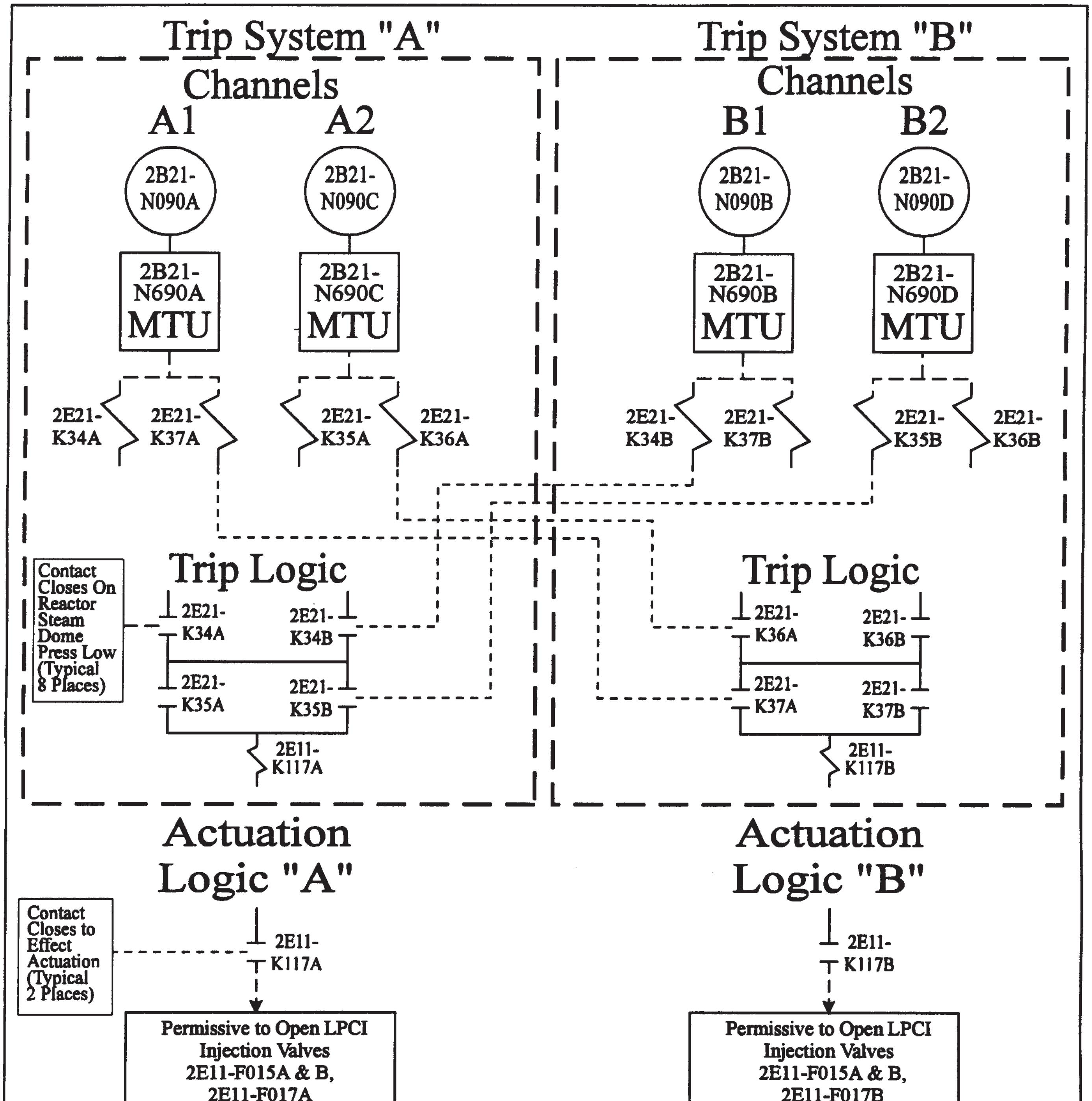
Elem. Ref.
H-24427
H-24430
H-27638
H-27641

Prepared By: S. C. Bruns
Reviewed By: [signature]

LFD-2-ECCS-06

TS 3.3.5.1-1, Item 2.b
LPCI System
Drywell Pressure-High

Rev. 0 3/16/95



Minimum Channel Requirements for System Initiation Capability:

In order to maintain LPCI system initiation capability on a Reactor Steam Dome Pressure-Low signal, channels in one of the following combinations must be either operable or maintained in the tripped condition for modes 4 and 5. Credit cannot be taken for tripped channels in modes 1, 2, and 3.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

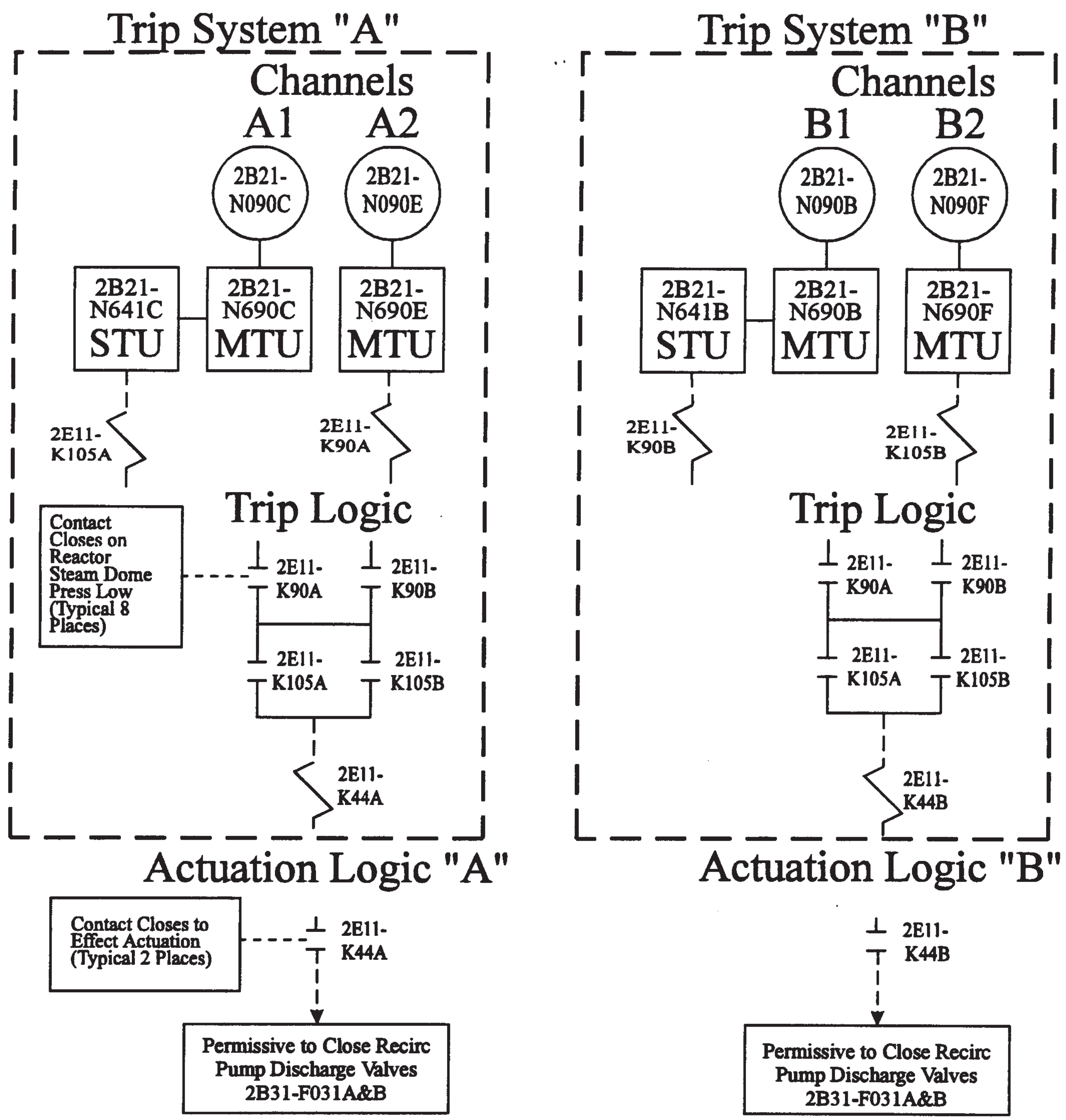
Elem. Ref.
H-24427
H-24430
H-27638
H-27641
H-27660

Prepared By: JG
Reviewed By: JDR

LFD-2-ECCS-07

TS 3.3.5.1-1, Item 2.c
LPCI System
Reactor Steam Dome Pressure-Low

Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Recirc Pump Discharge Valve close permissive initiation capability on a Reactor Steam Dome Pressure Low signal, channels in one of the following combinations must be operable.

A1 & A2
A1 & B1
B2 & A2
B1 & B2

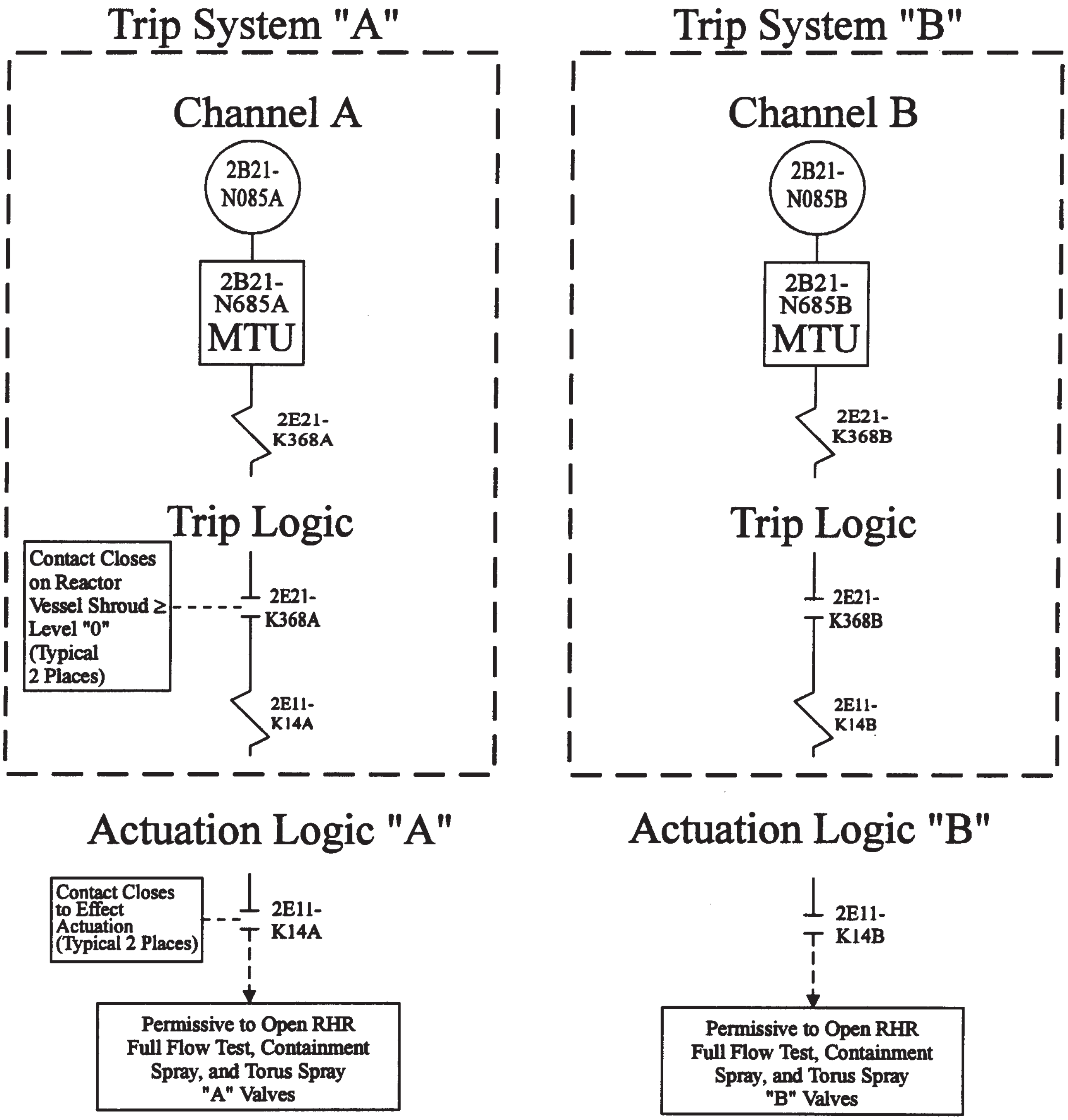
Elem. Ref.
H-24427
H-24430
H-27640
H-27643

Prepared By: [illegible]
Reviewed By: [illegible]

LFD-2-ECCS-08

TS 3.3.5.1-1, Item 2.d
LPCI System
Reactor Steam Dome Pressure-Low
Recirc Disch Valve Permissive

Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain LPCI mode initiation capability (i.e., automatically securing other modes of RHR) with Reactor Water Level at or below Level-0, at least one channel must be operable or maintained in the tripped condition.

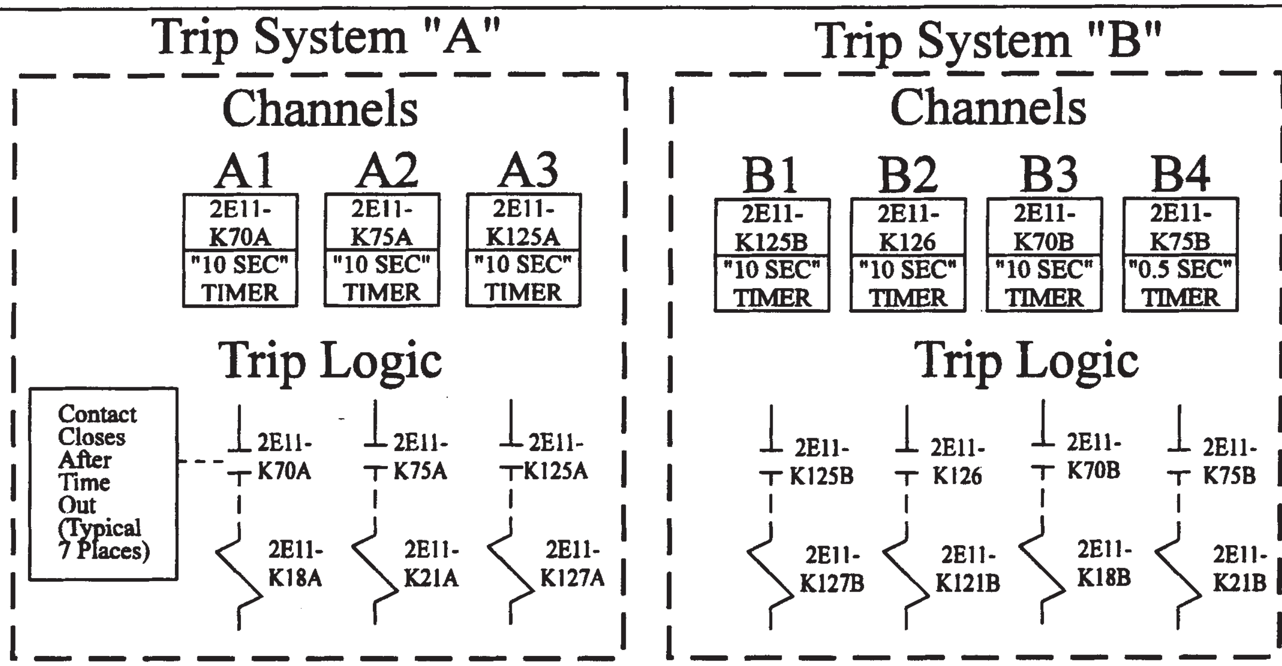
Elem. Ref.
H-24423
H-24426
H-27638
H-27641
H-27647
H-27649

Prepared By: JDB
Reviewed By: JOR

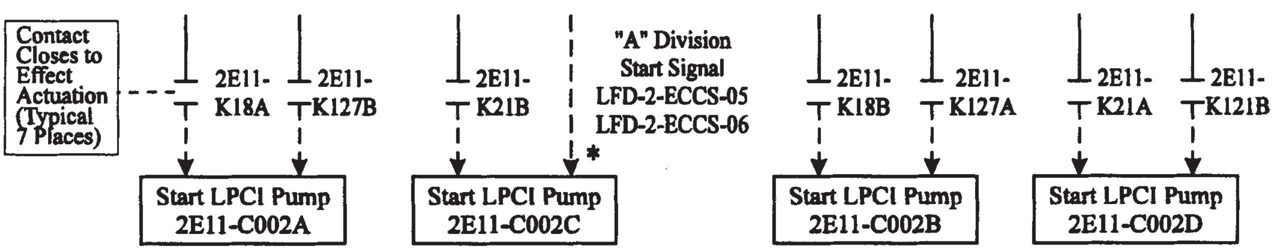
LFD-2-ECCS-09

TS 3.3.5.1-1, Item 2.e
LPCI System
Reactor Vessel Shroud
Level-0

Rev. 0 11/16/94



Actuation Logics



* No timer is associated with the "A" division start signal for pump 2E11-C002C, consequently, even if channel "B4" is inoperable, pump 2E11-C002C is still capable of being started provided the "A" division initiation logic is operable.

Minimum Channel Requirements for System Initiation Capability:

In order to maintain LPCI initiation capability with regard to the LPCI Pump Start Timers, one of the following combinations of channels is required to be operable:

(A1 or B1) and (* or B4)

or

(A2 or B2) and (A3 or B3)

It is noted that when a timer fails such that it would actuate faster than required, the possibility exists of the pump associated with the failed timer overloading the associated Emergency Diesel Generator thereby affecting two low pressure ECCS pumps unless the pump is prevented from starting.

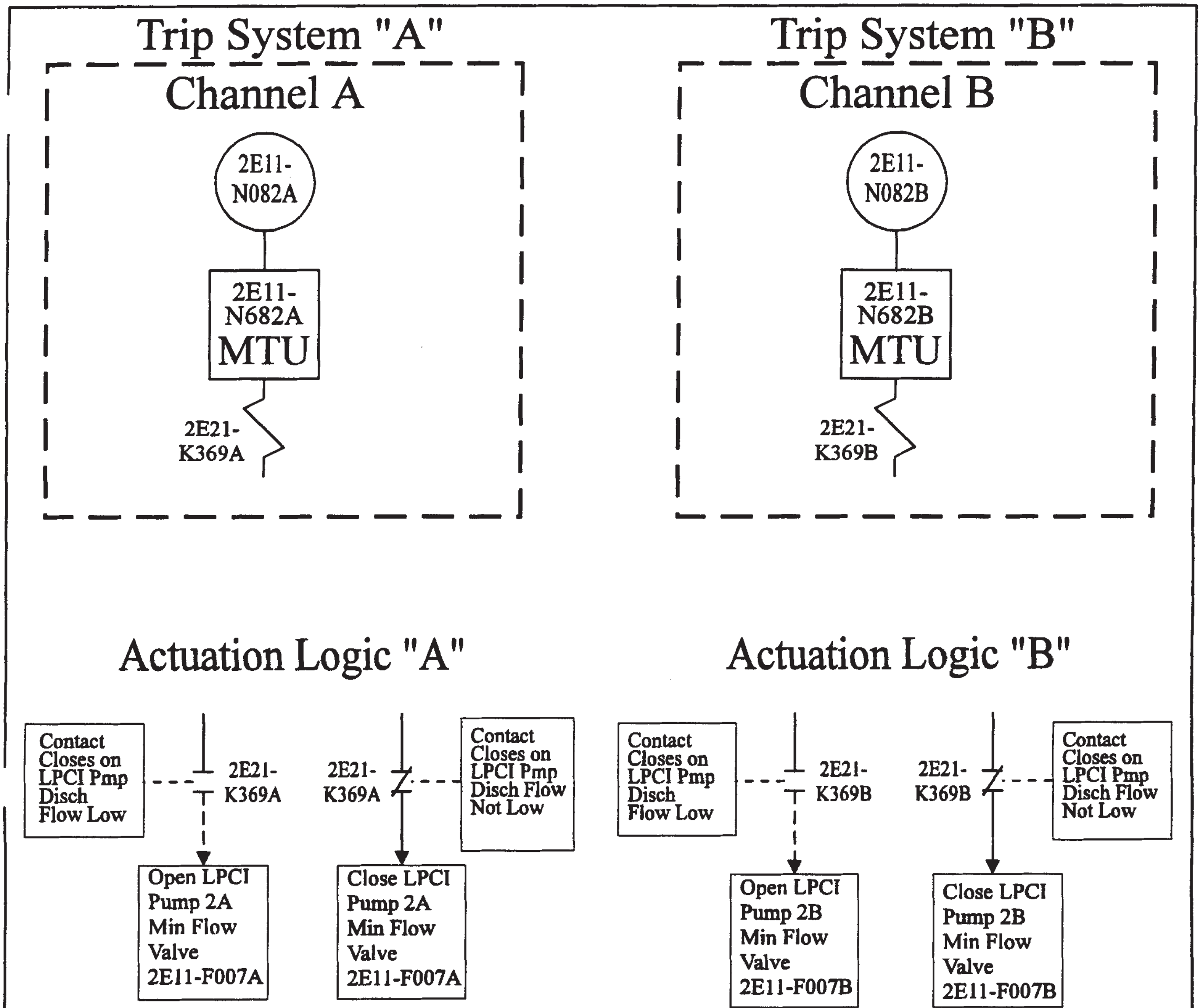
Elem. Ref.
H-27639
H-27640
H-27642
H-27643
H-27657

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-ECCS-10

TS 3.3.5.1-1, Item 2.f
LPCI System
LPCI Pump Start-Time Delay Relay

Rev. 0 3/30/95



Minimum Channel Requirements for System Initiation Capability:

In order to maintain LPCI initiation capability regarding minimum flow protection, at least one of the two channels must be operable.

Elem. Ref.
H-24423
H-24426
H-27638
H-27641
H-27648
H-27650

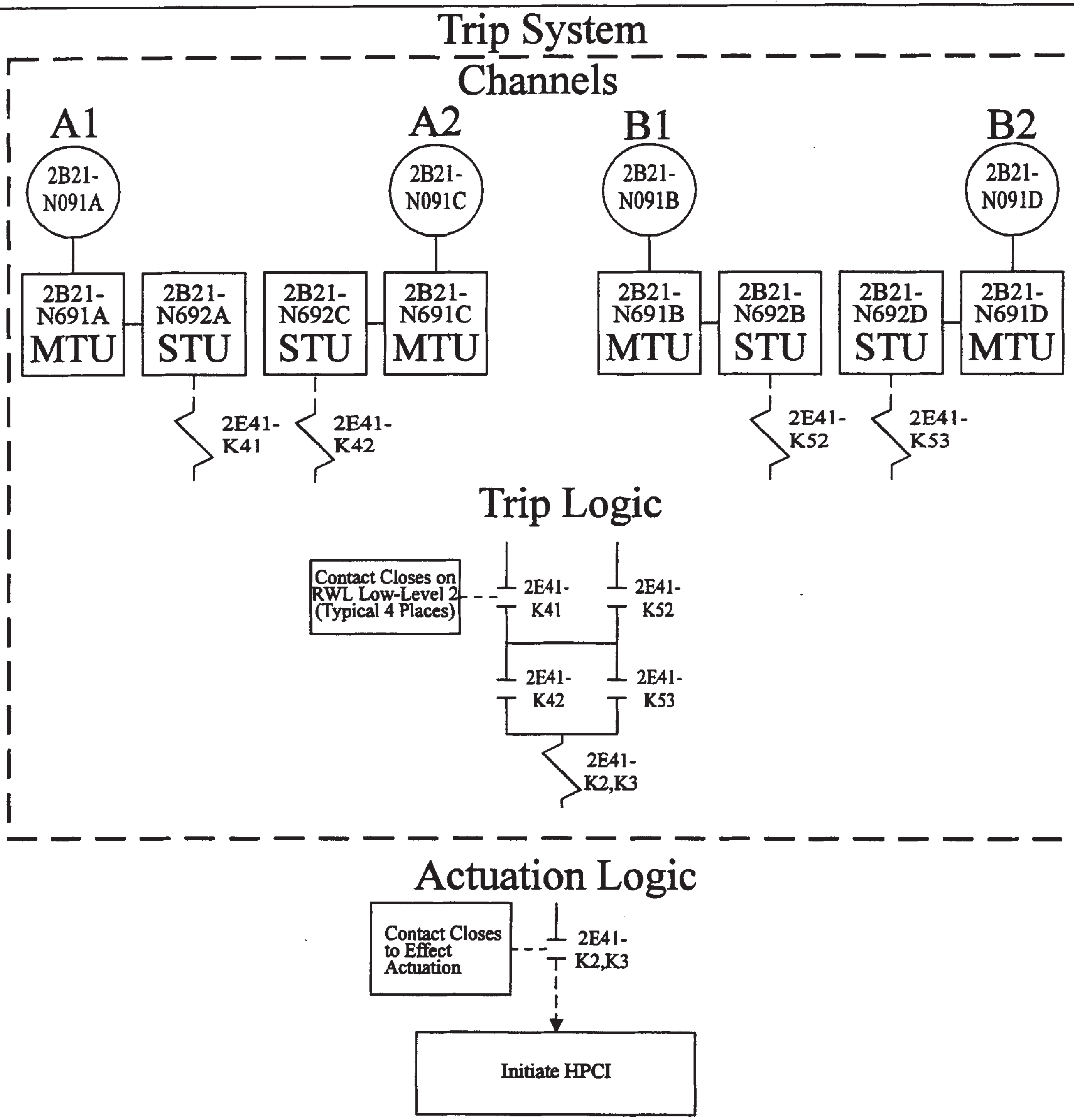
Prepared By: JBB

Reviewed By: JCR

LFD-2-ECCS-11

TS 3.3.5.1-1, Item 2.g
LPCI System
LPCI Pump Discharge Flow-Low (Bypass)

Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain HPCI Initiation capability on Reactor Water Low Level-2, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

Elem. Ref.
H-24423 H-24432
H-24426 H-27667
H-24429 H-27668

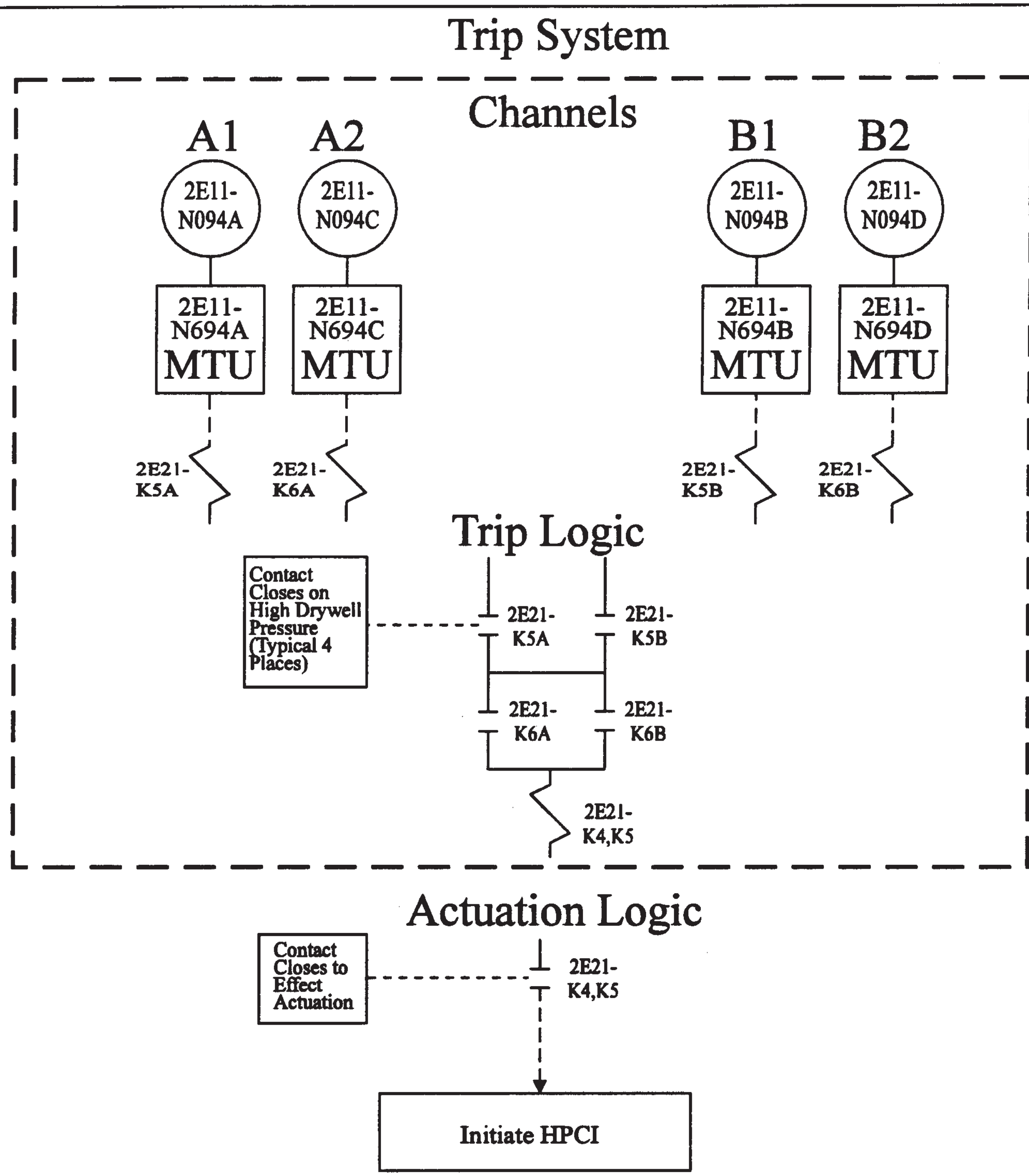
Prepared By: J. R. Brunner

Reviewed By: Kathryn Williams

LFD-2-ECCS-12

TS 3.3.5.1-1, Item 3.a
HPCI System
RWL-Low Low,
Level 2

TRM Rev. 7



<u>Minimum Channel Requirement for System Initiaton Capability</u>:

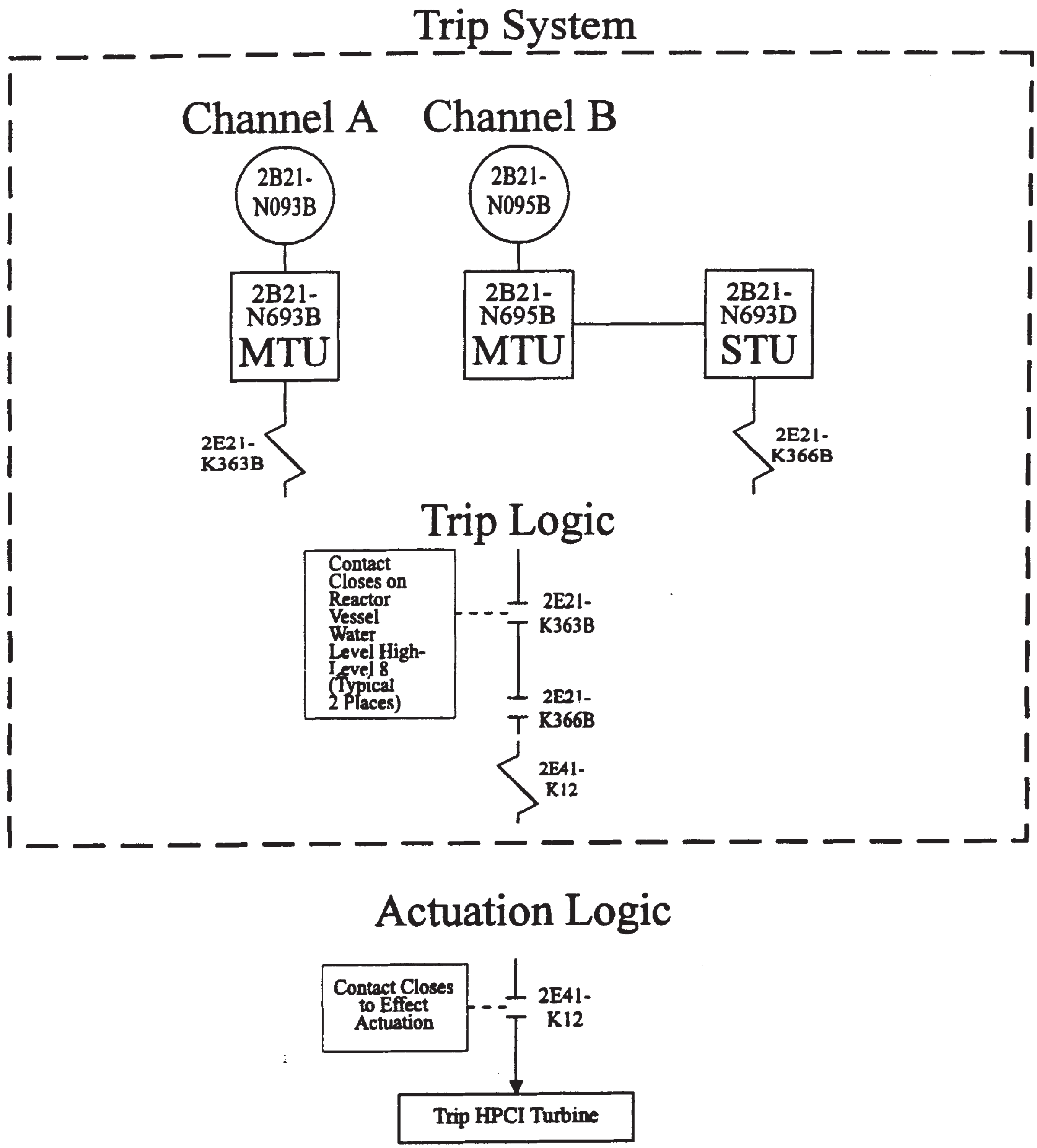
In order to maintain HPCI initiation capability on High Drywell Pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

Elem. Ref.
H-24427
H-24430
H-27667

Prepared By: JDB
Reviewed By: JLR

LFD-2-ECCS-13	
TS 3.3.5.1-1, Item 3.b HPCI System Drywell Pressure-High	
Rev. 0	11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to ensure a HPCI turbine trip on a RPV Water Level High-Level 8 signal, both channels must be operable.

Elem. Ref.

H-24426
H-27667
H-27668

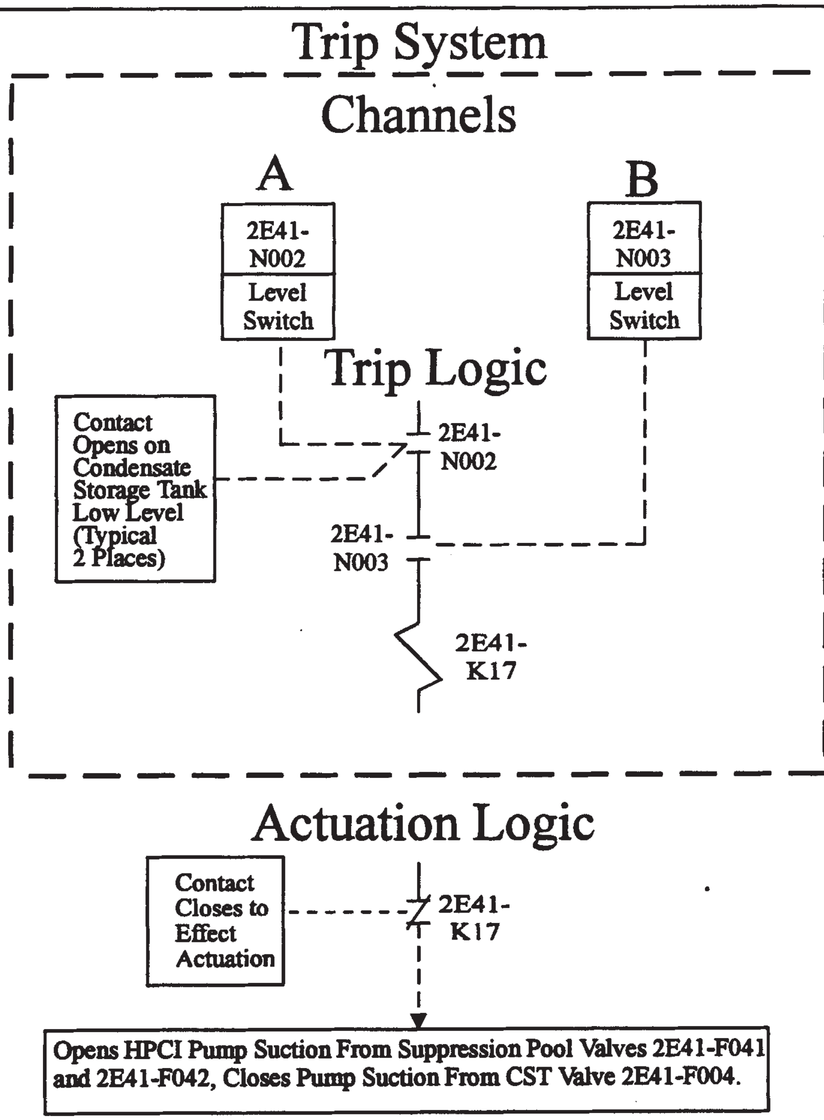
Prepared By: JSS

Reviewed By: JCR

LFD-2-ECCS-14

TS 3.3.5.1-1, Item 3.c
HPCI System
Reactor Vessel Water
Level-High, Level 8

Rev. 0 11/16/94



Minimum Channel Requirements For System Initiation Capability:

In order to maintain the ability to automatically transfer the HPCI pump suction from the CST to the Suppression Pool on a Low Condensate Storage Tank Water Level signal, one of the channels must be operable or maintained in the tripped condition.

Elem. Ref.
H-27667
H-27671
H-51689

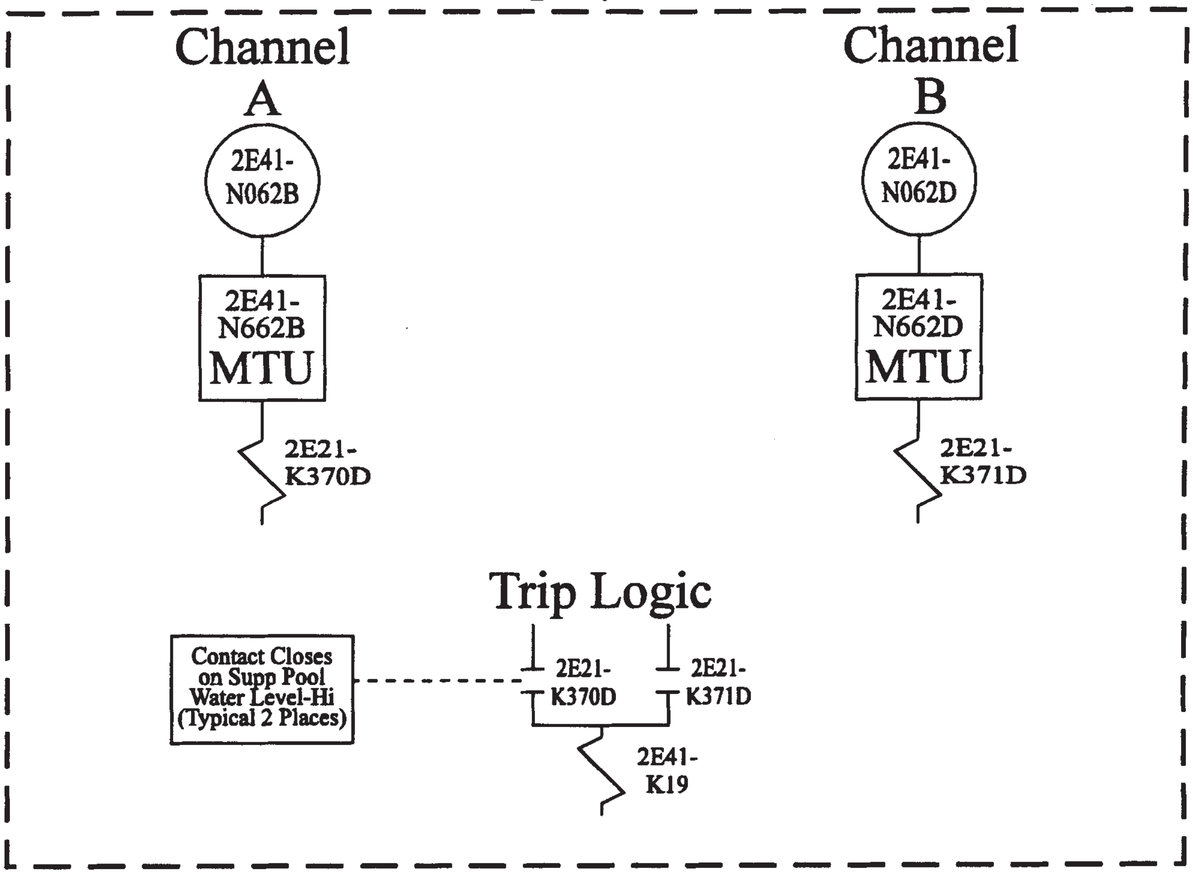
Prepared By: JDB
Reviewed By: JJR

LFD-2-ECCS-15

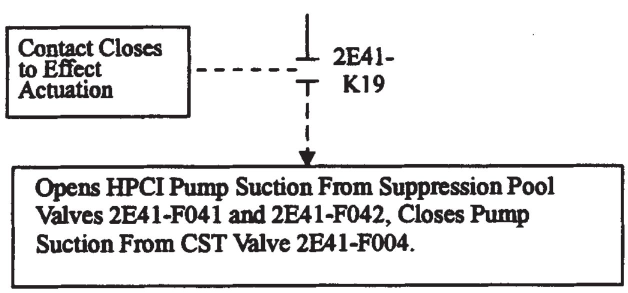
TS 3.3.5.1-1, Item 3.d
HPCI System
Condensate Storage Tank
Level-Low

Rev. 0 11/16/94

Trip System



Actuation Logic

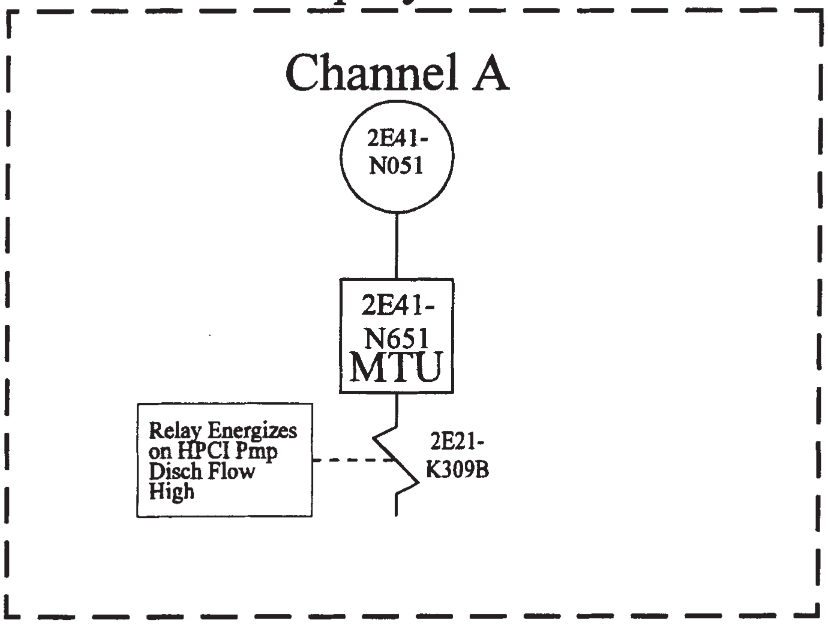


Minimum Channel Requirements for System Initiation Capability:

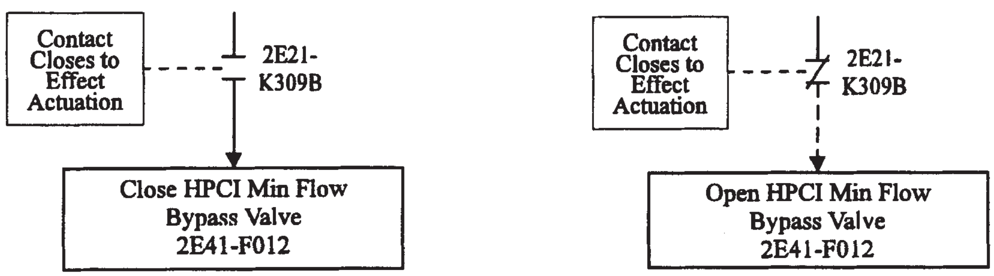
In order to maintain the ability to automatically transfer the HPCI pump suction from the CST to the Suppression Pool on a Suppression Pool Water Level-High signal at least one channel must be operable or maintained in the tripped condition.

Elem. Ref.		
H-24432 H-27668 H-27671 H-51689	Prepared By: JDB Reviewed By: JLR	LFD-2-ECCS-16 TS 3.3.5.1-1, Item 3.e HPCI System Suppression Pool Water Level-High Rev. 0 11/16/94

Trip System



Trip Logic



Minimum Channel Requirements for System Initiation Capability:

In order to maintain HPCI Initiation capability regarding minimum flow protection this channel must be operable.

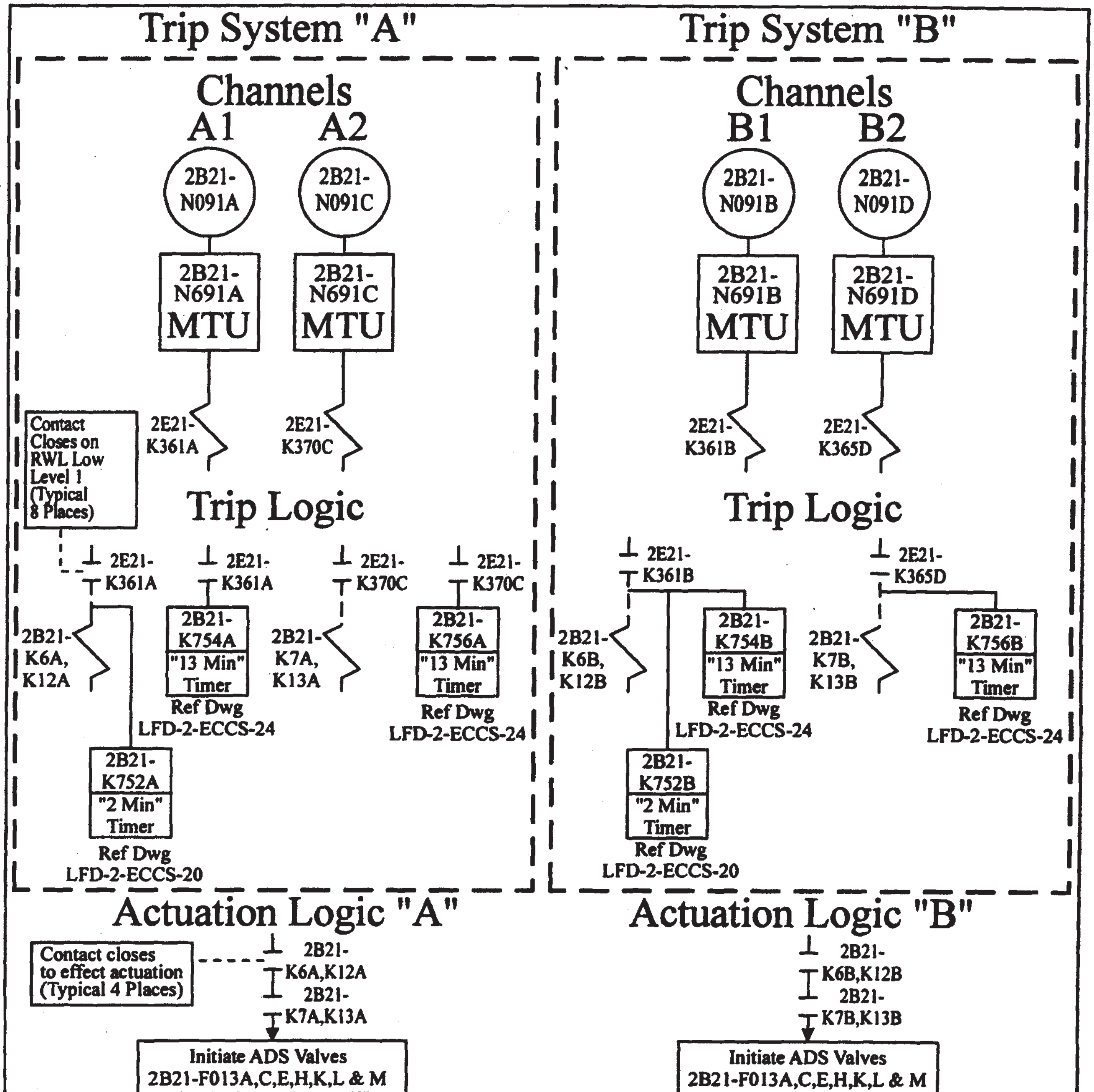
Elem. Ref.
H-24424
H-27667
H-27671

Prepared By: J.S.B
Reviewed By: C.C.E

LFD-2-ECCS-17

TS 3.3.5.1-1, Item 3.f
HPCI System
HPCI Pump Disch Flow-Low (Bypass)

Rev. 0 11/16/94



Minimum Channel Requirements for System Initation Capability:

In order to maintain ADS initiation capability on a RWL-Level 1 signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and A2
B1 and B2

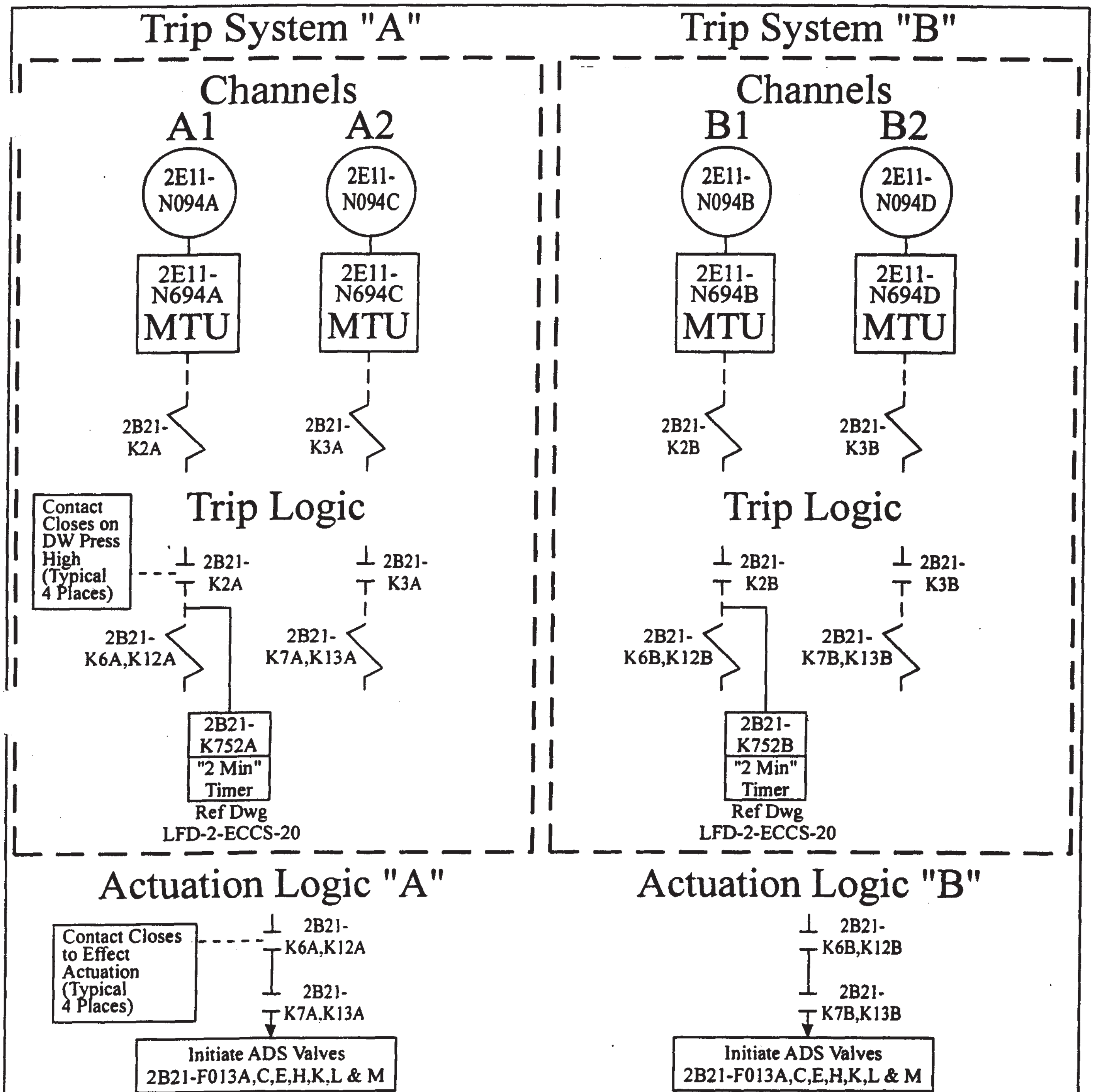
Elem. Ref.
H-24423 H-24432
H-24426 H-27403
H-24429 H-27472

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-ECCS-18

TS 3.3.5.1-1, Item 4.a/5.a
ADS Trip System
RWL-Low, Low, Low
Level 1

TRM Rev. 33



Minimum Channel Requirements for System Initation Capability:

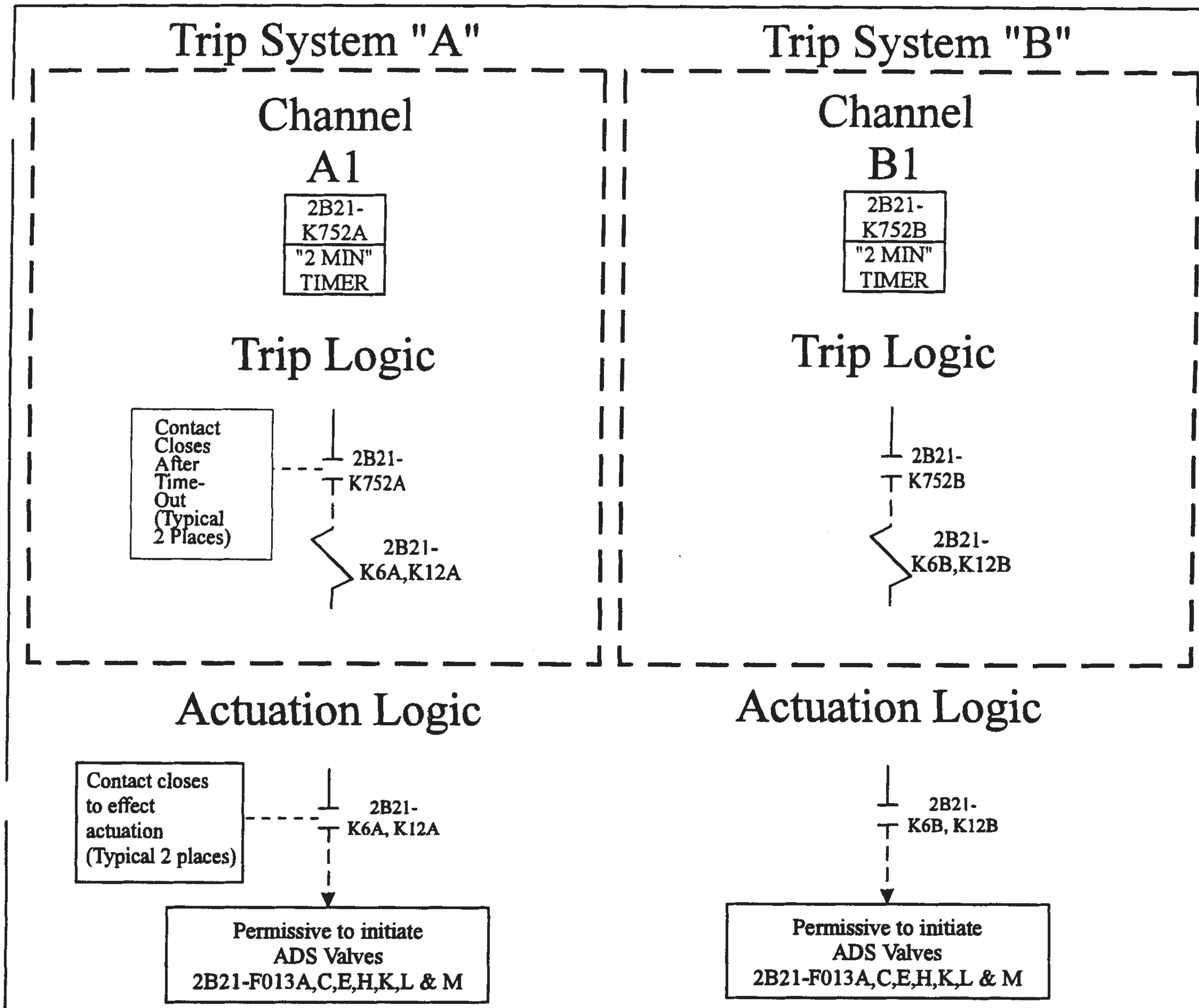
In order to maintain ADS initiation on a Drywell Pressure - High signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and A2
B1 and B2

Elem. Ref. H-24427 H-24430 H-27403 H-27472	LFD-2-ECCS-19 TS 3.3.5.1-1, Item 4.b/5.b ADS Trip System Drywell Pressure-High

Prepared By:
Reviewed By:

TRM Rev. 37

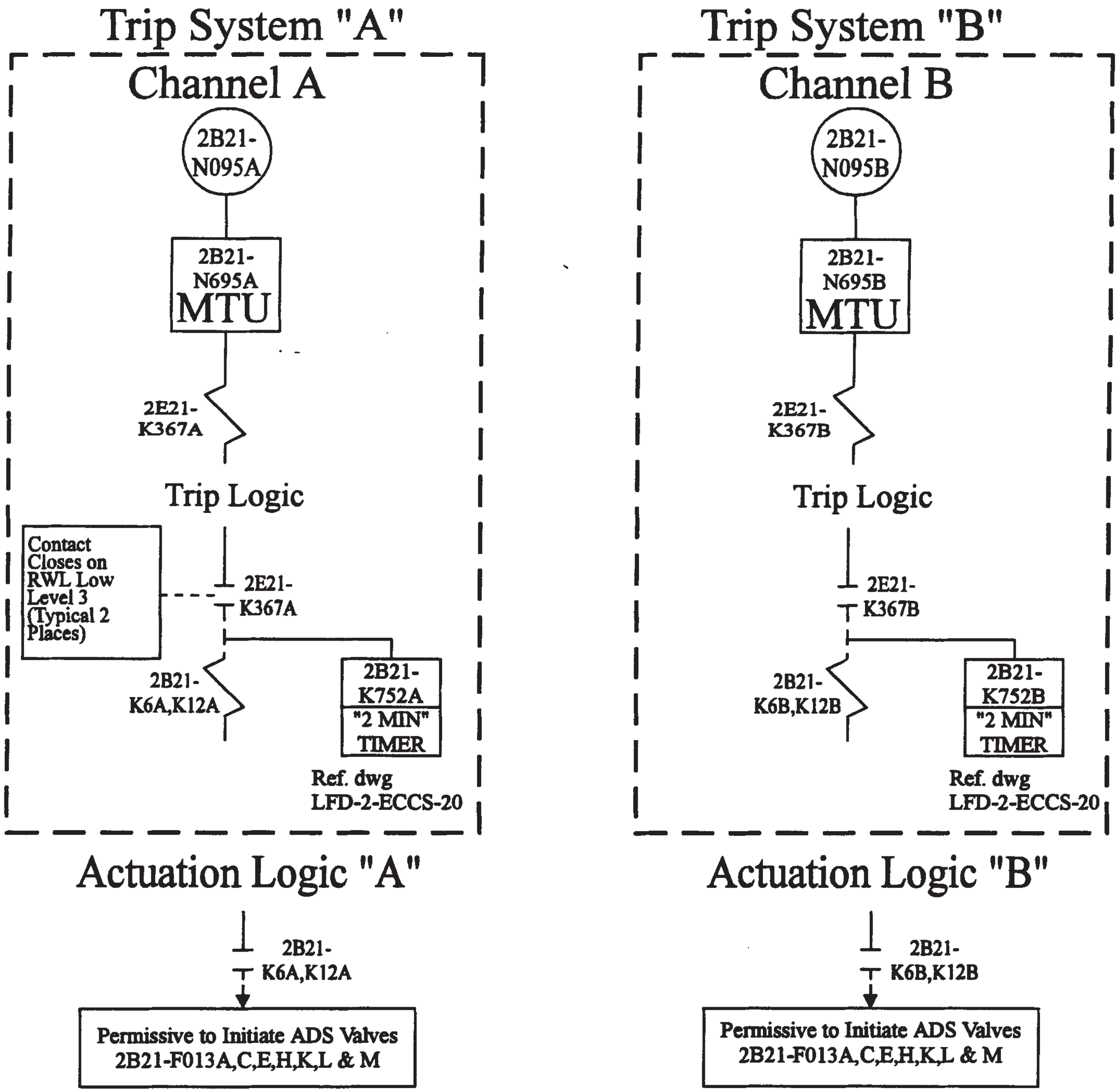


Minimum Channel Requirements for System Initiation Capability:

In order to maintain ADS initiation capability on a "2 Minute" Timer Permissive signal, either channel A or B and its associated logic must be operable.

Elem. Ref. H-27403 H-27472	

Prepared By: J DB	LFD-2-ECCS-20
Reviewed By: GLP	TS 3.3.5.1-1, Item 4.c/5.c ADS Trip System ADS Initiation Timer
	Rev. 0 11/16/94



<u>Minimum Channel Requirements for System Initiation Capability:</u>

In order to maintain ADS initiation capability due to a RWL-Level 3 Confirmation signal, either channel A or B must be operable or maintained in the tripped condition.

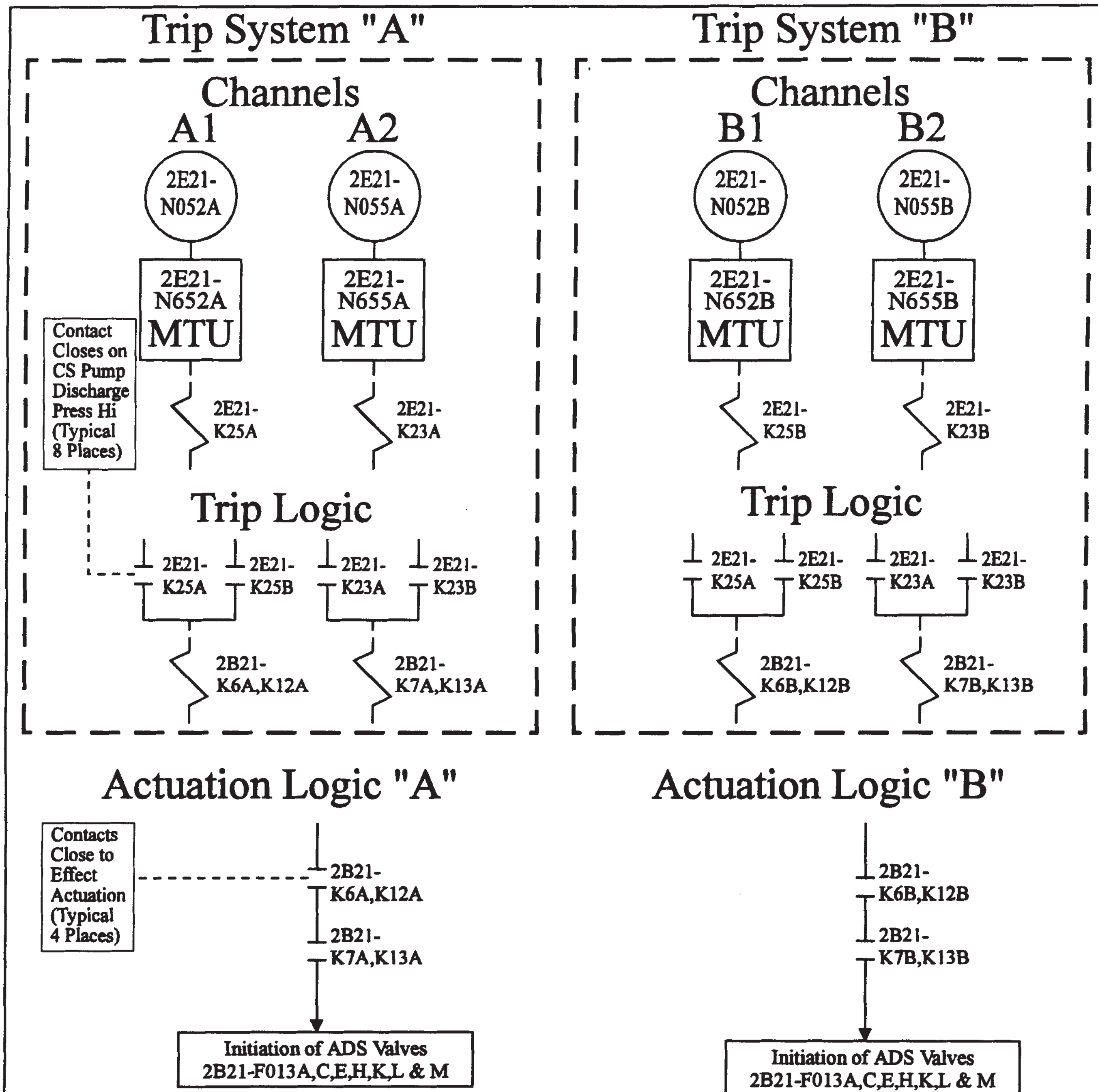
Elem. Ref.
H-24423
H-24426
H-27403
H-27472

Prepared By: JDB
Reviewed By: JLR

LFD-2-ECCS-21

TS 3.3.5.1-1, Item 4.d/5.d
ADS Trip System
RWL-Low Level 3
(Confirmatory)

Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain ADS initiation capability for a Core Spray Pump Discharge Pressure-High permissive, channels in one of the following combinations must be operable:

A1 and A2
A1 and B2
B1 and A2
B1 and B2

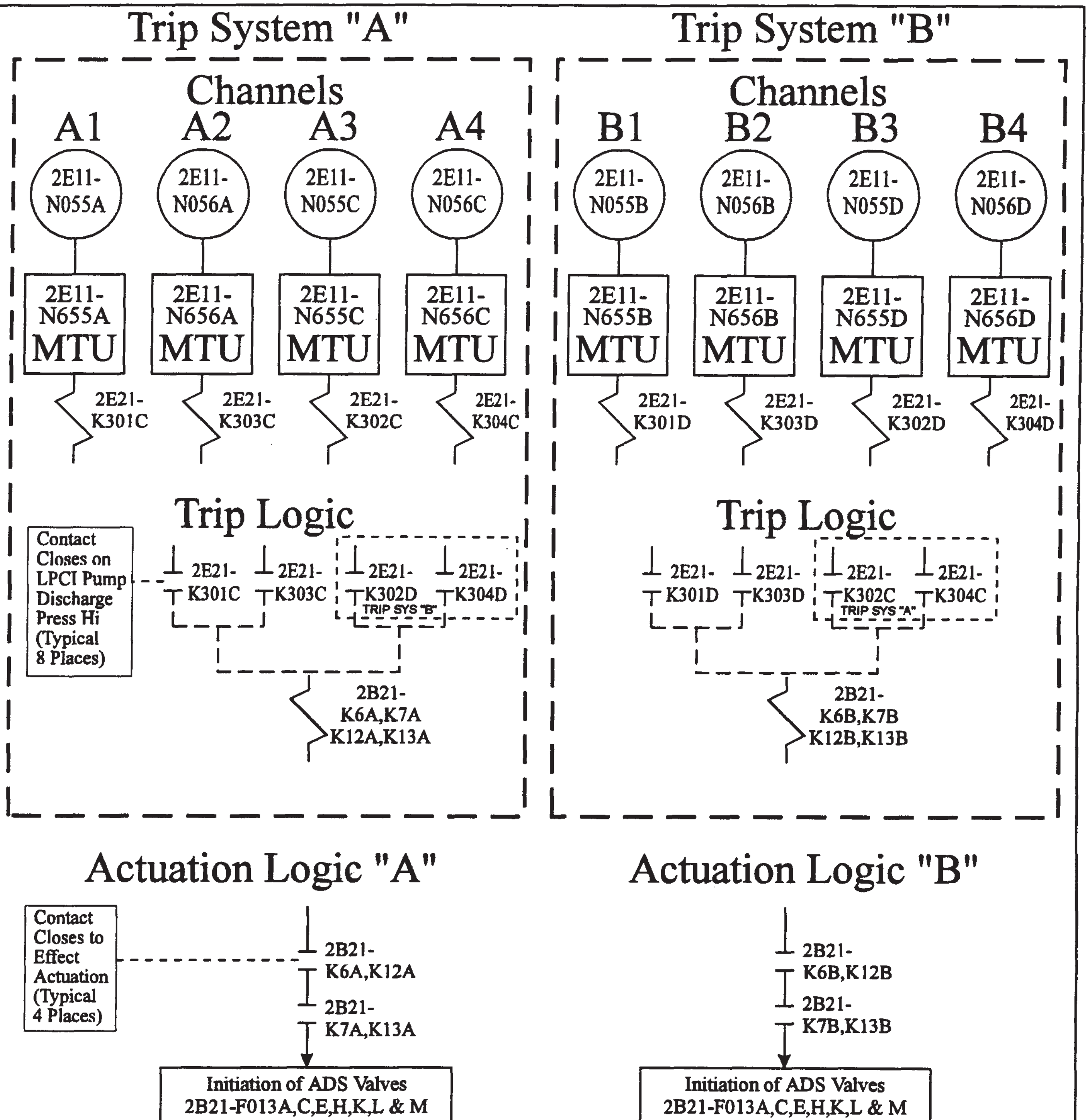
Elem. Ref.
H-24428
H-24431
H-27403
H-27472
H-27660

Prepared By: JDB
Reviewed By: JDR

LFD-2-ECCS-22

TS 3.3.5.1-1, Item 4.e/5.e
ADS Trip System
Core Spray Pump Discharge
Press-High

Rev. 0 11/16/94



<u>Minimum Channel Requirements for System Initation Capability:</u>

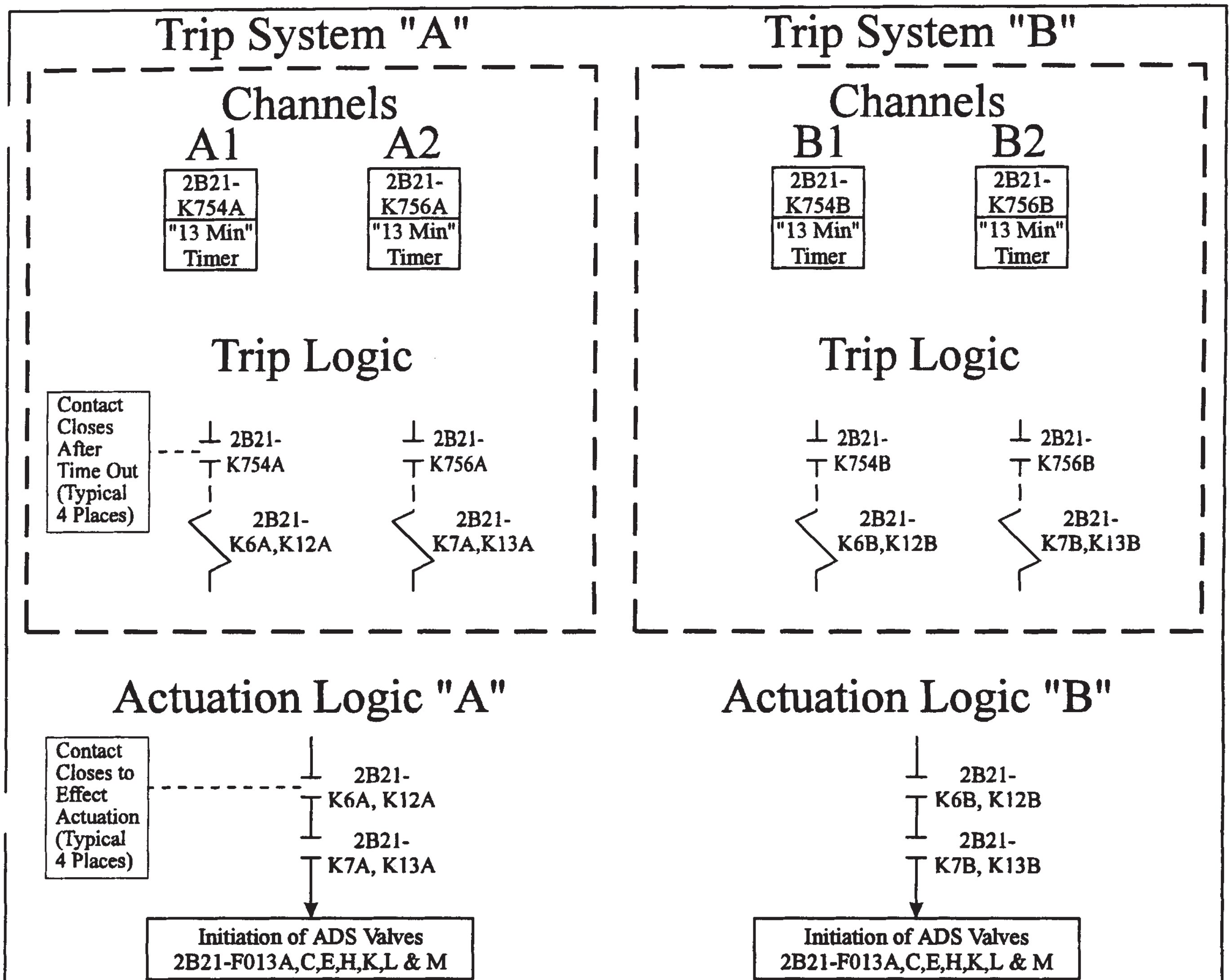
In order to maintain ADS initiation capability for a LPCI Pump Discharge Pressure-High signal, at least one channel must be operable.

Elem. Ref.
H-24427
H-24430
H-27403
H-27472
H-27639
H-27642

Prepared By: JSD

Reviewed By: jLC

LFD-2-ECCS-23	
TS 3.3.5.1-1, Item 4.f/5.f ADS Trip system LPCI Pump Discharge Pressure-High	
Rev. 0	11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain ADS initiation capability with regard to the ADS low water level timers, one of the following channel combinations must be operable:

A1 and A2
B1 and B2

Elem. Ref.

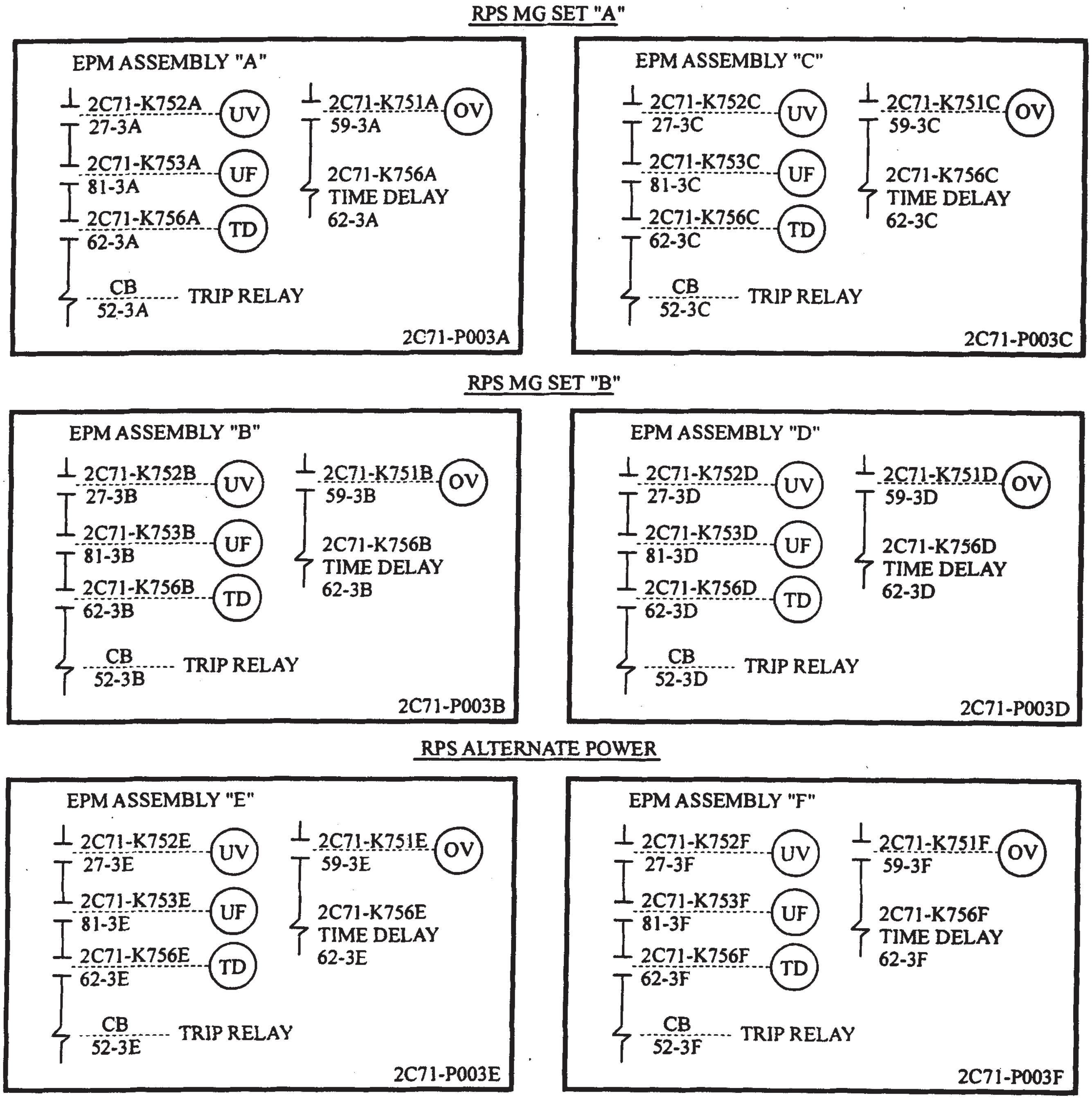
H-27403
H-27472

Prepared By: JSB
Reviewed By: JCR

LFD-2-ECCS-24

TS 3.3.5.1-1, Item 4.g/5.g
ADS Trip System
ADS Low Water LVL
Actuation Timer

Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

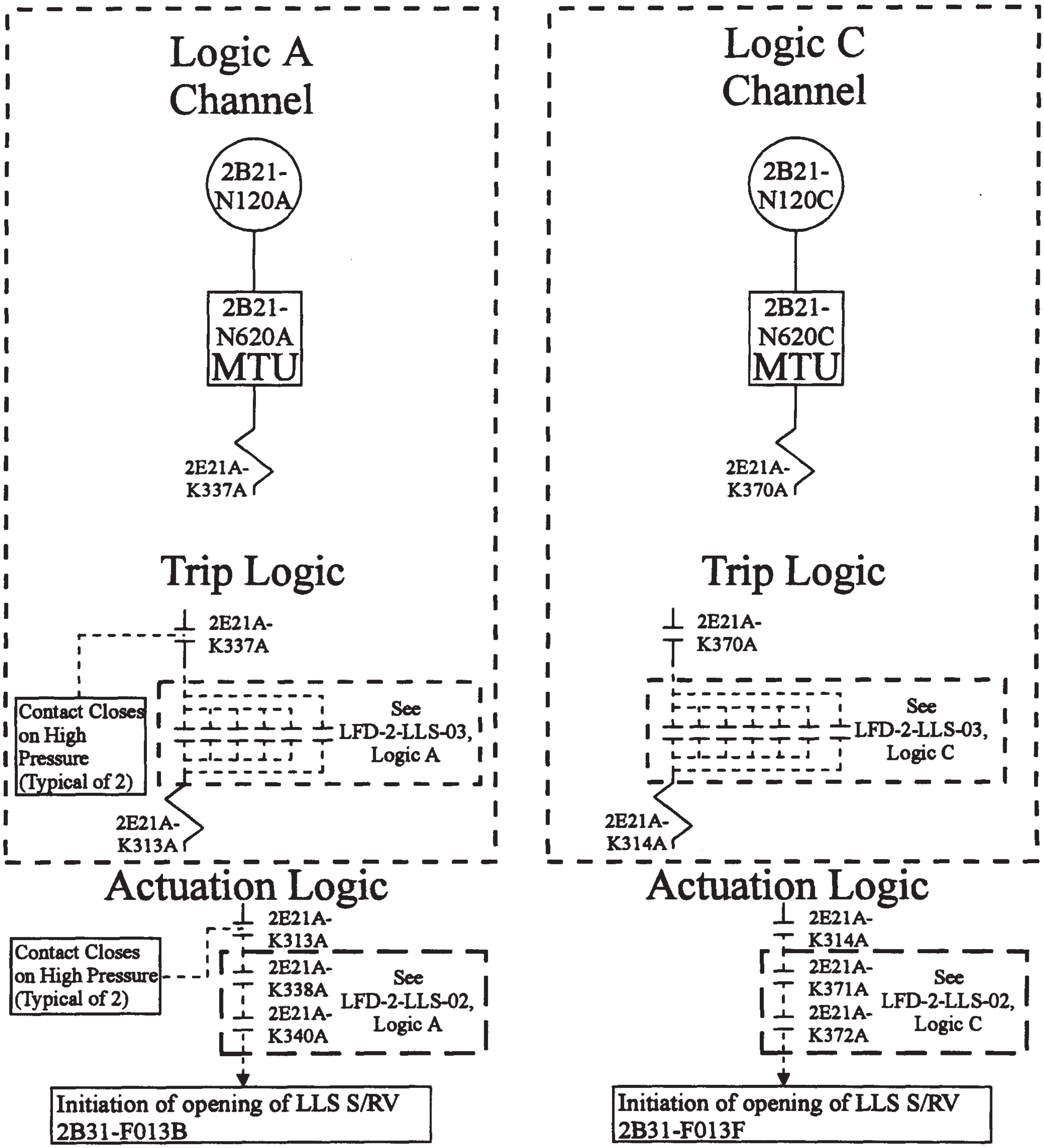
In order to maintain RPS-EPM trip capability, one EPM assembly for each of the inservice power supplies must be operable.

Elem. Ref.
H-27725
H-27851

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-EPM-01
TS 3.3.8.2
RPS Electric Power Monitor Trips
TRM Rev. 37

Division I



Minimum Channel Requirements for System Initiation Capability:

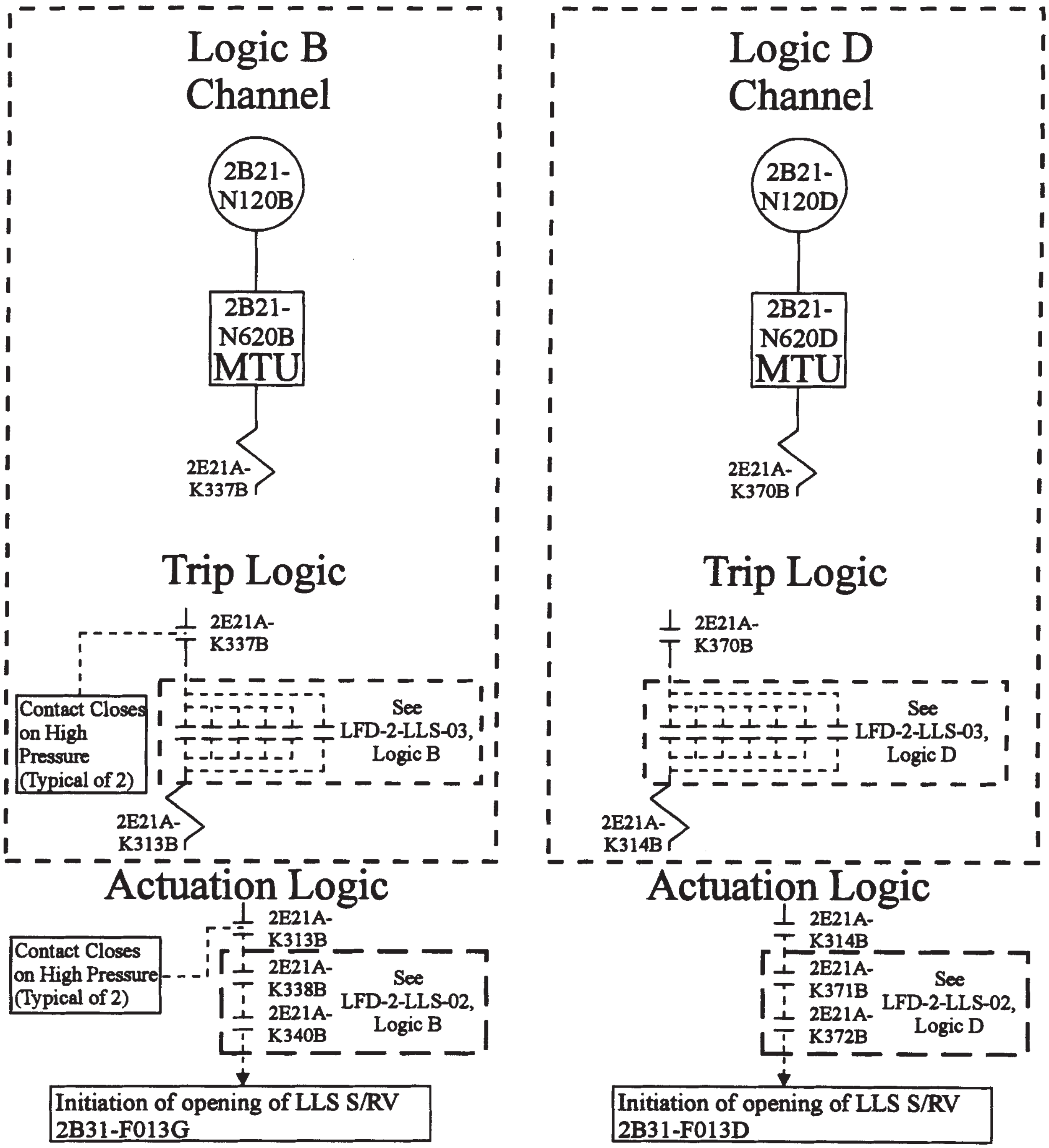
See Sheet 2 of 2.

Elem. Ref.
H-24422 H-27472
H-24423 H-27473
H-24433

Prepared By: [signature]
Reviewed By: Royce Clark

LFD-2-LLS-01
Sheet 1 of 2
TS 3.3.6.3-1, Item 1
Low-Low Set Instrumentation-Reactor Steam Dome Pressure - High
Rev. 0 12/3/94

Division II

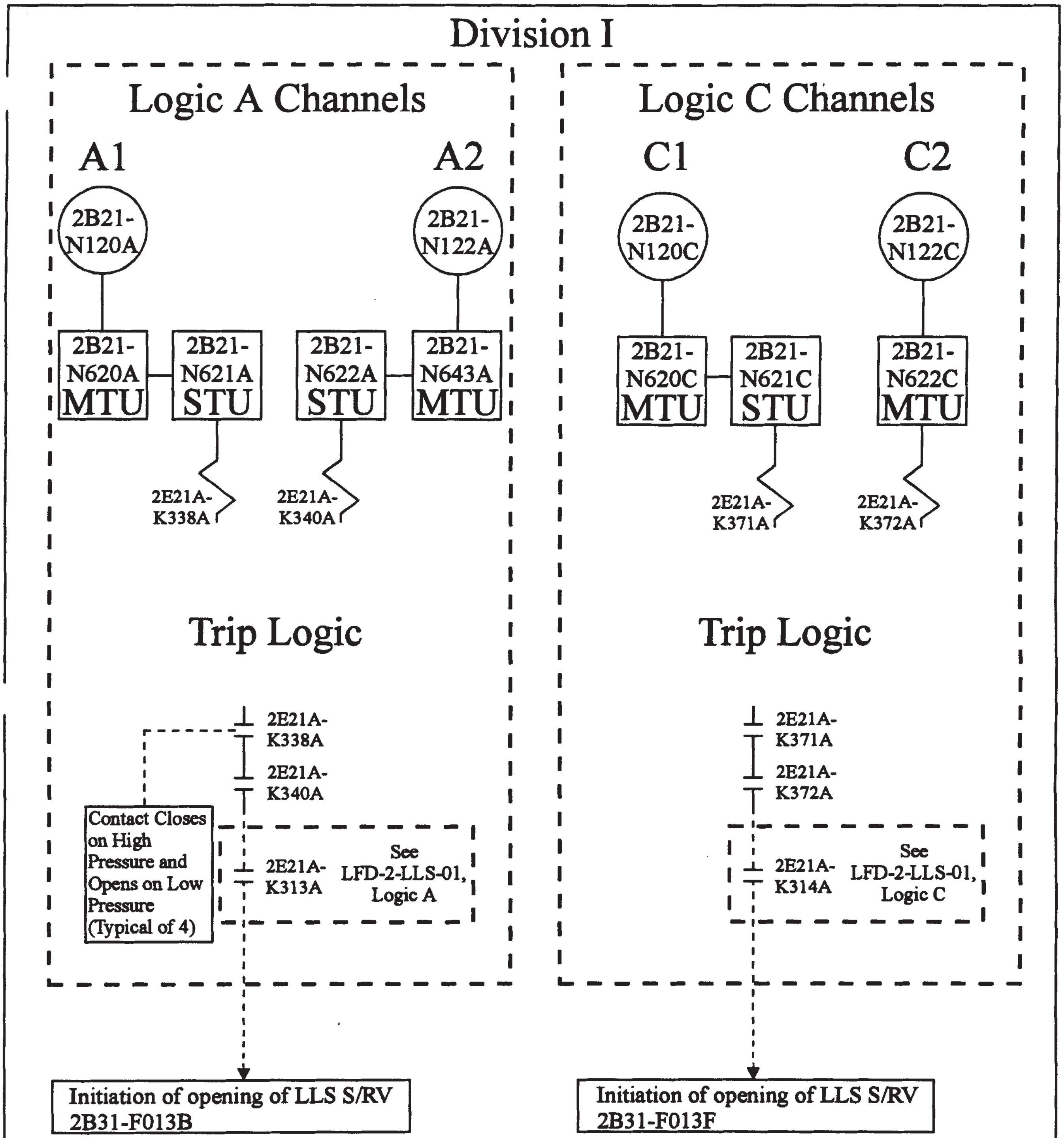


Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to initiate a LLS S/RV, its associated reactor steam dome pressure Logic AND its associated Logic from LFD-2-LLS-02 AND LFD-2-LLS-03 must be operable.

Elem. Ref.	
H-24425	H-27403
H-24426	H-27473
H-24434	

LFD-2-LLS-01 Sheet 2 of 2	
TS 3.3.6.3-1, Item 1 Low-Low Set Instrumentation- Reactor Steam Dome Pressure - High	
Rev. 0	12/3/94



Minimum Channel Requirements for System Initiation Capability:

See Sheet 2 of 2.

Elem. Ref.

H-24422 H-27472
H-24423 H-27473
H-24433

Prepared By: [signature]

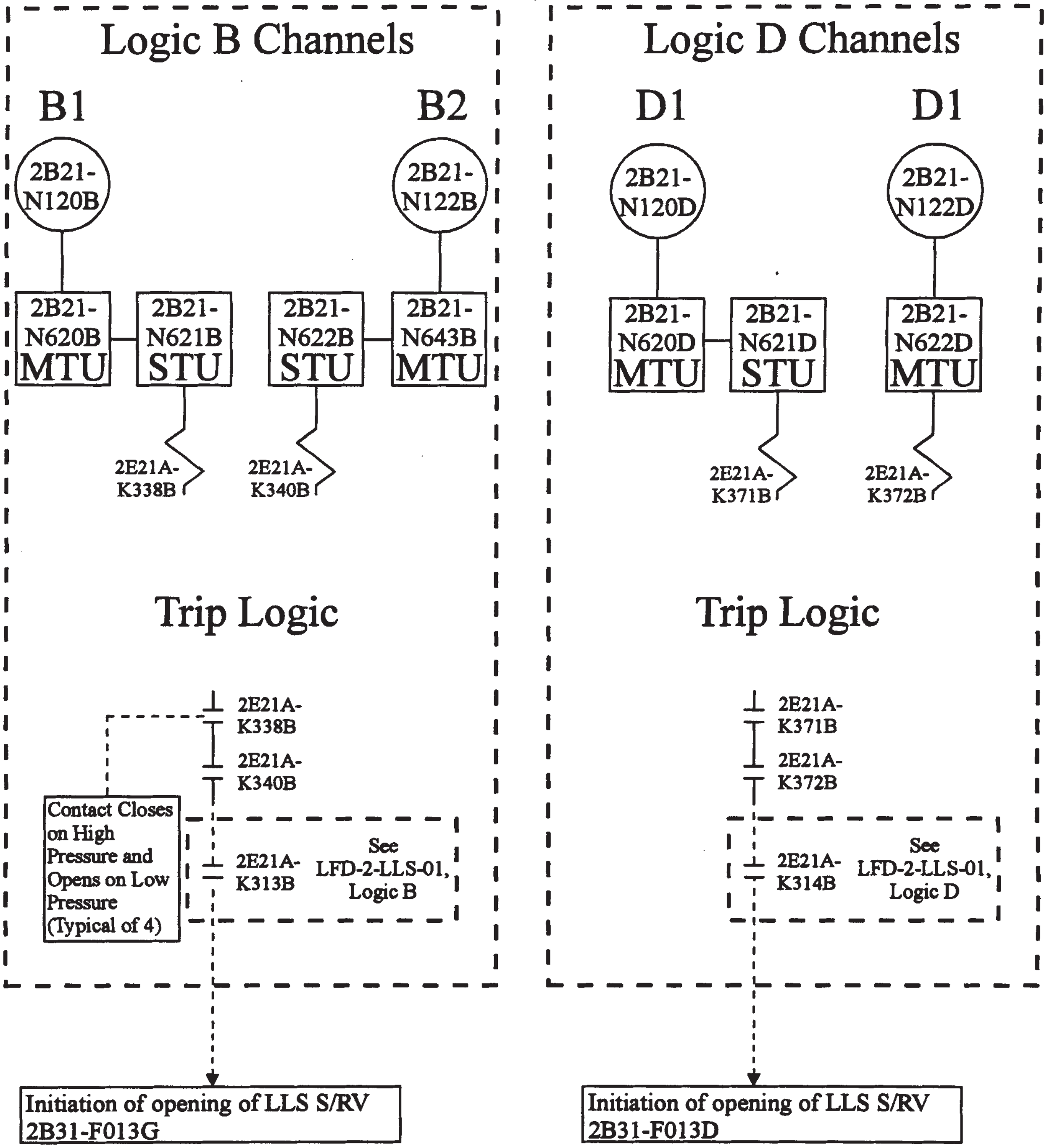
Reviewed By: Royce Clark

LFD-2-LLS-02
Sheet 1 of 2

TS 3.3.6.3-1, Item 2
Low-Low Set Instrumentation-
Low-Low Set
Pressure Setpoints

Rev. 0 12/3/94

Division II



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to initiate a LLS S/RV, its associated low-low set pressure setpoint Logic AND its associated Logic from LFD-2-LLS-01 AND LFD-2-LLS-03 must be operable.

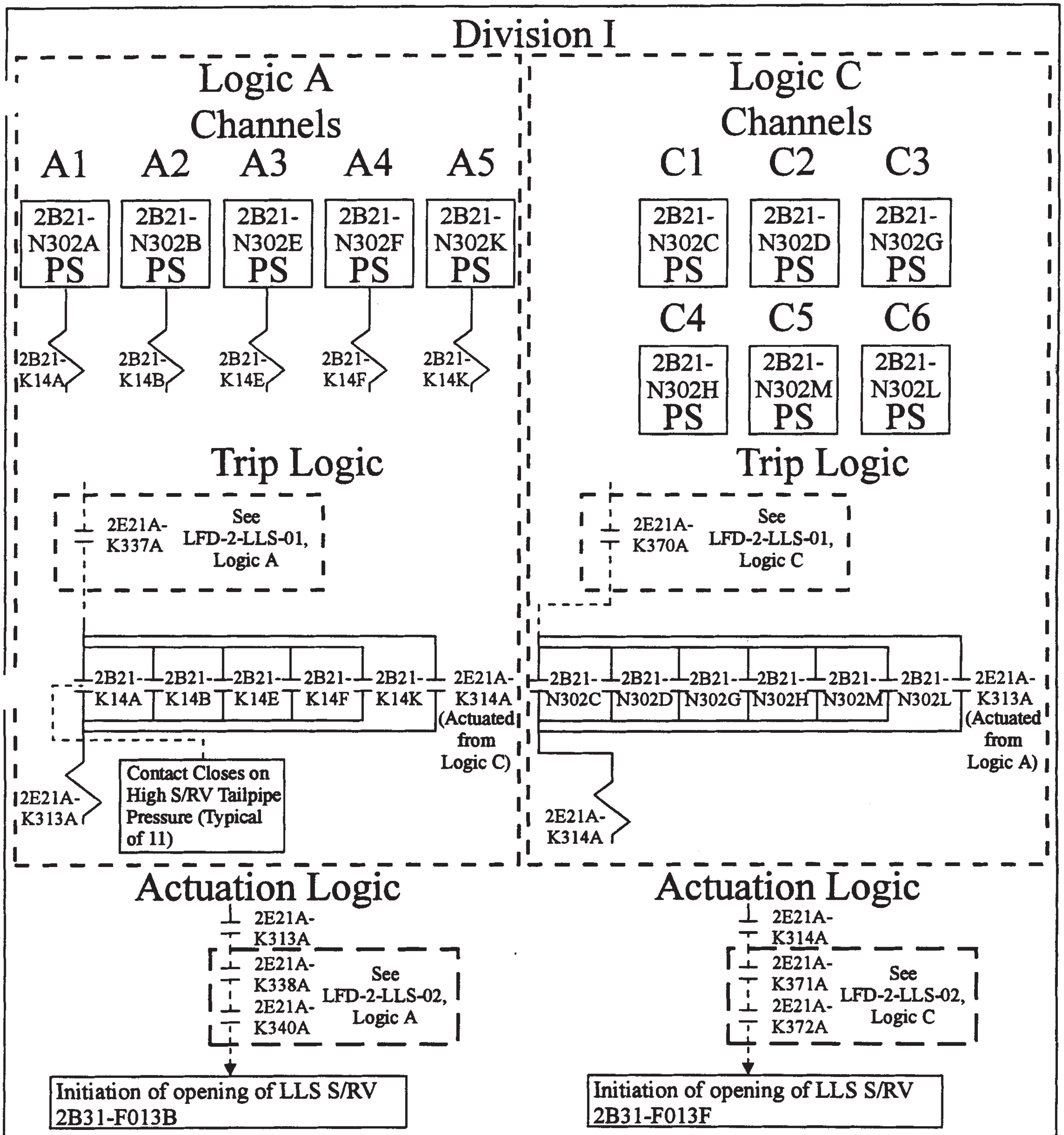
Elem. Ref.

H-24425 H-27403
H-24426 H-27473
H-24434

LFD-2-LLS-02
Sheet 2 of 2

TS 3.3.6.3-1, Item 2
Low-Low Set Instrumentation-
Low-Low Set
Pressure Setpoints

Rev. 0 12/3/94



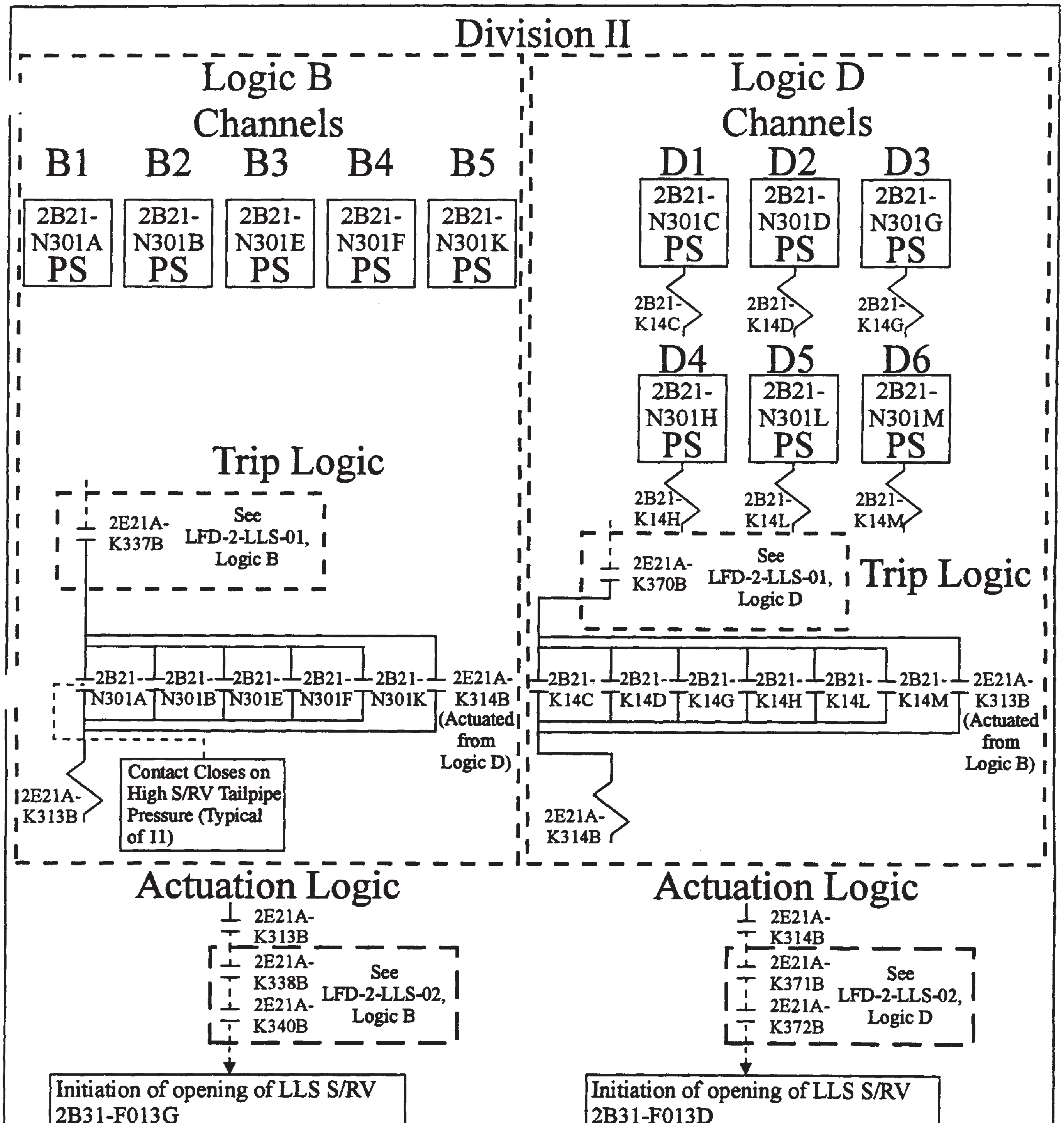
Minimum Channel Requirements for LLS S/RV Initiation Capability:

See Sheet 2 of 2.

Elem. Ref.
H-24433
H-27404
H-27472
H-27473

Prepared By: [signature]
Reviewed By: Royce Clark

LFD-2-LLS-03 Sheet 1 of 2
TS 3.3.6.3-1, Item 3 Low-Low Set Instrumentation - Tailpipe Pressure Switch
Rev. 0 12/3/94

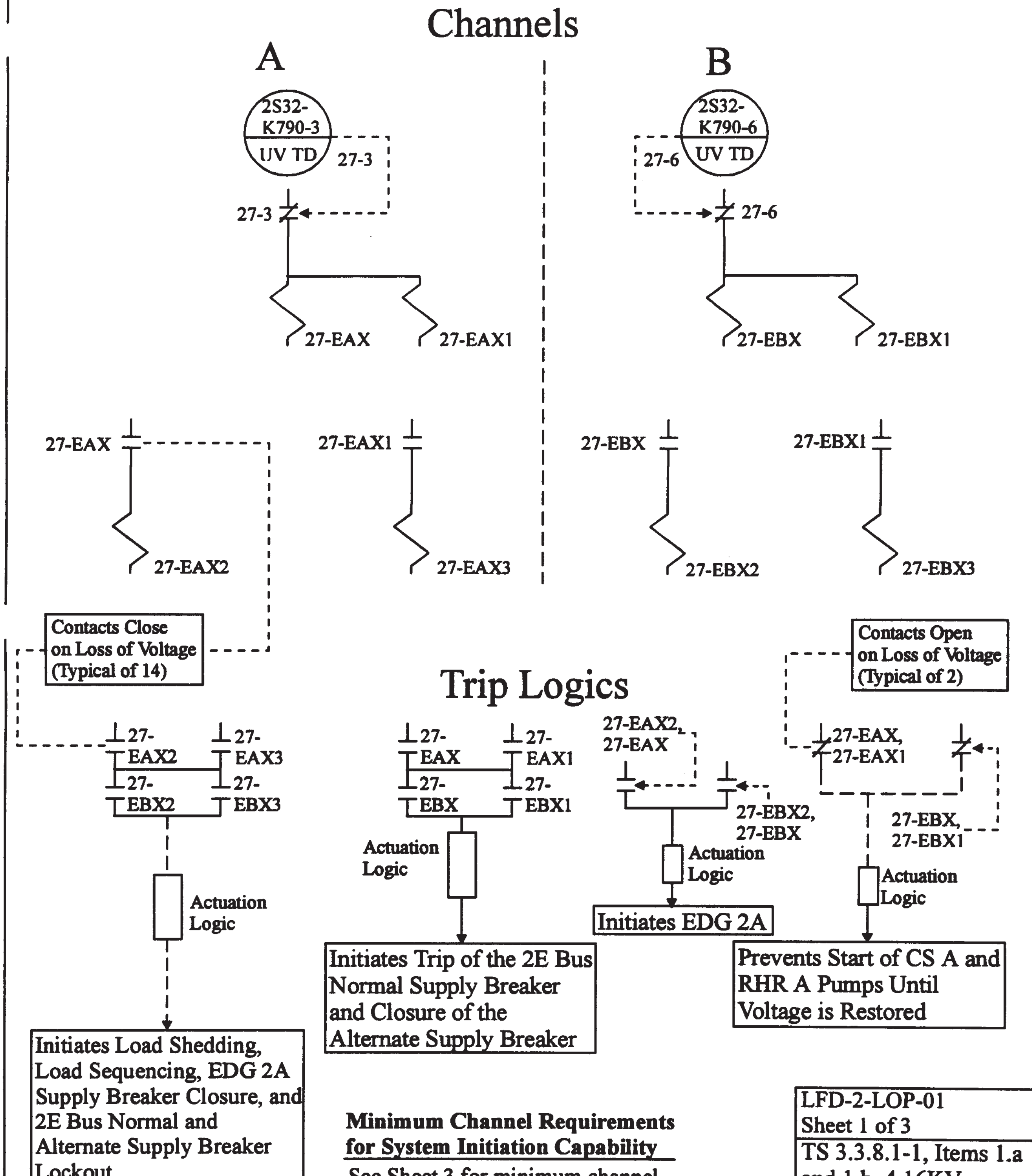


<u>Minimum Channel Requirements for LLS S/RV Initiation Capability:</u>

In order to maintain the capability to initiate a LLS S/RV, its associated tailpipe pressure switch Logic AND its associated Logic from LFD-2-LLS-01 AND LFD-2-LLS-02 must be operable. The tailpipe pressure switch Logic is operable if at least one pressure switch is operable, OR at least one pressure switch AND Reactor Steam Dome Pressure - High channel in the opposite Logic in the same Division are operable.

Elem. Ref.	LFD-2-LLS-03 Sheet 2 of 2
H-24434 H-27403 H-27404 H-27473	TS 3.3.6.3-1, Item 3 Low-Low Set Instrumentation - Tailpipe Pressure Switch
	Rev. 0 12/3/94

Trip System: 2E 4.16KV Bus



Minimum Channel Requirements for System Initiation Capability

See Sheet 3 for minimum channel requirements.

Elem. Ref.			
H-23670	H-23801	H-23804	H-27643
	H-23802	H-23805	H-27660
	H-23803	H-27638	H-27663

Prepared By: S. G. Burns

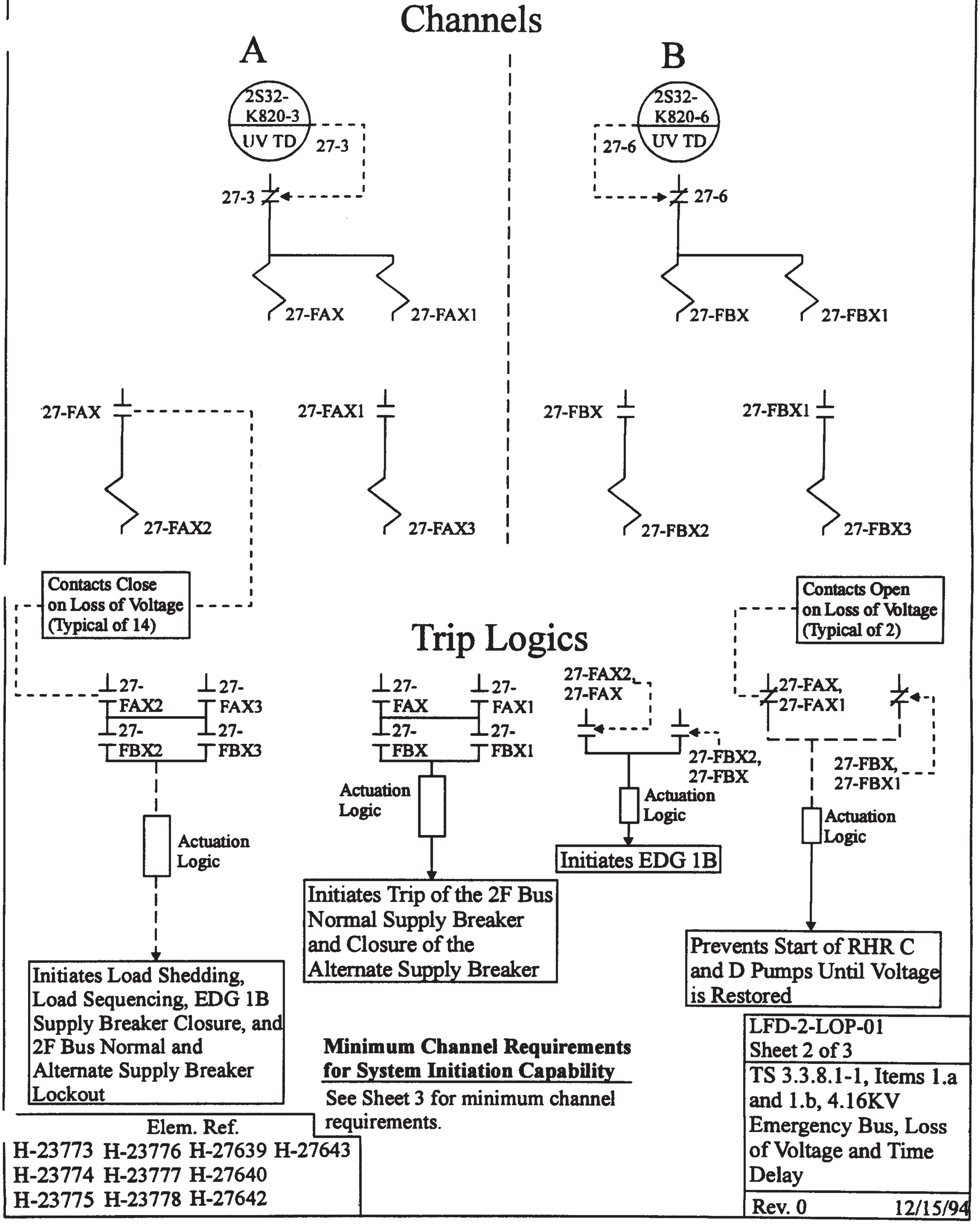
Reviewed By: Stephen W. Neal

LFD-2-LOP-01
Sheet 1 of 3

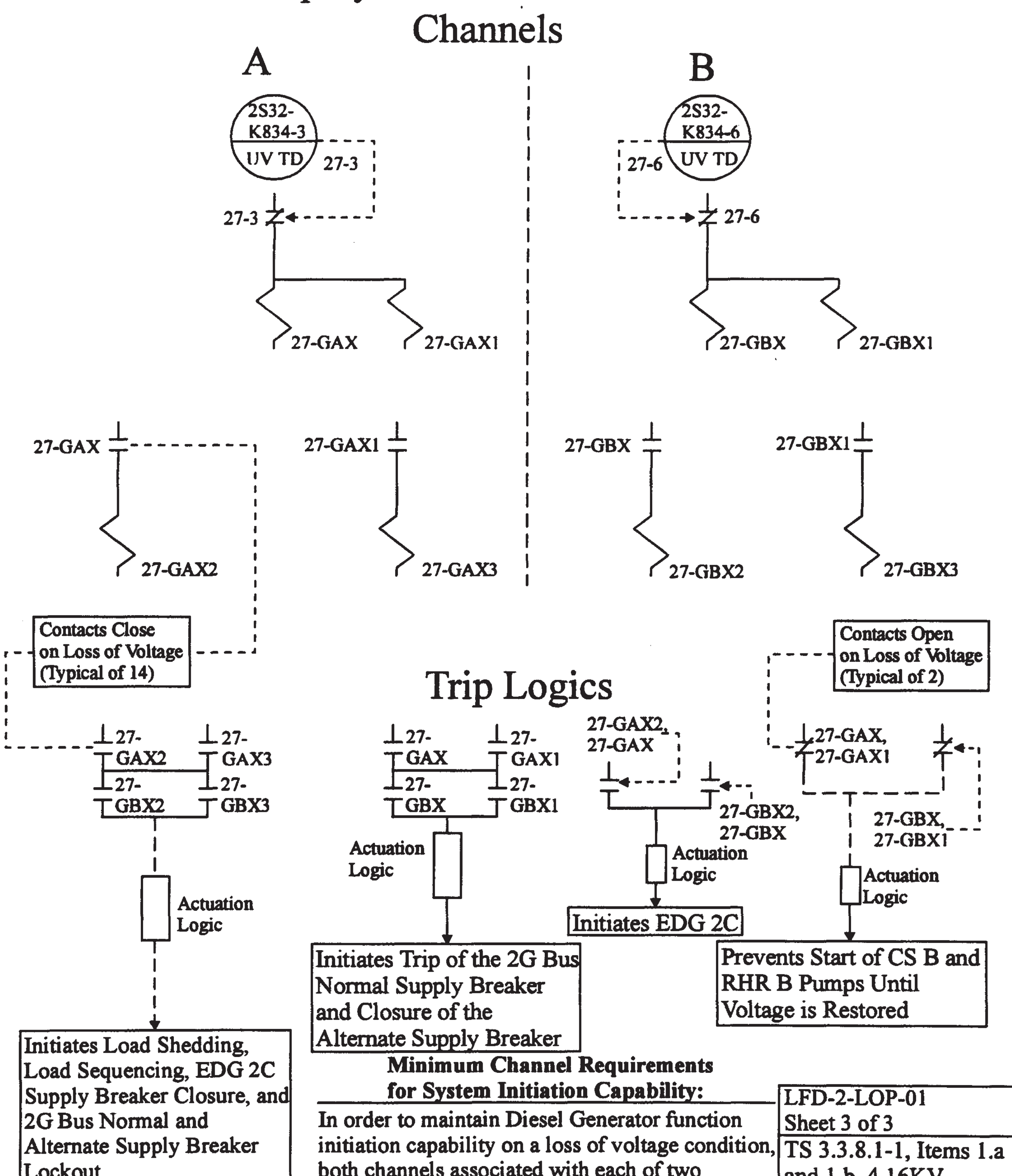
TS 3.3.8.1-1, Items 1.a and 1.b, 4.16KV Emergency Bus, Loss of Voltage and Time Delay

Rev. 0 12/15/94

Trip System: 2F 4.16KV Bus



Trip System: 2G 4.16KV Bus



Minimum Channel Requirements for System Initiation Capability:

In order to maintain Diesel Generator function initiation capability on a loss of voltage condition, both channels associated with each of two emergency busses are required to be operable.

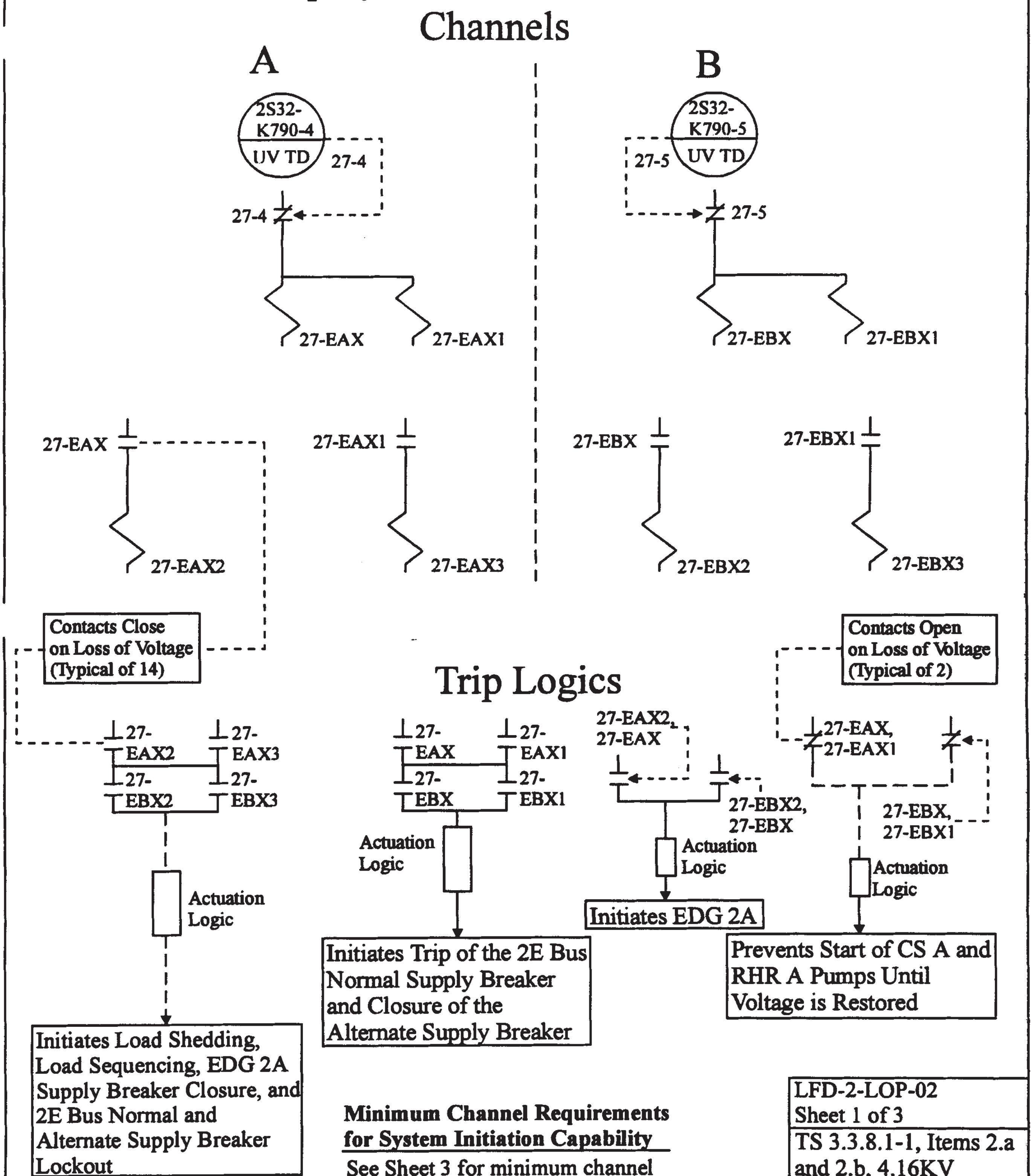
Elem. Ref.		
H-23811	H-23814	H-27641
H-23812	H-23815	H-27660
H-23813	H-27640	

LFD-2-LOP-01
Sheet 3 of 3

TS 3.3.8.1-1, Items 1.a and 1.b, 4.16KV Emergency Bus, Loss of Voltage and Time Delay

Rev. 0 12/15/94

Trip System: 2E 4.16KV Bus



Minimum Channel Requirements for System Initiation Capability

See Sheet 3 for minimum channel requirements.

Elem. Ref.

H-23670	H-23801	H-23804	H-27643
	H-23802	H-23805	H-27660
	H-23803	H-27638	H-27663

Prepared By: J. P. Bunn

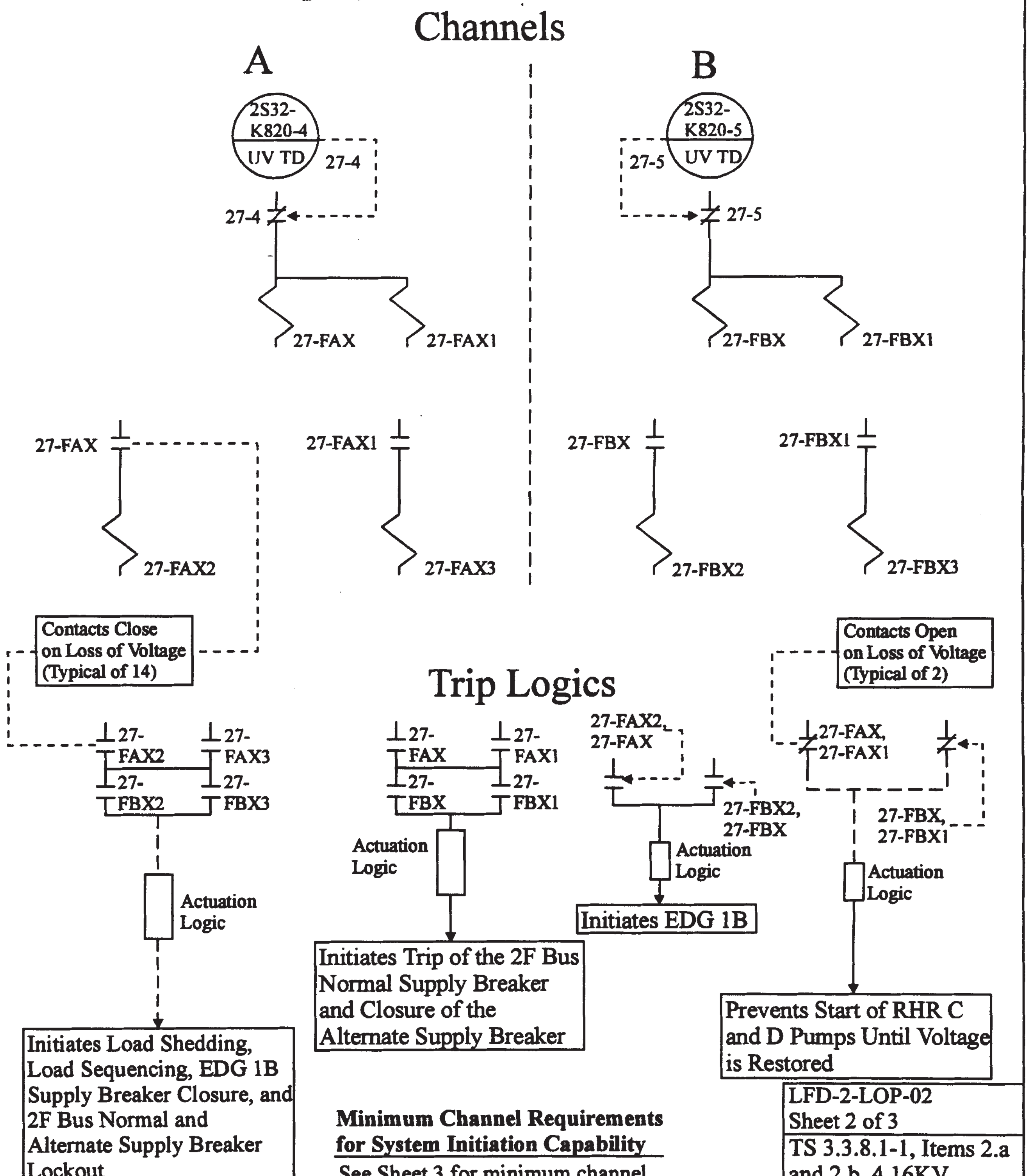
Reviewed By: [signature]

LFD-2-LOP-02
Sheet 1 of 3

TS 3.3.8.1-1, Items 2.a and 2.b, 4.16KV Emergency Bus, Degraded Voltage and Time Delay

Rev. 0 12/15/94

Trip System: 2F 4.16KV Bus



Minimum Channel Requirements for System Initiation Capability

See Sheet 3 for minimum channel requirements.

Elem. Ref.

H-23773	H-23776	H-27639	H-27643
H-23774	H-23777	H-27640	
H-23775	H-23778	H-27642	

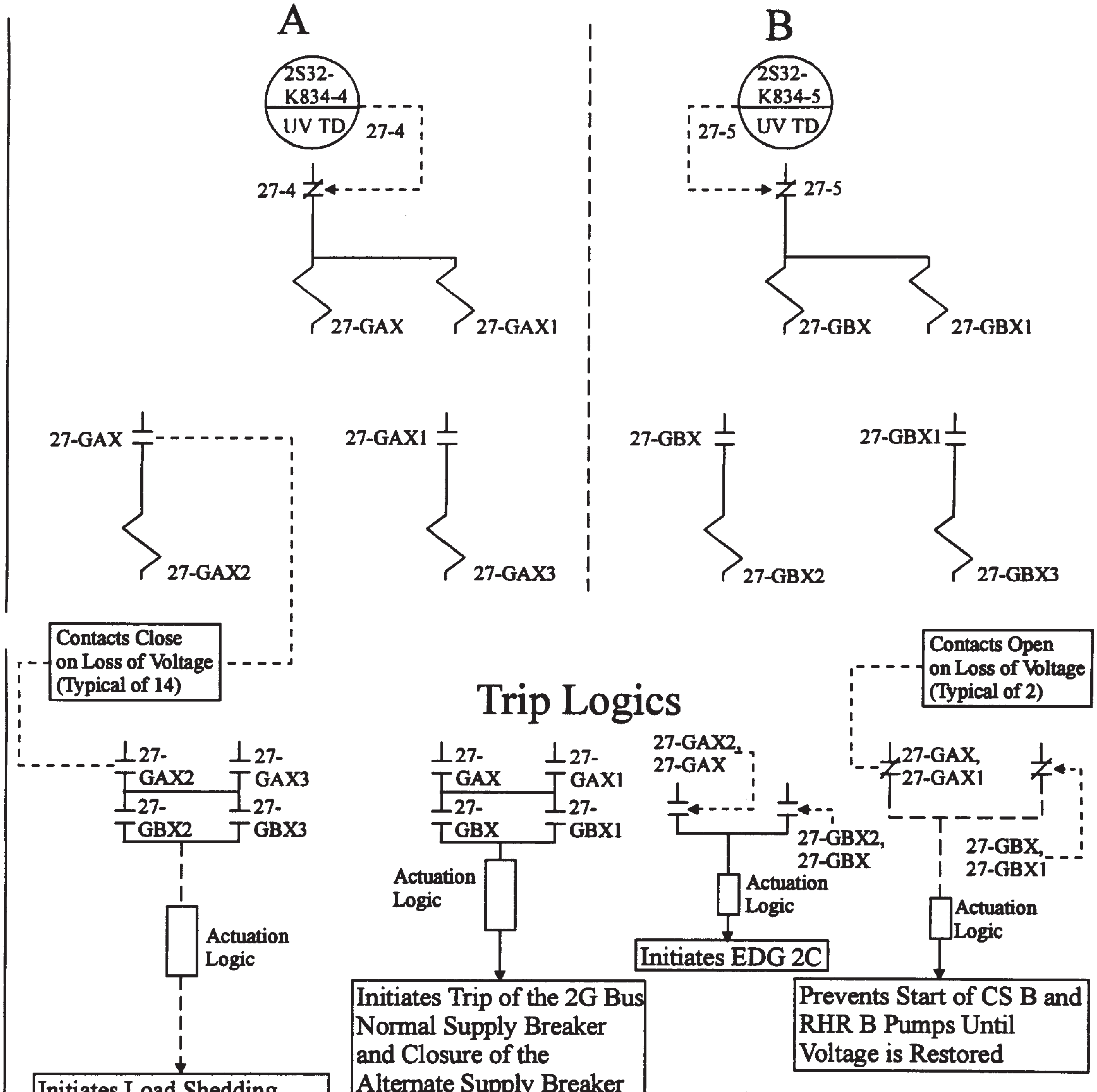
LFD-2-LOP-02
Sheet 2 of 3

TS 3.3.8.1-1, Items 2.a and 2.b, 4.16KV Emergency Bus, Degraded Voltage and Time Delay

Rev. 0 12/15/94

Trip System: 2G 4.16KV Bus

Channels



Initiates Load Shedding, Load Sequencing, EDG 2C Supply Breaker Closure, and 2G Bus Normal and Alternate Supply Breaker Lockout

Minimum Channel Requirements for System Initiation Capability:

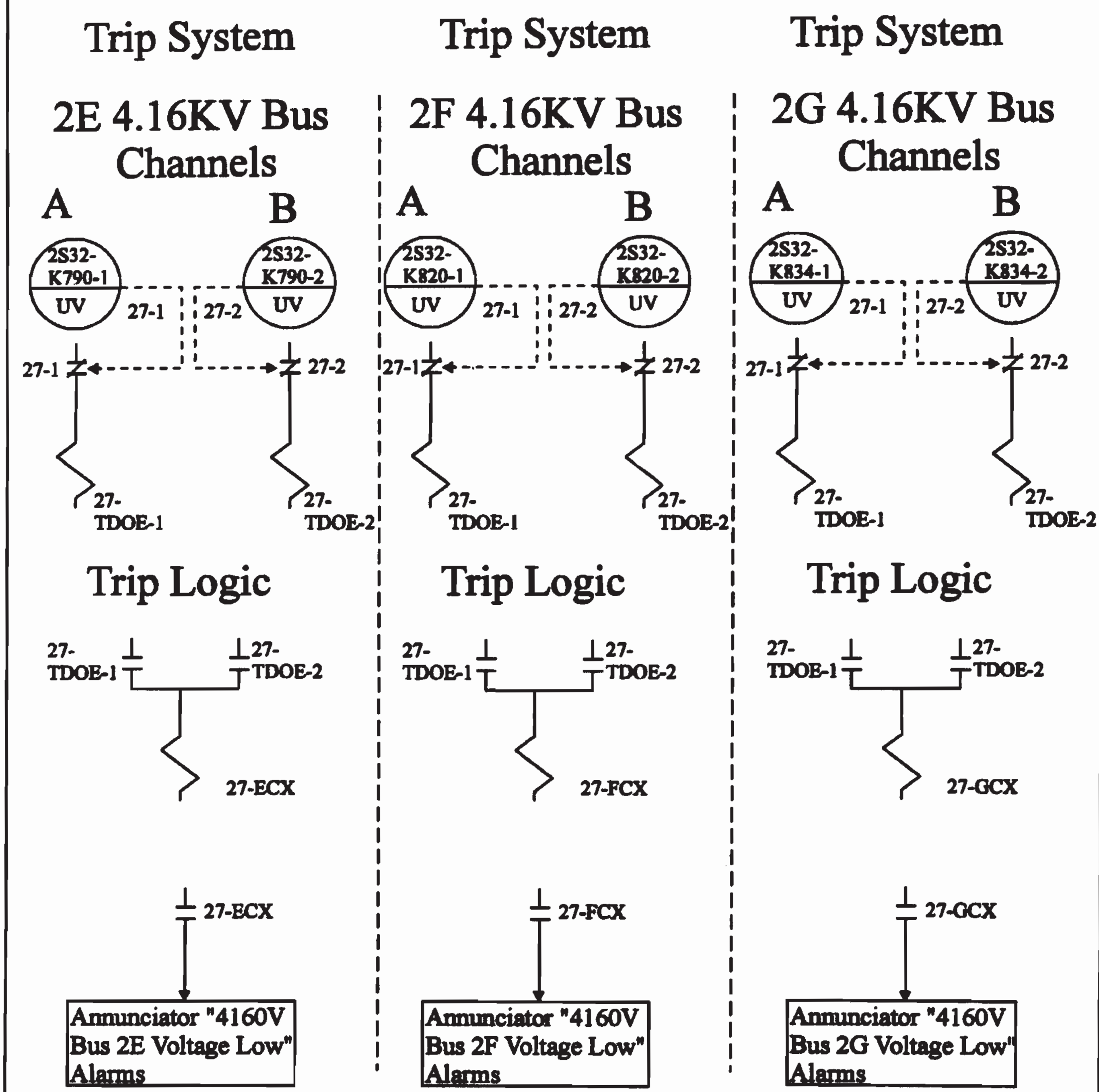
In order to maintain Diesel Generator function initiation capability on a degraded voltage condition, both channels associated with each of two emergency busses are required to be operable.

Elem. Ref.
H-23811 H-23814 H-27641
H-23812 H-23815 H-27660
H-23813 H-27640

LFD-2-LOP-02
Sheet 3 of 3

TS 3.3.8.1-1, Items 2.a and 2.b, 4.16KV Emergency Bus, Degraded Voltage and Time Delay

Rev. 0 12/15/94

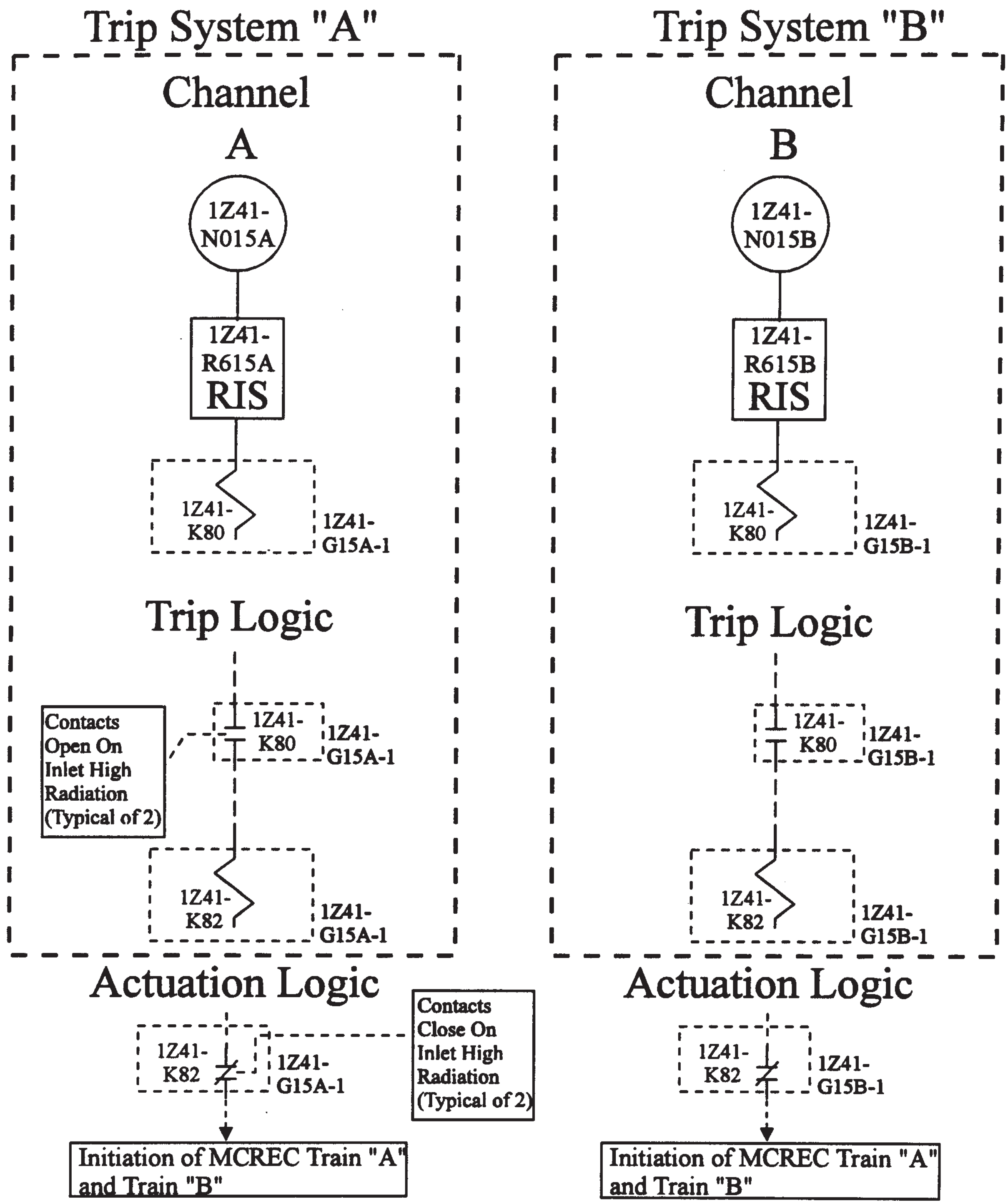


<u>Minimum Channel Requirements for System Initiation Capability</u>:
In order to maintain annunciation capability on a low voltage condition on the emergency busses, one channel including its associated time delay relays for each emergency bus must be operable.

LFD-2-LOP-03	
TS 3.3.8.1-1, Items 3.a and 3.b, 4.16KV Emergency Bus, Degraded Voltage Annunciation and Time Delay	
TRM Rev. 64	

Elem. Ref.
H-23777
H-23805
H-23815

Prepared By: [signature]
Reviewed By: [signature]



Minimum Channel Requirements for System Initiation Capability:

In order to maintain MCREC System initiation capability for the pressurization mode on Control Room air inlet high radiation, at least one channel is required to be operable or maintained in the tripped condition.

Elem. Ref.	
H-17069	H-17073
H-17070	H-17121
H-17071	H-17142

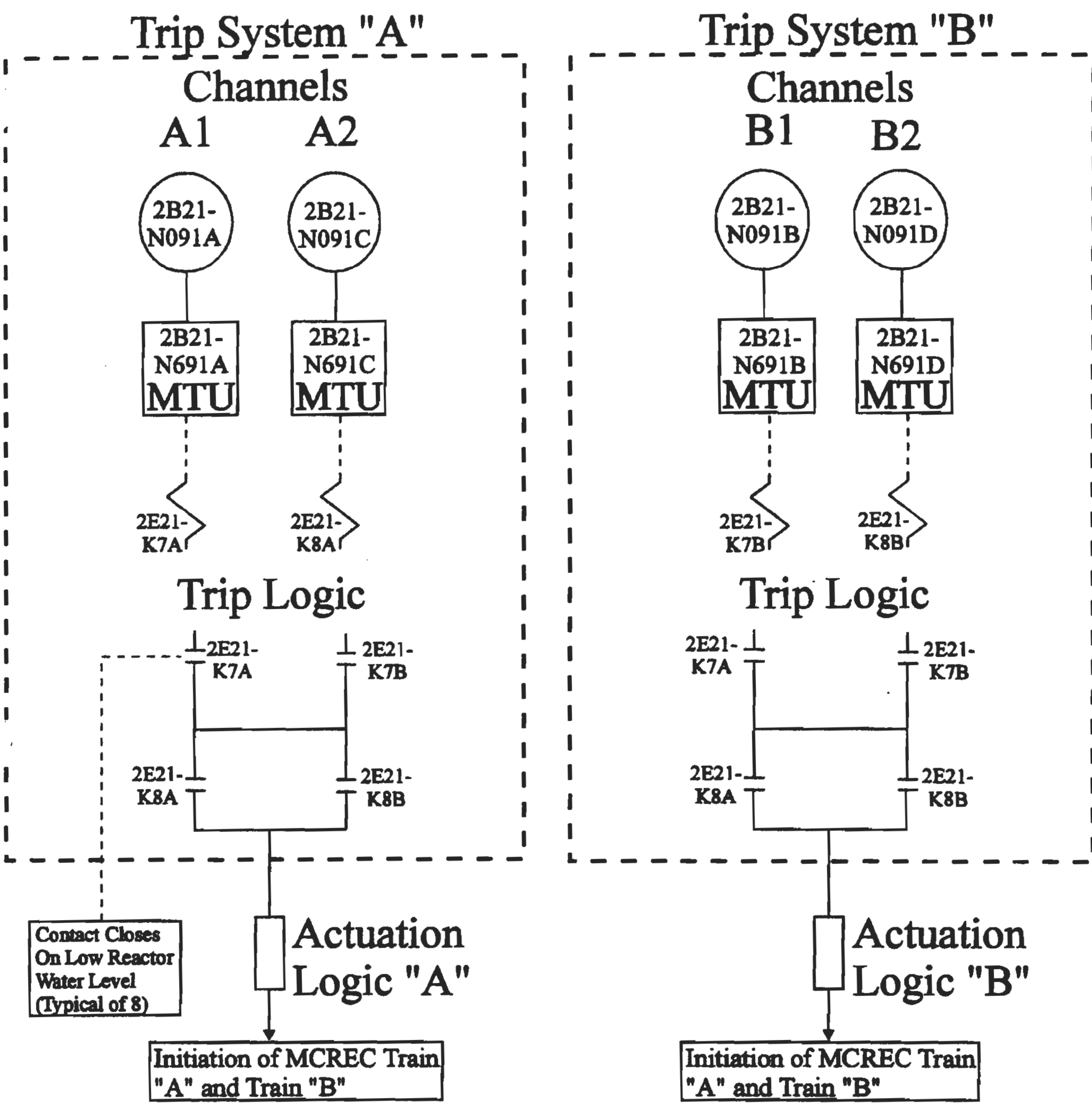
Prepared By: [signature]

Reviewed By: [signature]

LFD-2-MCREC-01

TS 3.3.7.1
MCREC System
Initiation Control Room
Air Inlet Radiation - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability:

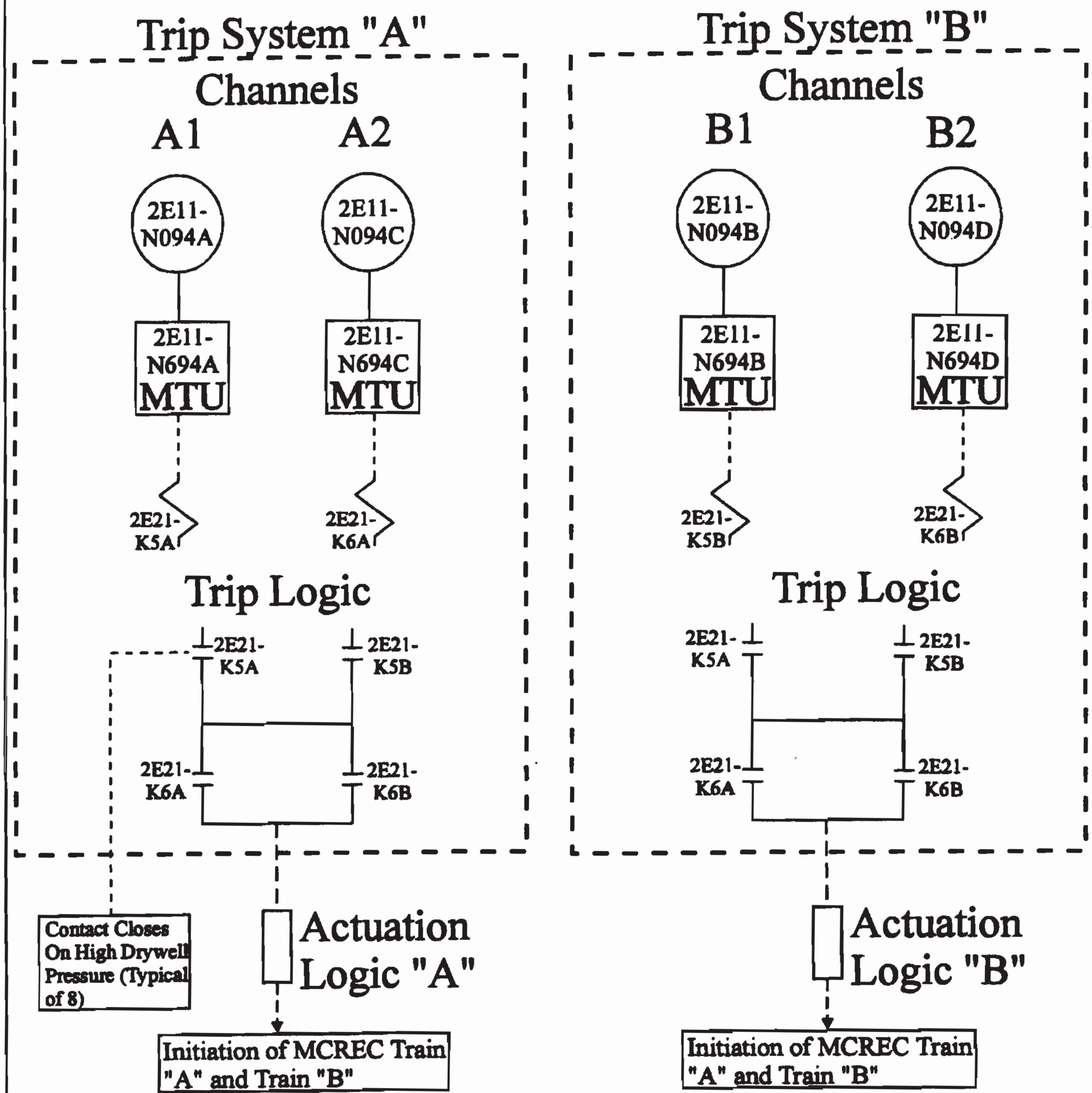
In order to maintain MCREC System initiation capability on Reactor Water Level - Low Low Low (Level 1), channels in one of the following combinations must be either functional or maintained in the tripped condition.

A1 and A2
A1 and B2
B1 and A2
B1 and B2

Elem. Ref.	
H-24423	H-24432
H-24426	H-27660
H-24429	H-17121

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-MCREC-02
TRM T3.3.7-1, Item 1
MCREC System Instrumentation, Reactor Vessel Water Level - Low Low Low, Level 1
TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain MCREC System initiation capability on high Drywell pressure, channels in one of the following combinations must be either functional or maintained in the tripped condition.

A1 and A2

A1 and B2

B1 and A2

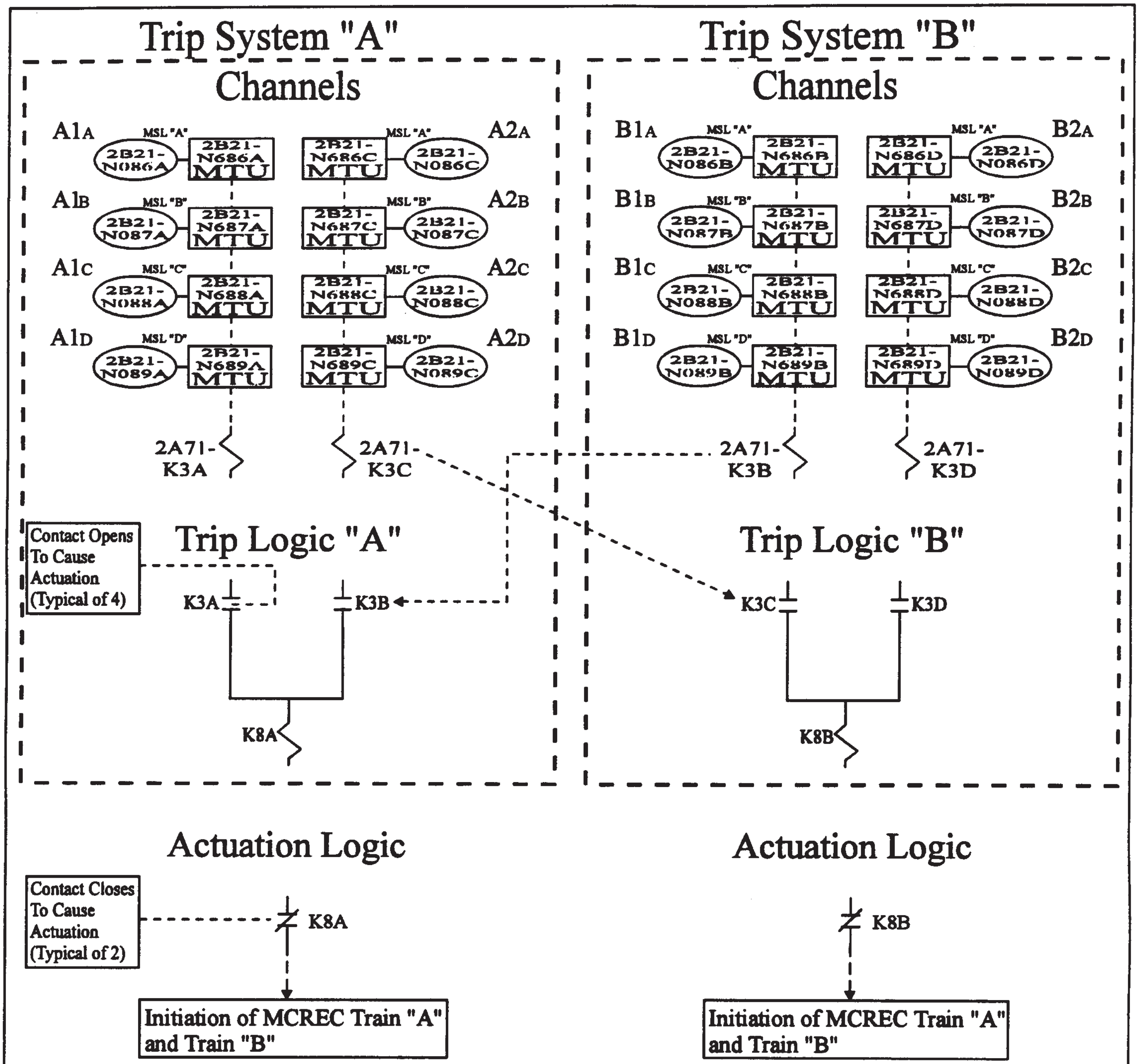
B1 and B2

Elem. Ref.
H-24427
H-24430
H-27660
H-17121

Prepared By:

Reviewed By:

LFD-2-MCREC-03
TRM T3.3.7-1, Item 2 MCREC System Instrumentation, Drywell Pressure-High
TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain MCREC System initiation capability on Main Steam Line high flow, channels in one of the following combinations must be either operable or maintained in the tripped condition.

One A1 and One B1 Channel for Each Main Steam Line
OR
One A2 and One B2 Channel for Each Main Steam Line

Elem. References	
H-24409	H-27455
H-24412	H-27456
H-24415	H-27463
H-24418	H-17121

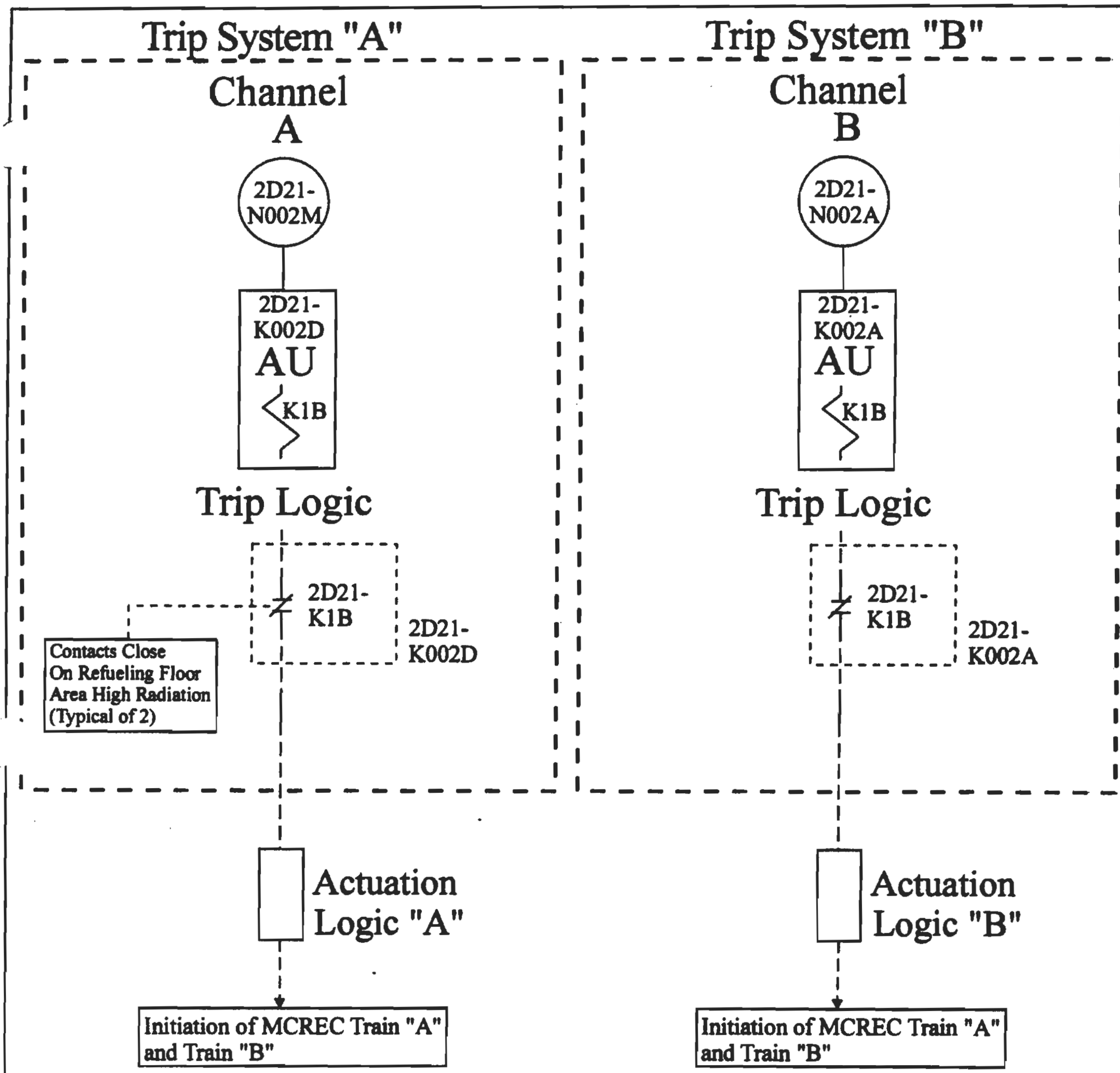
Prepared By: S. A. Bannon

Reviewed By: [signature]

LFD-2-MCREC-04

TRM T3.3.7-1, Item 3
MCREC System Instrumentation, Main Steam Line Flow - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability:

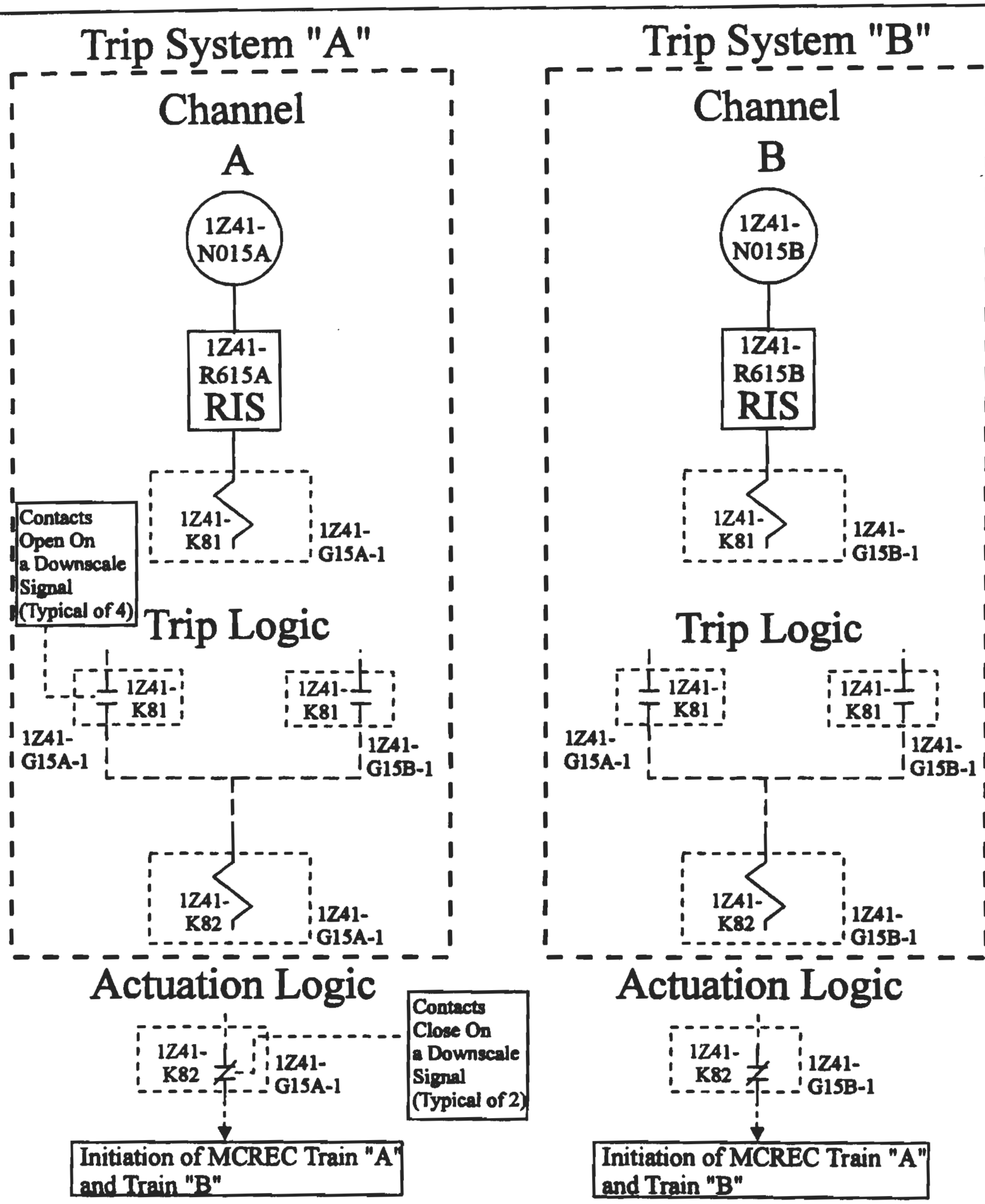
In order to maitain MCREC System intiation capability on Unit 2 Refueling Floor area high radiation, either channel A or channel B must be functional or maintained in the tripped condition.

Elem. Ref.
H-27805
H-27806
H-17121

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-MCREC-05
TRM T3.3.7-1, Item 4
MCREC System Instrumentation, Refueling Floor Area Radiation - High

TRM Rev. 62



<u>Minimum Channel Requirements for System Initiation Capability:</u>

In order to maintain MCREC System initiation capability for the pressurization mode on a Main Control Room Intake Radiation Monitor downscale signal, each channel must be functional or maintained in the tripped condition.

Elem. Ref.	
H-17121	
H-17142	

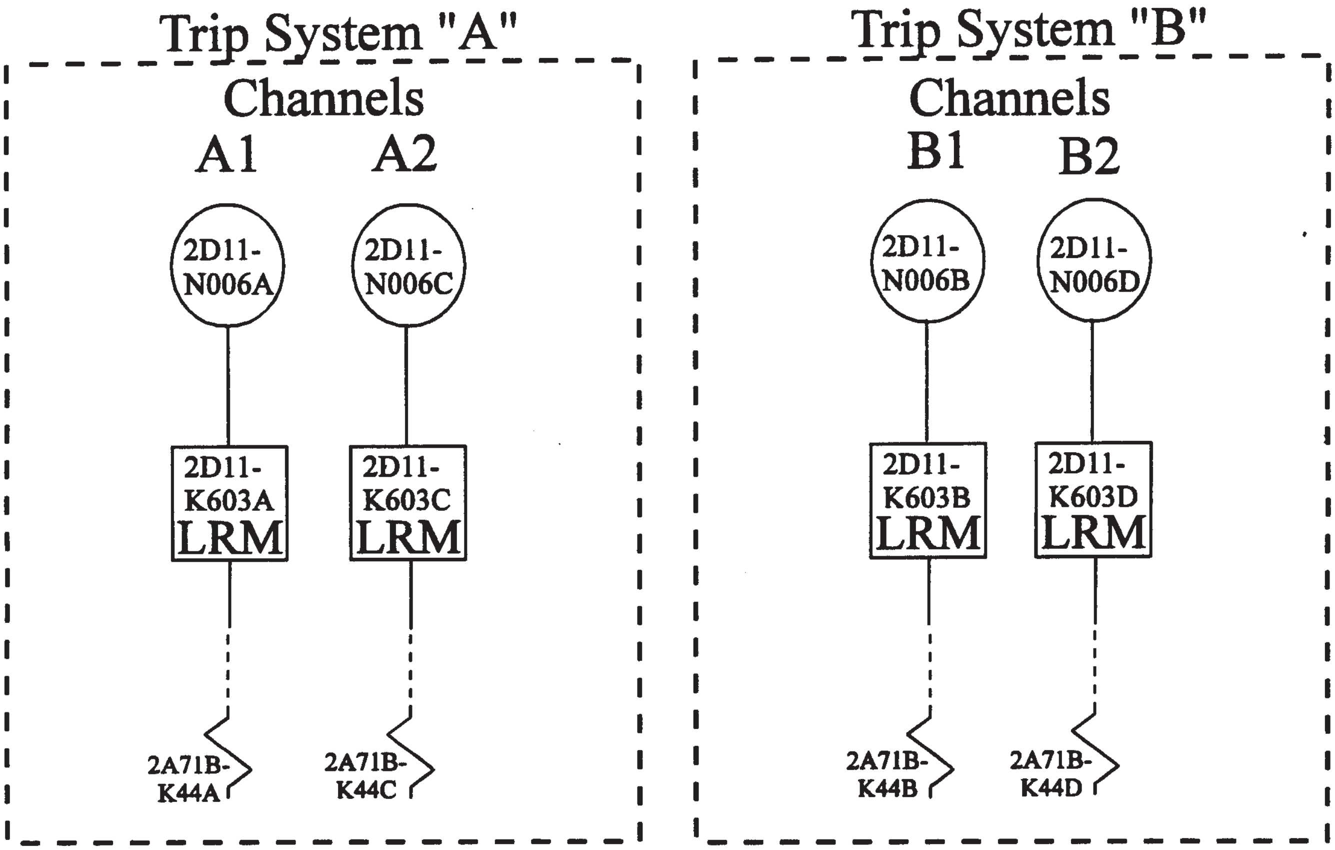
Prepared By: RLC

Reviewed By: [signature]

LFD-2-MCREC-06

TRM T3.3.7-1, Item 5
MCREC System Instrumentation, Main Control Room Intake Radiation - Downscale

TRM Rev. 62



Refer to sheets 2 and 3 for the trip logic, actuation logic and the minimum channels required to maintain functional capability regarding isolation of the Reactor Water Sample line and the Drywell-to-Torus Differential Pressure system and tripping of the Steam Packing Exhausters and the Mechanical Vacuum Pump. All functions must be considered in determining the channels minimum requirements.

Elem. Ref.

H-27455	H-27599	H-27625
H-27456	H-27600	H-27734
H-27457	H-27610	H-27789
H-27459	H-27611	H-27791

Prepared By: S. F. Brunson

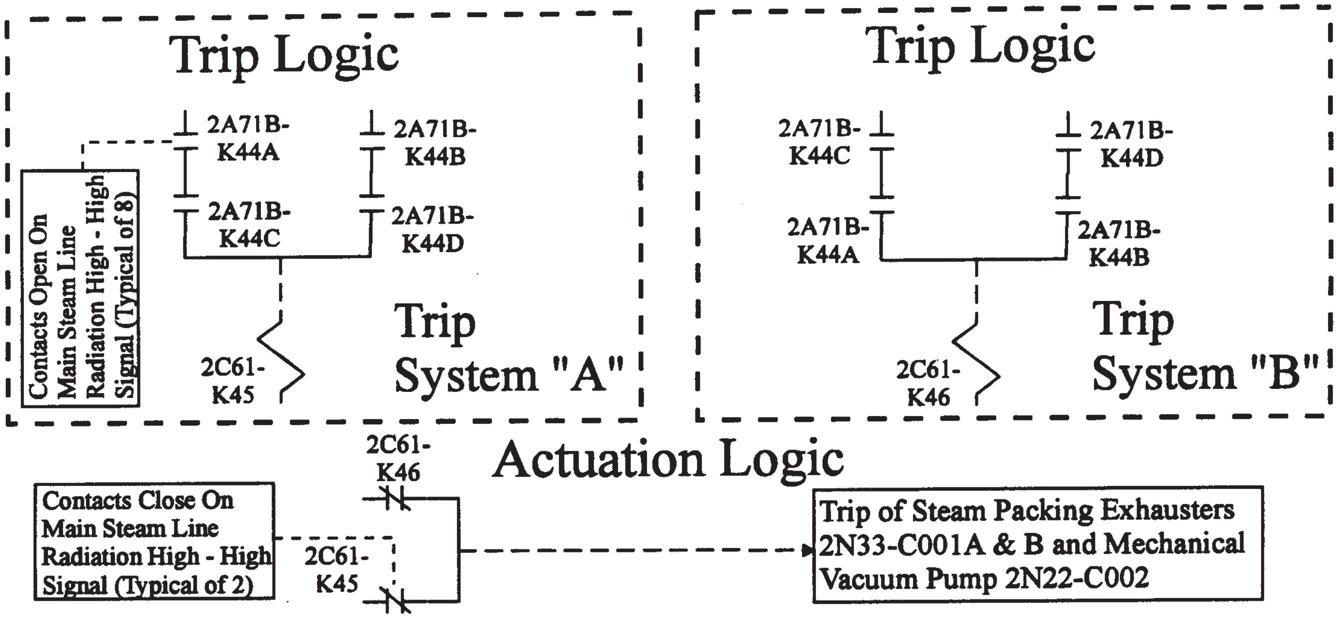
Reviewed By: [signature]

LFD-2-MSLR-01
Sheet 1 of 3

TRM T3.3.11
Main Steam Line
Radiation High - High

Rev. 0 3/30/95

Trip of Steam Packing Exhausters and Mechanical Vacuum Pump

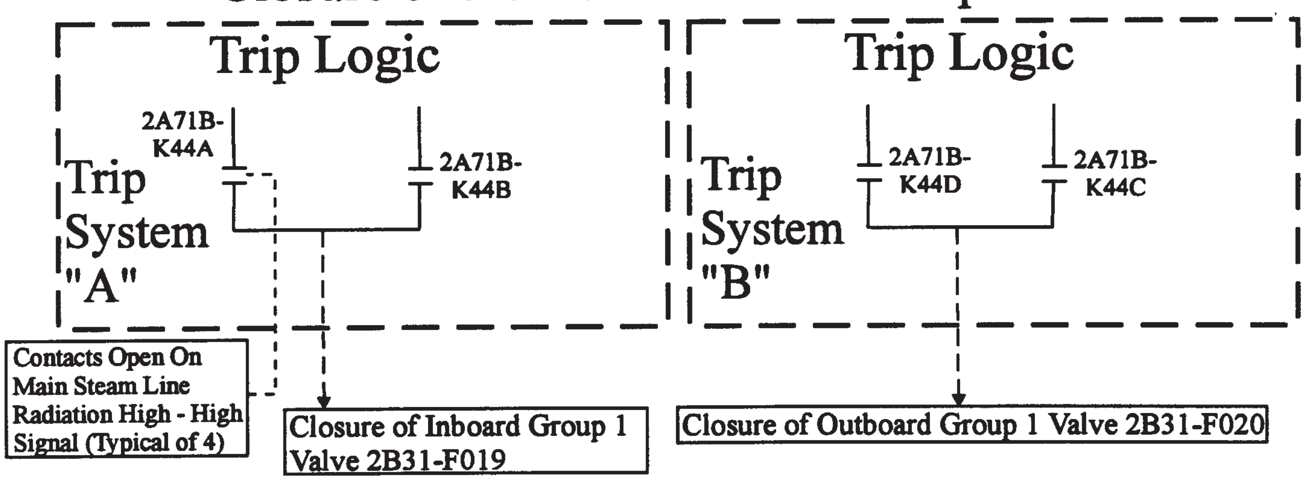


Minimum Channel Requirements for System Initiation Capability:

In order to maintain trip capability of the Steam Packing Exhausters and the Mechanical Vacuum Pump on a Main Steam Line Radiation high - high condition, channels in one of the following combinations must either be operable or maintained in the tripped condition.

A1or A2
AND
B1or B2

Closure of the Reactor Water Sample Valves



Minimum Channel Requirements for System Isolation Capability:

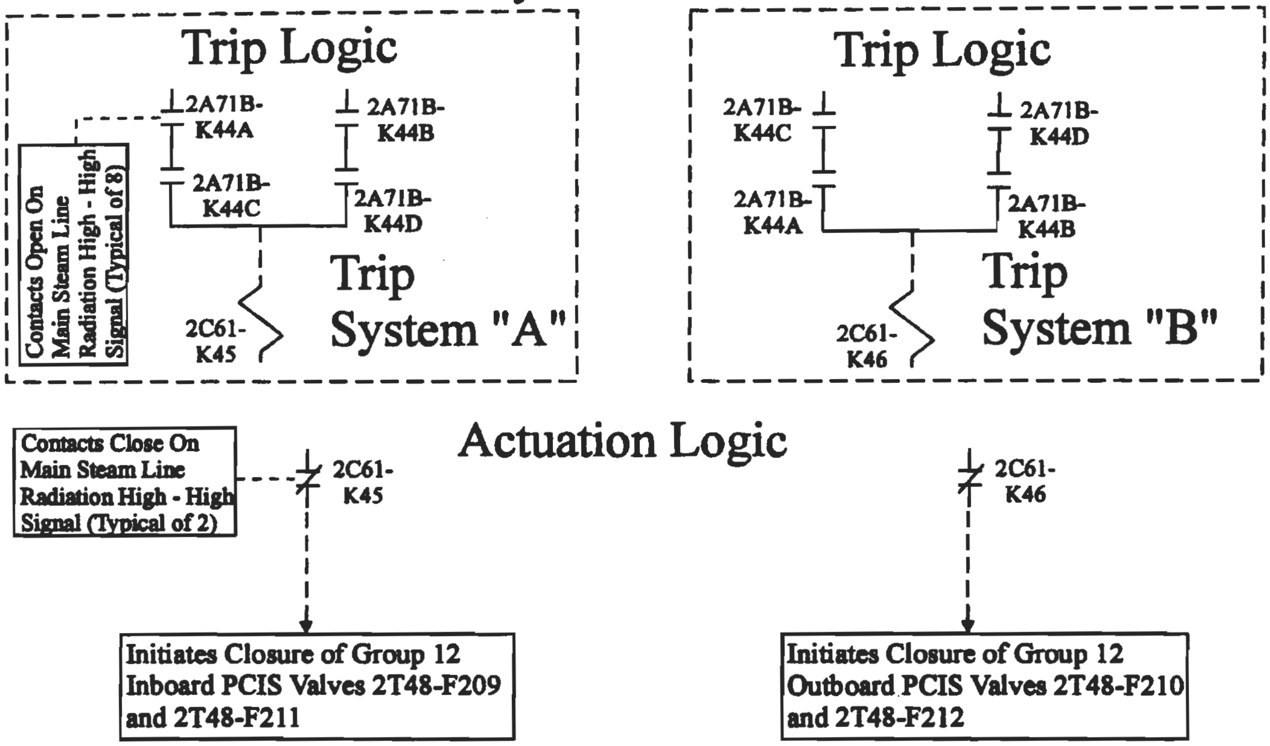
In order to maintain isolation capability of the Reactor Water Sample line on a Main Steam Line Radiation high - high condition, channels in one of the following combinations must either be operable or maintained in the tripped condition.

A1and B1
OR
A2 and B2

LFD-2-MSLR-01 Sheet 2 of 3	
TS T3.3.11 Main Steam Line Radiation High - High	
Rev. 0	3/30/95

Elem. Ref.: See sheet 1.

Closure of Torus-to-Drywell Differential Pressure System Isolation Valves

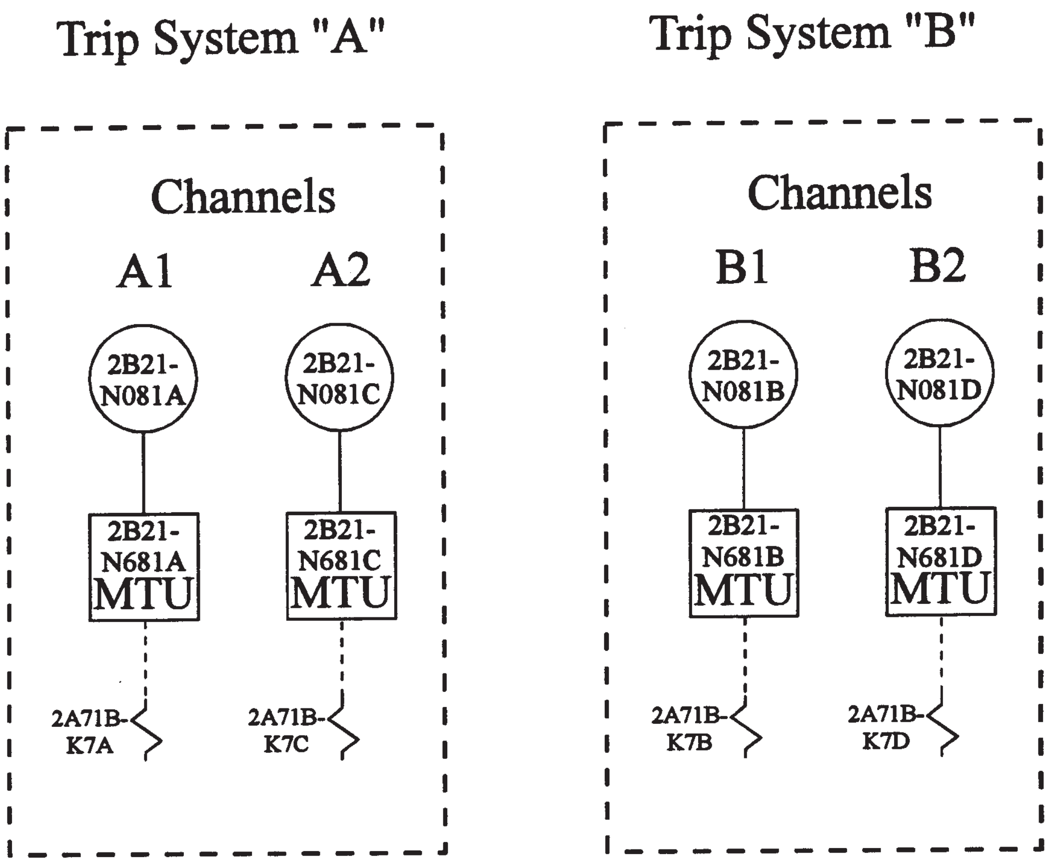


Minimum Channel Requirements for System Isolation Capability:

In order to maintain isolation capability of the Drywell-to-Torus Differential Pressure System on a Main Steam Line Radiation high - high condition, channels in one of the following combinations must either be functional or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.: See sheet 1.	
Prepared By:	LFD-2-MSLR-01 Sheet 3 of 3
Reviewed By:	TRM T3.3.11 Main Steam Line Radiation High - High
	TRM REV. 62



Minimum Channel Requirements for System Isolation Capability:

See Sheet 2 of 2.

Elem. Ref.	
H-24409	H-27457
H-24412	H-27458
H-24415	H-27459
H-24418	H-27460
H-27455	H-27461
H-27456	

Prepared By: [signature]

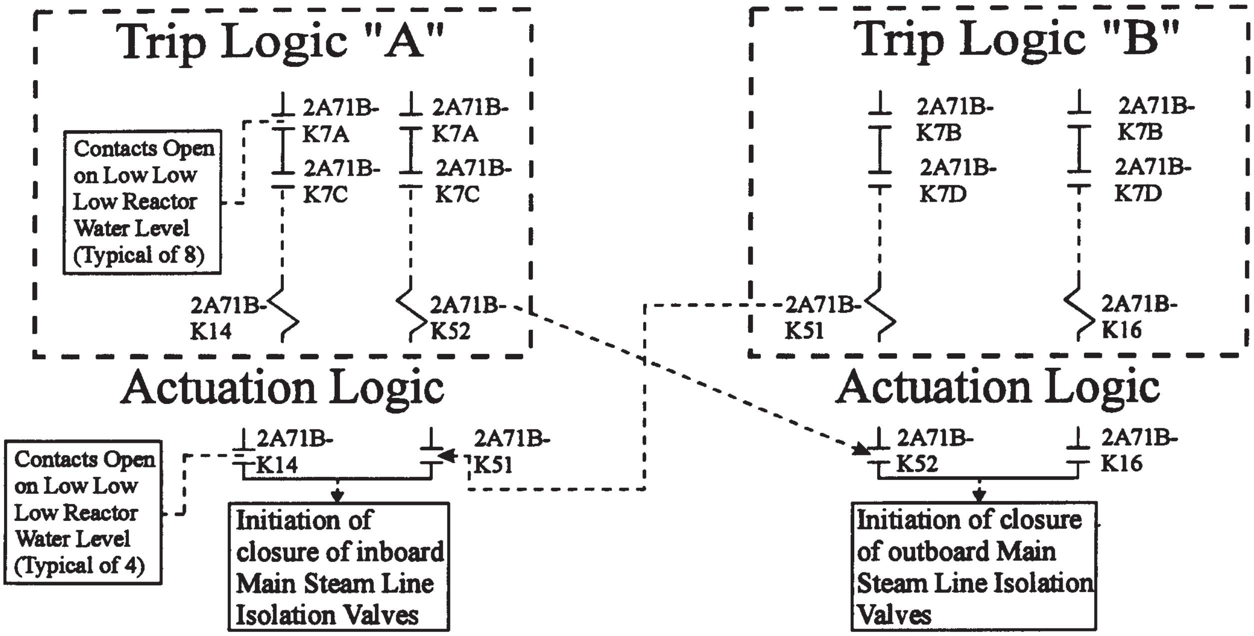
Reviewed By: Royce Clark

LFD-2-PCIS-01
Sheet 1 of 2

TS 3.3.6.1-1, Item 1.a
Main Steam Line Isolation - Reactor Vessel Water Level - Low Low Low, Level 1

Rev. 0 1/16/95

Main Steam Line Isolation Valve Isolation Function

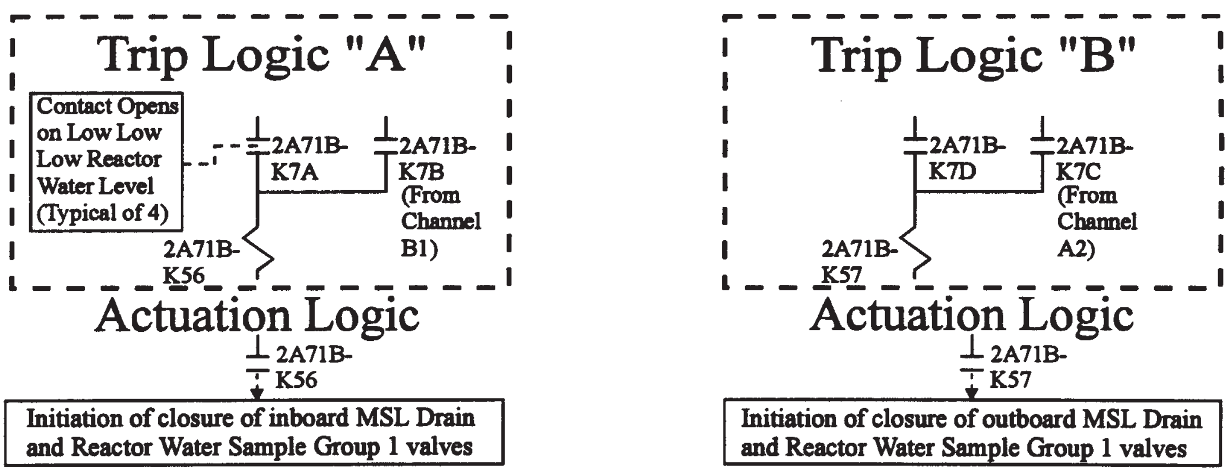


Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam lines on low low low reactor vessel water level, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Drain Line and Reactor Water Sample Line Valve Isolation Function



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam line drain and reactor water sample lines on low low low reactor vessel water level, channels in one of the following combinations must be either operable or maintained in the tripped condition.

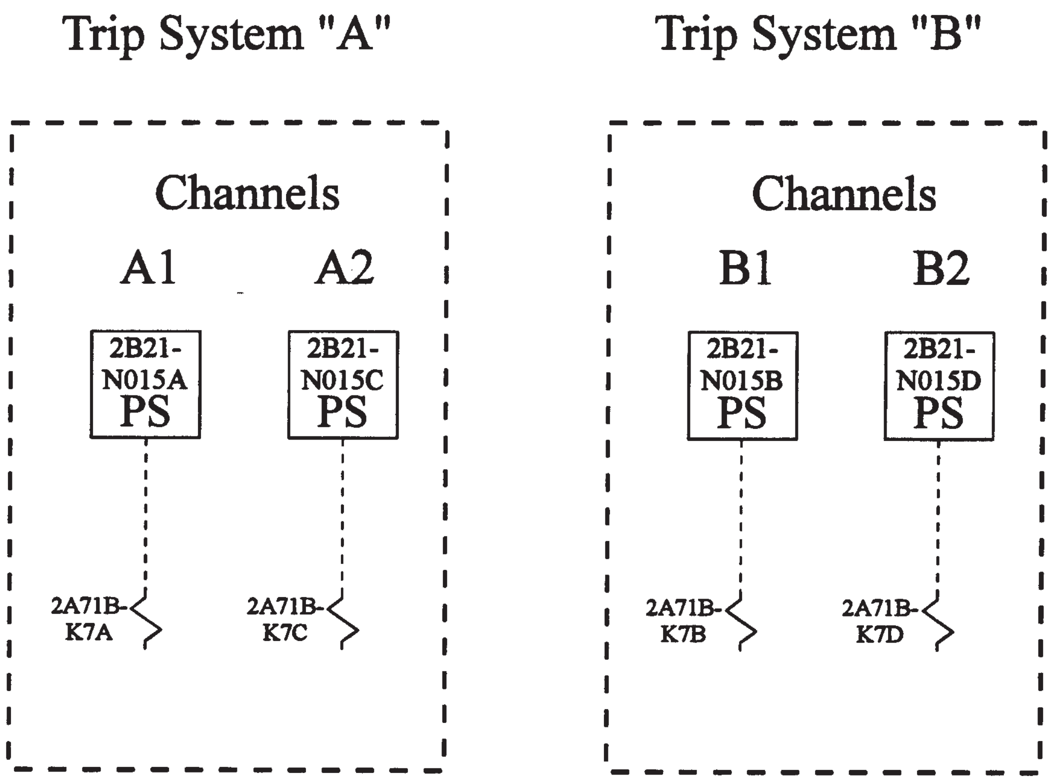
A1 and B1
OR
A2 and B2

Elem. Ref.	
H-24409	H-27457
H-24412	H-27458
H-24415	H-27459
H-24418	H-27460
H-27455	H-27461
H-27456	

LFD-2-PCIS-01
Sheet 2 of 2

TS 3.3.6.1-1, Item 1.a
Main Steam Line Isolation - Reactor Vessel Water Level - Low Low Low, Level 1

Rev. 0 1/16/95



<u>Minimum Channel Requirements for System Isolation Capability:</u>

See Sheet 2 of 2.

Elem. Ref.

H-27455 H-27459
H-27456 H-27460
H-27457 H-27461
H-27458

Prepared By:

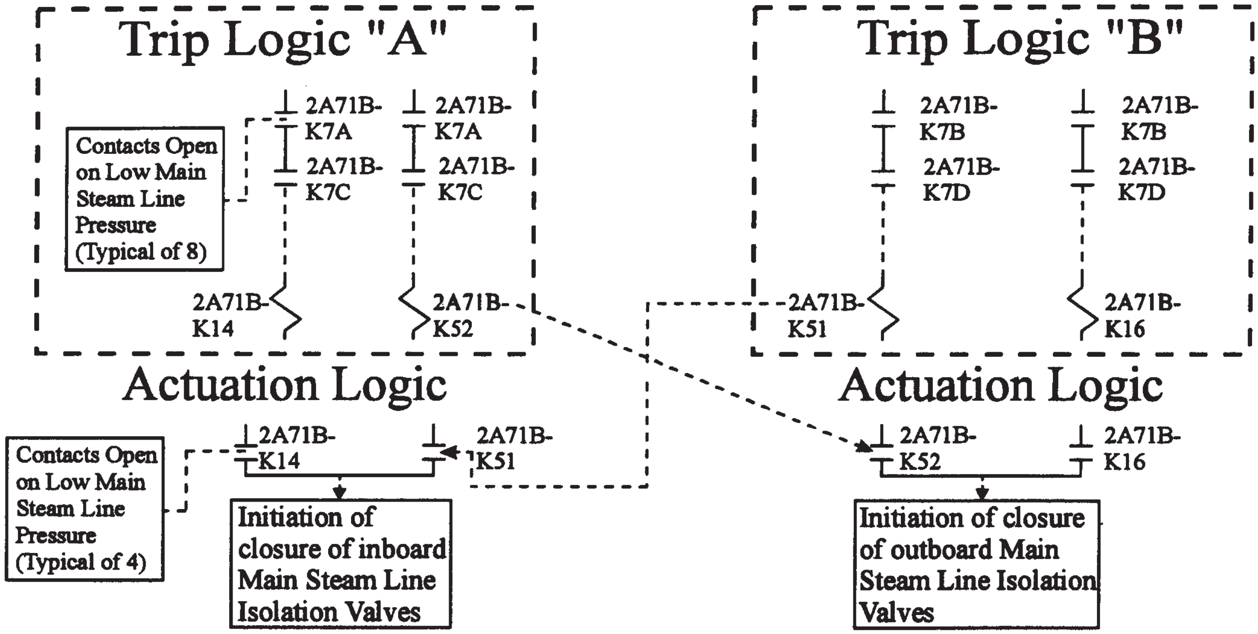
Reviewed By: Royce Clark

LFD-2-PCIS-02
Sheet 1 of 2

TS 3.3.6.1-1, Item 1.b
Main Steam Line Isolation -
Main Steam Line
Pressure - Low

Rev. 0 1/16/95

Main Steam Line Isolation Valve Isolation Function

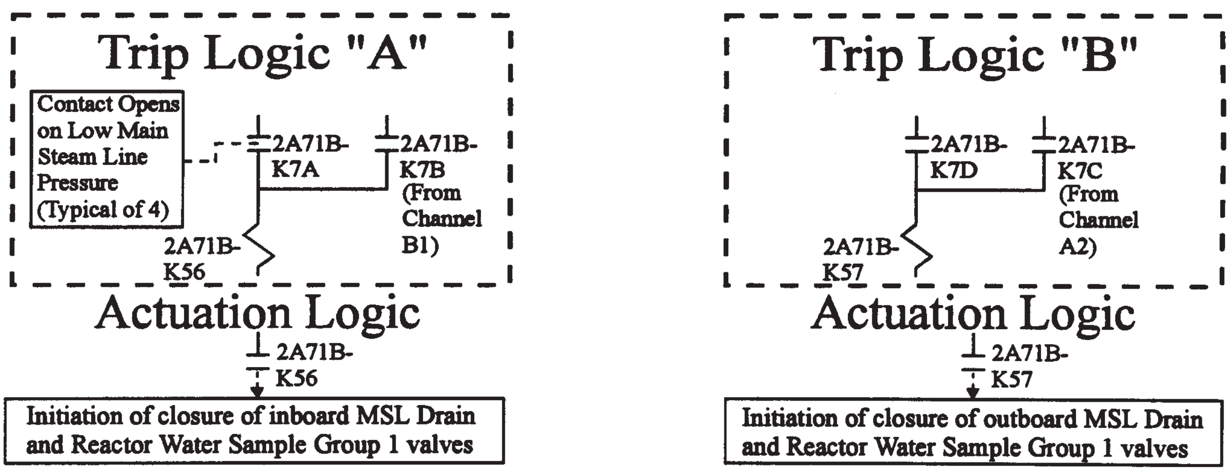


Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam lines on low main steam line pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Drain Line and Reactor Water Sample Line Valve Isolation Function



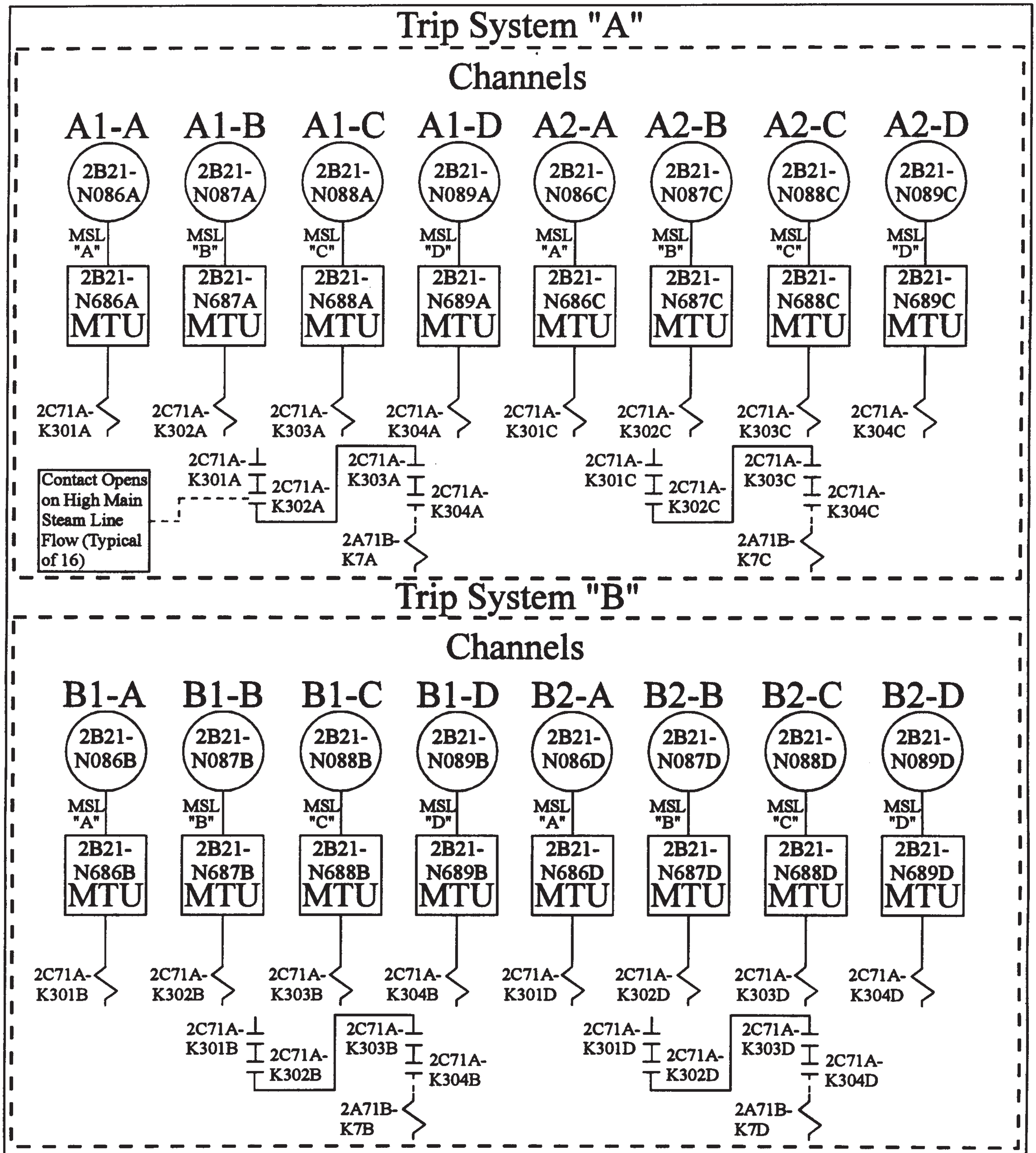
Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam line drain and reactor water sample lines on low main steam line pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

Elem. Ref.	
H-27455	H-27459
H-27456	H-27460
H-27457	H-27461
H-27458	

LFD-2-PCIS-02
Sheet 2 of 2
TS 3.3.6.1-1, Item 1.b
Main Steam Line Isolation - Main Steam Line Pressure - Low
Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

See Sheet 2 of 2.

Elem. Ref.	
H-24409	H-27457
H-24412	H-27458
H-24415	H-27459
H-24418	H-27460
H-27455	H-27461
H-27456	

Prepared By: [signature]

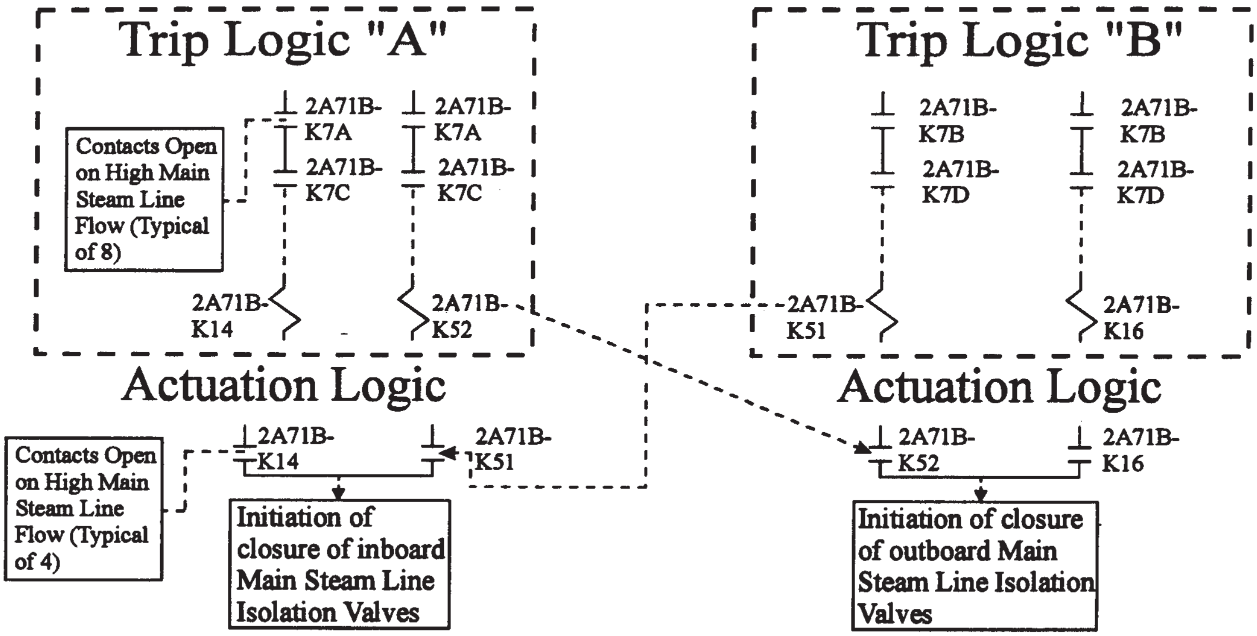
Reviewed By: Royce Clark

LFD-2-PCIS-03
Sheet 1 of 2

TS 3.3.6.1-1, Item 1.c
Main Steam Line Isolation - Main Steam Line Flow - High

Rev. 0 1/16/95

Main Steam Line Isolation Valve Isolation Function

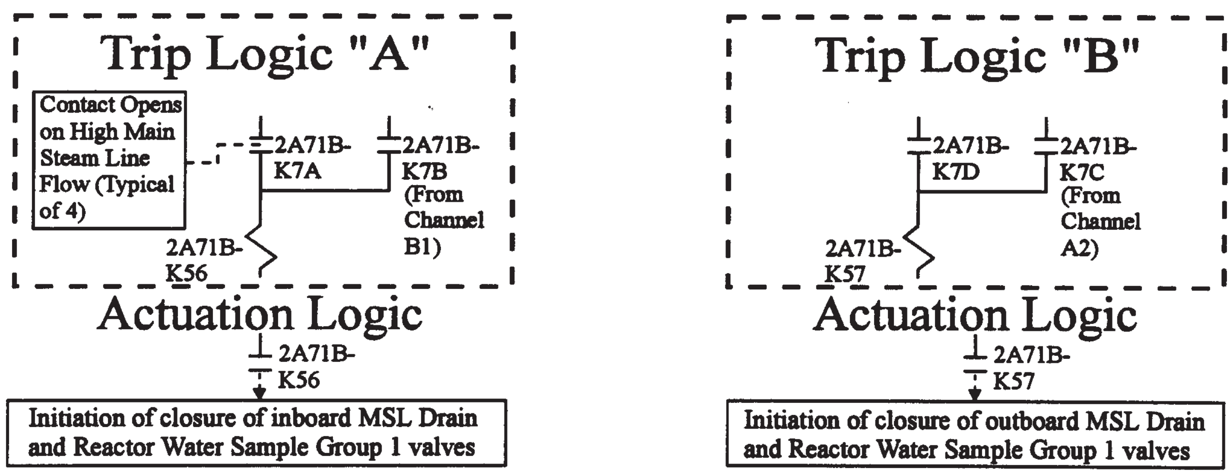


Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate a main steam line on high main steam line flow, channels in one of the following combinations must be either operable or maintained in the tripped condition.

One A channel AND one B channel for EACH main steam line

Drain Line and Reactor Water Sample Line Valve Isolation Function



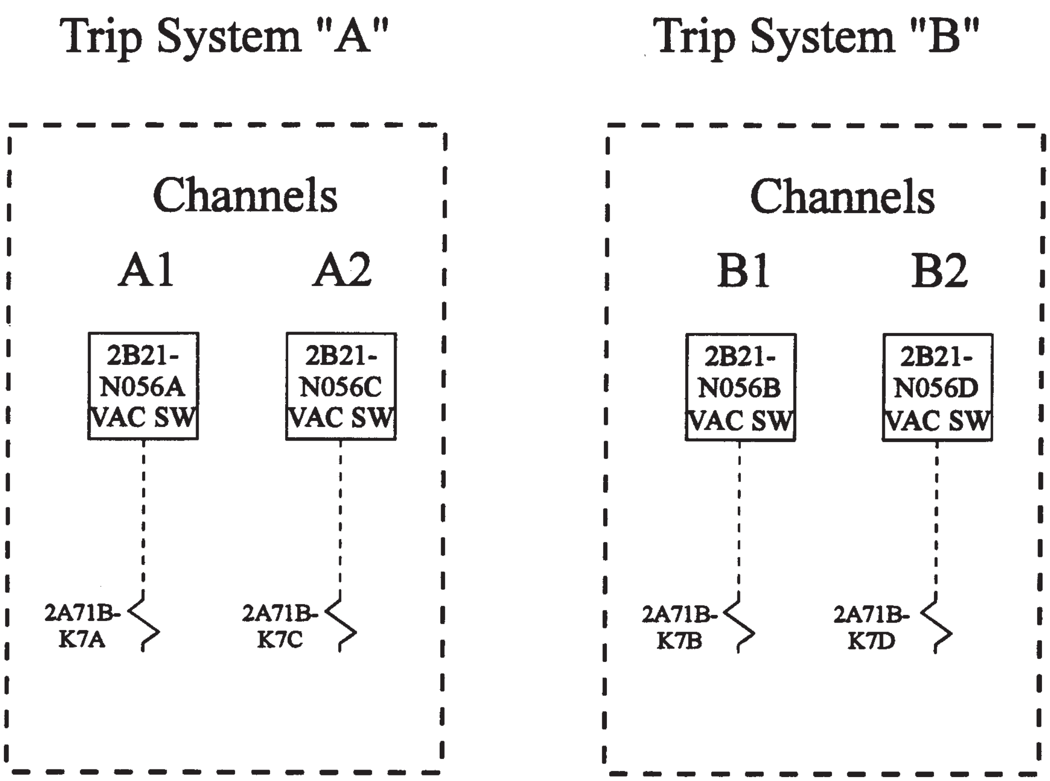
Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam line drain and reactor water sample lines on high main steam line flow, channels in one of the following combinations must be either operable or maintained in the tripped condition.

One A1 channel and one B1 channel for EACH main steam line
OR
One A2 channel and one B2 channel for EACH main steam line

Elem. Ref	
H-24409	H-27457
H-24412	H-27458
H-24415	H-27459
H-24418	H-27460
H-27455	H-27461
H-27456	

LFD-2-PCIS-03
Sheet 2 of 2
TS 3.3.6.1-1, Item 1.c
Main Steam Line Isolation - Main Steam Line Flow - High
Rev. 0 1/16/95



<u>Minimum Channel Requirements for System Isolation Capability:</u>

See Sheet 2 of 2.

Elem. Ref.
H-27455 H-27459
H-27456 H-27460
H-27457 H-27461
H-27458

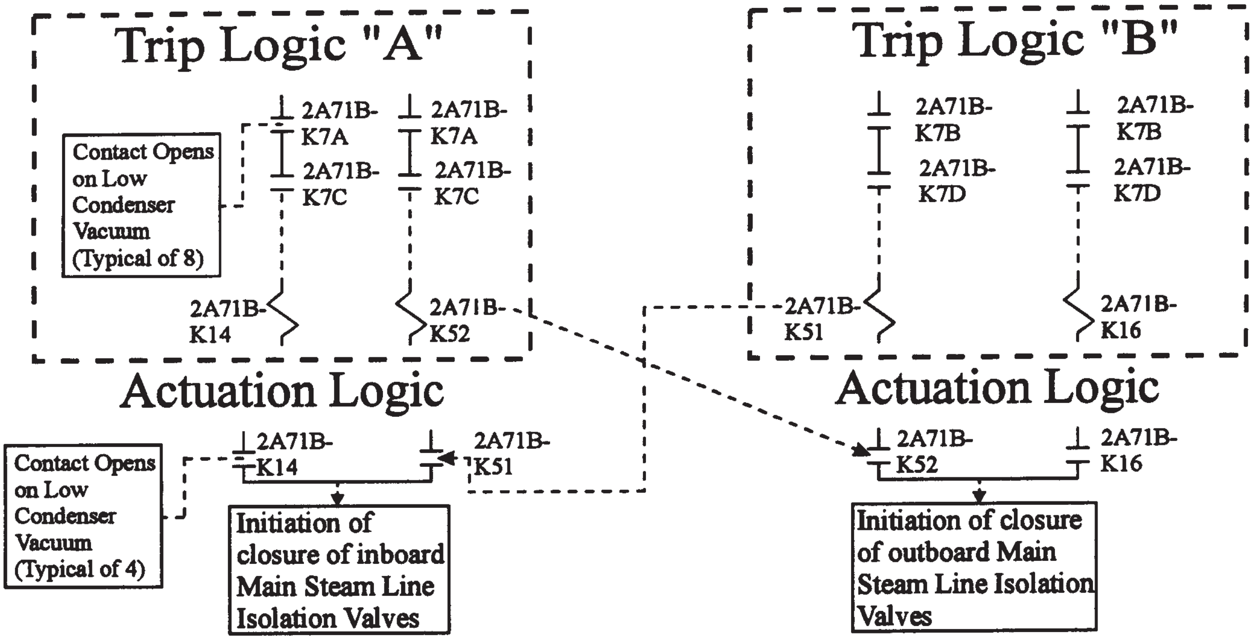
Prepared By: [signature]
Reviewed By: Royce Clark

LFD-2-PCIS-04
Sheet 1 of 2

TS 3.3.6.1-1, Item 1.d
Main Steam Line Isolation - Condenser Vacuum - Low

Rev. 0 1/16/95

Main Steam Line Isolation Valve Isolation Function

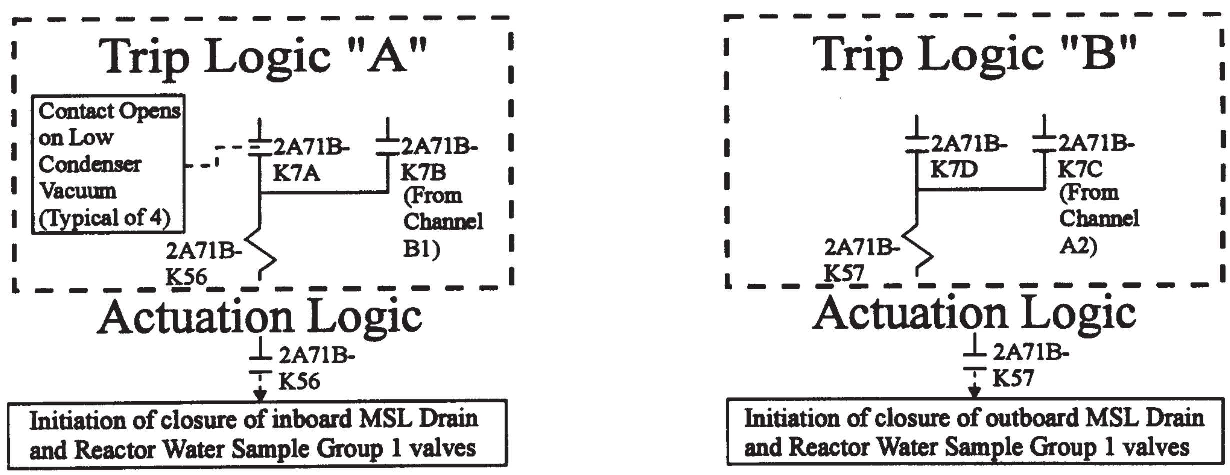


Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam lines on low condenser vacuum, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Drain Line and Reactor Water Sample Line Valve Isolation Function



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam line drain and reactor water sample lines on low condenser vacuum, channels in one of the following combinations must be either operable or maintained in the tripped condition.

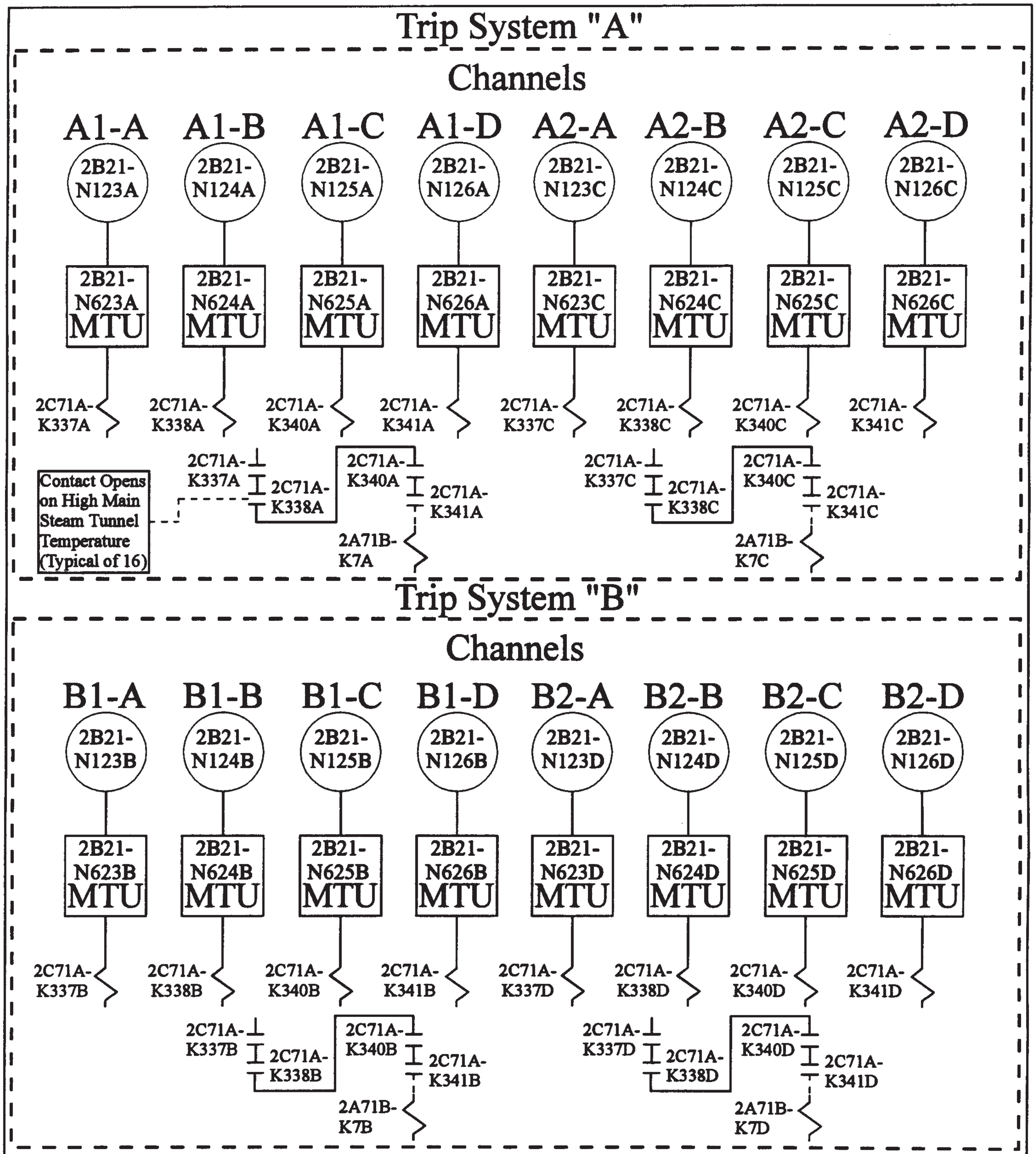
A1 and B1
OR
A2 and B2

Elem. Ref.	
H-27455	H-27459
H-27456	H-27460
H-27457	H-27461
H-27458	

LFD-2-PCIS-04
Sheet 2 of 2

TS 3.3.6.1-1, Item 1.d
Main Steam Line Isolation - Condenser Vacuum - Low

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

See Sheet 2 of 2.

Elem. Ref.	
H-24410	H-27457
H-24413	H-27458
H-24416	H-27459
H-24419	H-27460
H-27455	H-27461
H-27456	

Prepared By: [signature]

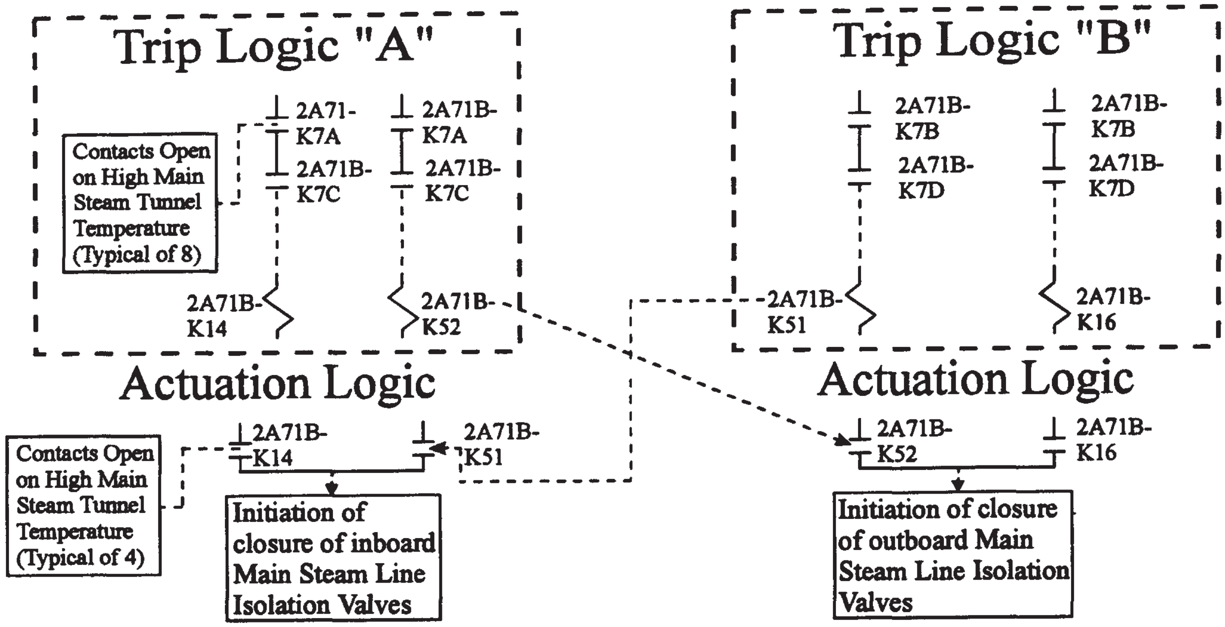
Reviewed By: [signature]

LFD-2-PCIS-05
Sheet 1 of 2

TS 3.3.6.1-1, Item 1.e
Main Steam Line Isolation - Main Steam Tunnel Temperature - High

Rev. 0 1/16/95

Main Steam Line Isolation Valve Isolation Function



Minimum Channel Requirements for System Isolation Capability:

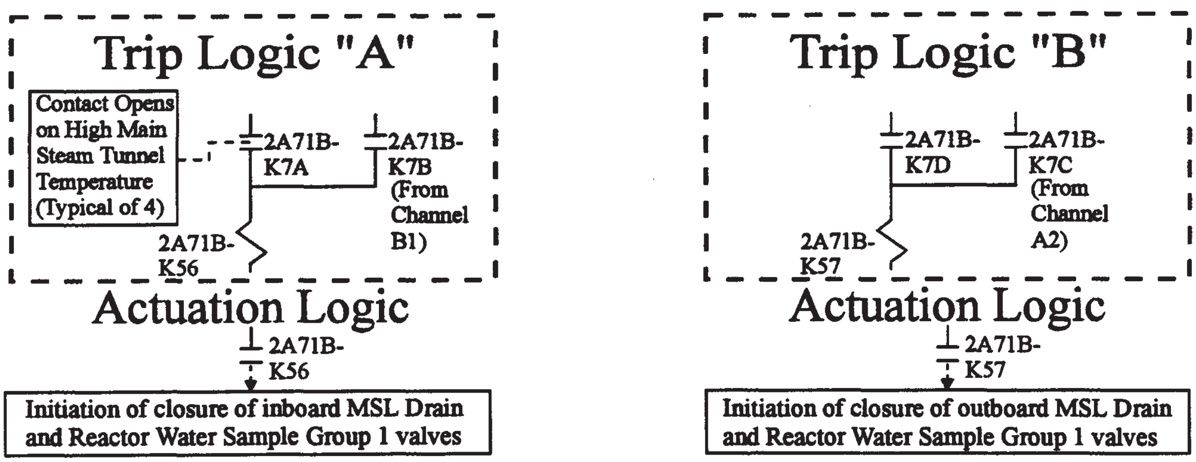
In order to maintain the capability to isolate the main steam lines on high main steam tunnel temperature, channels in one of the following combinations must be either operable or maintained in the tripped condition.

One A1 channel or one A2 channel

AND

One B1 channel or one B2 channel

Drain Line and Reactor Water Sample Line Valve Isolation Function



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam line drain and reactor water sample lines on high main steam tunnel temperature, channels in one of the following combinations must be either operable or maintained in the tripped condition.

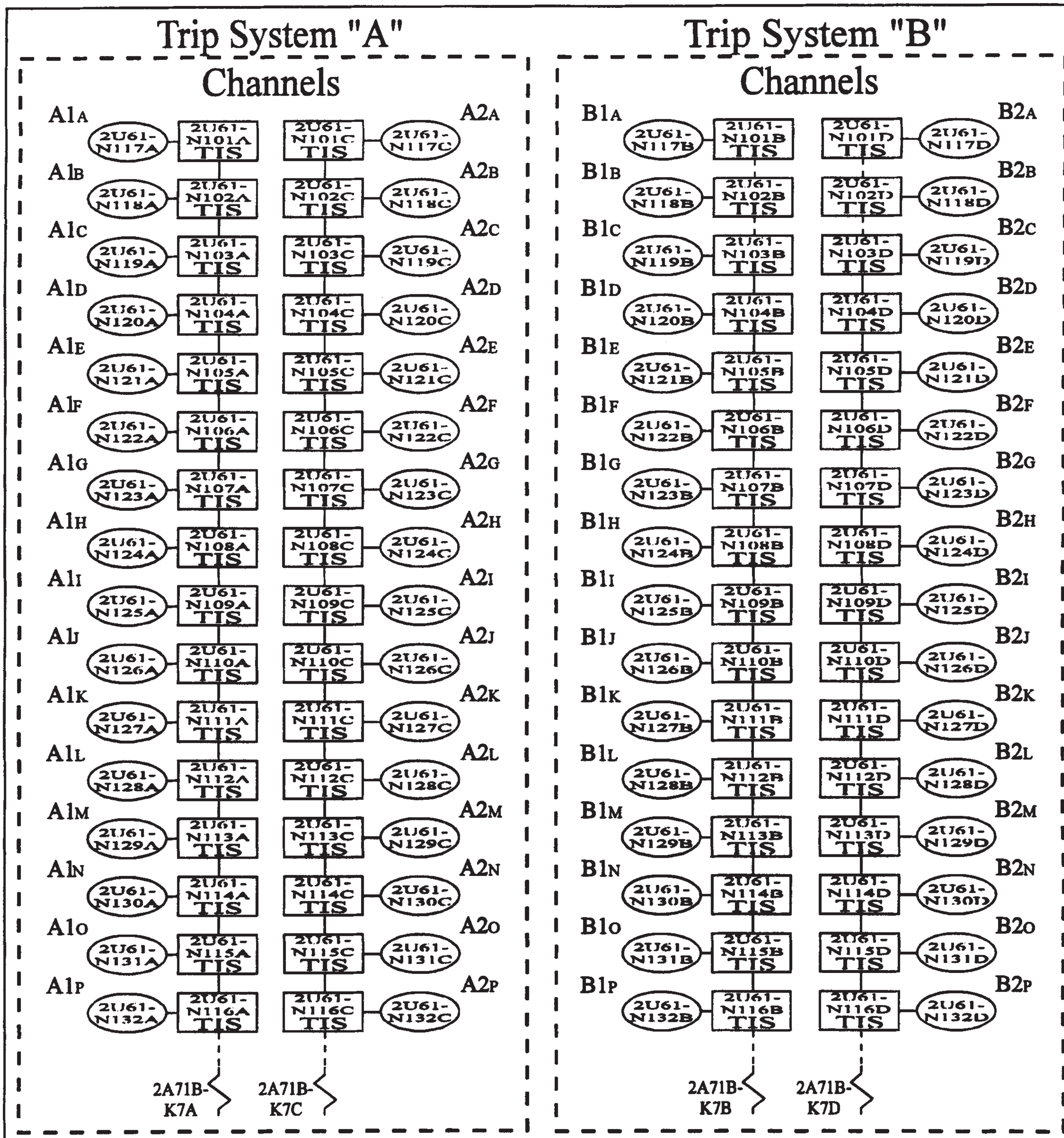
One A1 channel and one B1 channel

OR

One A2 channel and one B2 channel

Elem. Ref.	
H-24410	H-27457
H-24413	H-27458
H-24416	H-27459
H-24419	H-27460
H-27455	H-27461
H-27456	

LFD-2-PCIS-05 Sheet 2 of 2	
TS 3.3.6.1-1, Item 1.e Main Steam Line Isolation - Main Steam Tunnel Temperature - High	
Rev. 0	1/16/95



Minimum Channel Requirements for System Isolation Capability:

See Sheet 2 of 2.

Elem. Ref.	
H-27093	H-27459
H-27455	H-27460
H-27456	H-27461
H-27457	H-27989
H-27458	H-27990

Prepared By: [signature]

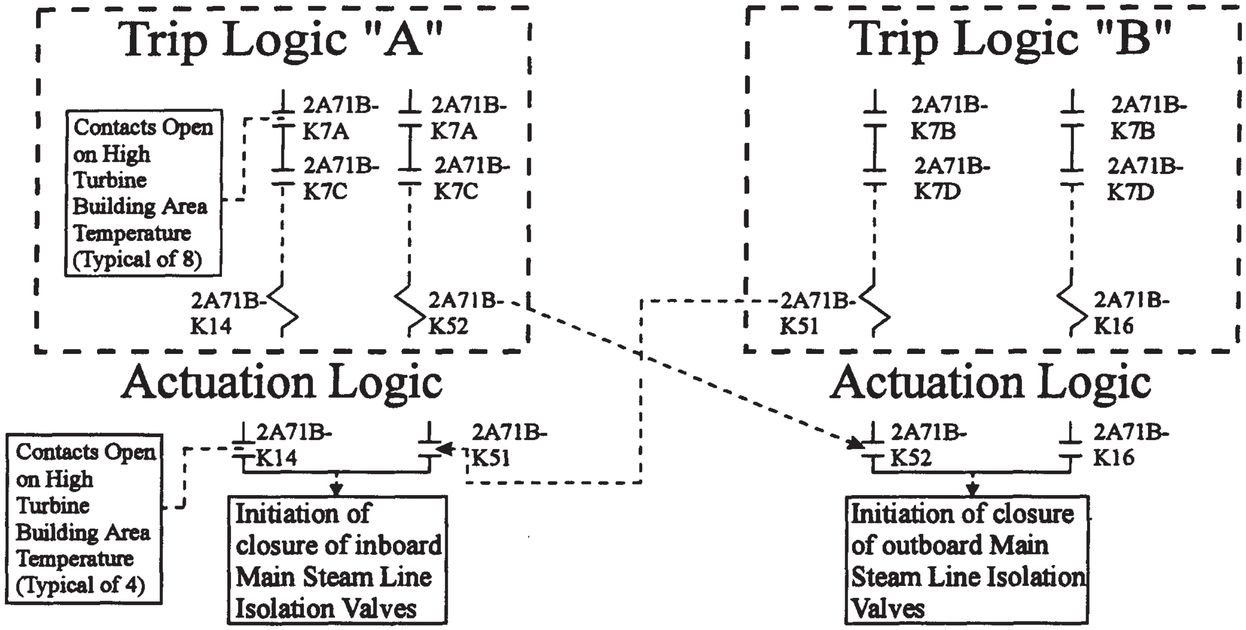
Reviewed By: [signature]

LFD-2-PCIS-06
Sheet 1 of 2

TS 3.3.6.1-1, Item 1.f
Main Steam Line Isolation - Turbine Building Area Temperature - High

Rev. 0 1/19/95

Main Steam Line Isolation Valve Isolation Function

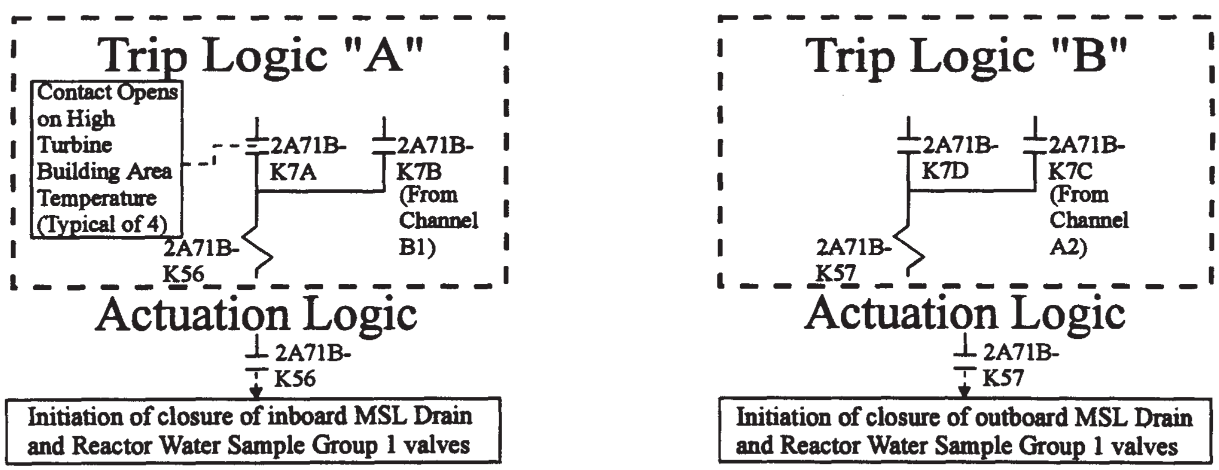


Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam lines on high turbine building area temperature, channels in one of the following combinations must be either operable or maintained in the tripped condition.

One A1 channel or one A2 channel
AND
One B1 channel or one B2 channel

Drain Line and Reactor Water Sample Line Valve Isolation Function



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the main steam line drain and reactor water sample lines on high turbine building area temperature, channels in one of the following combinations must be either operable or maintained in the tripped condition.

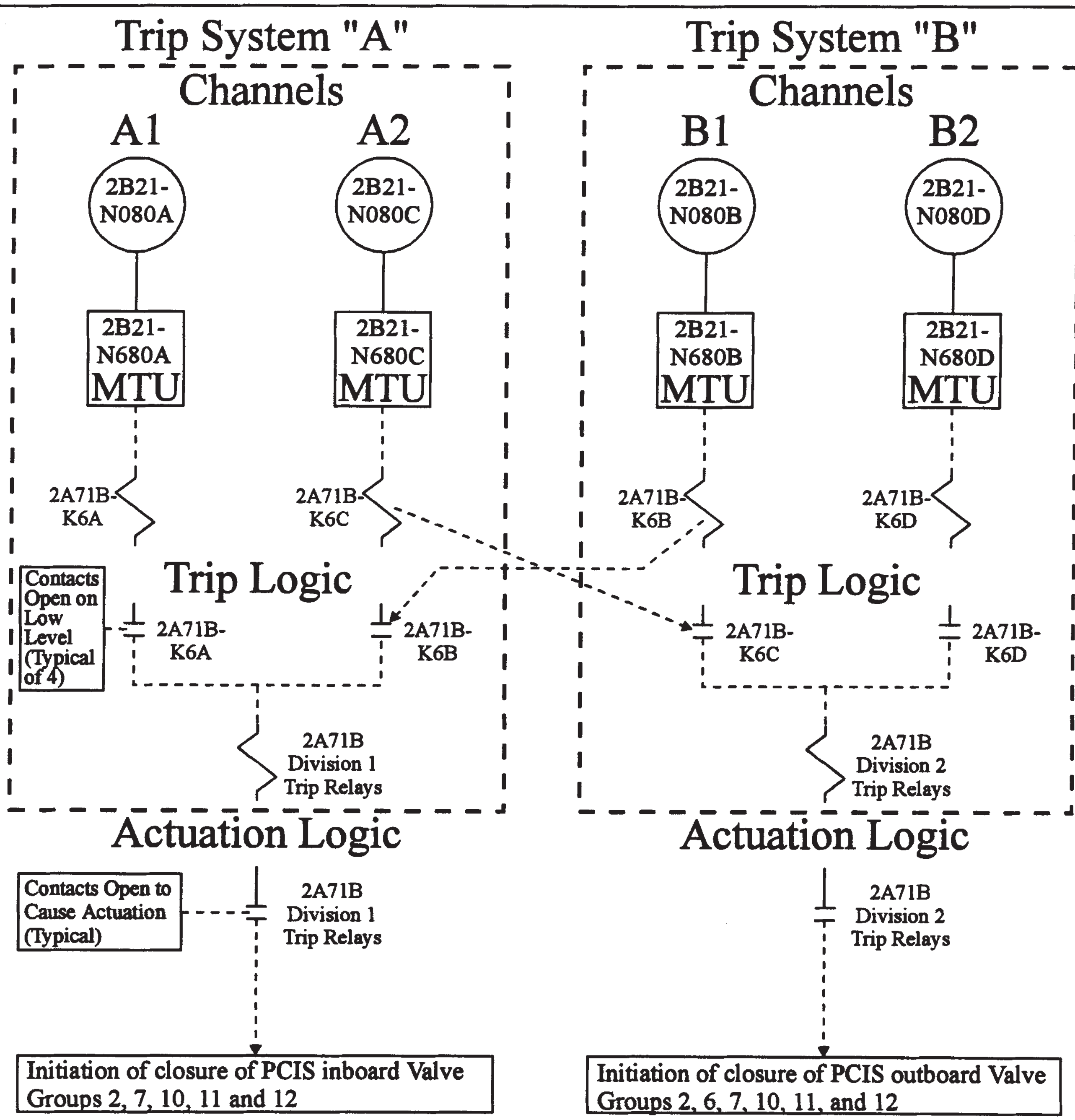
One A1 channel and one B1 channel
OR
One A2 channel and one B2 channel

Elem. Ref.	
H-27903	H-27459
H-27455	H-27460
H-27456	H-27461
H-27457	H-27989
H-27458	H-27990

LFD-2-PCIS-06
Sheet 2 of 2

TS 3.3.6.1-1, Item 1.f
Main Steam Line Isolation - Turbine Building Area Temperature - High

Rev. 0 1/19/95



Minimum Channel Requirements for System Isolation Capability:

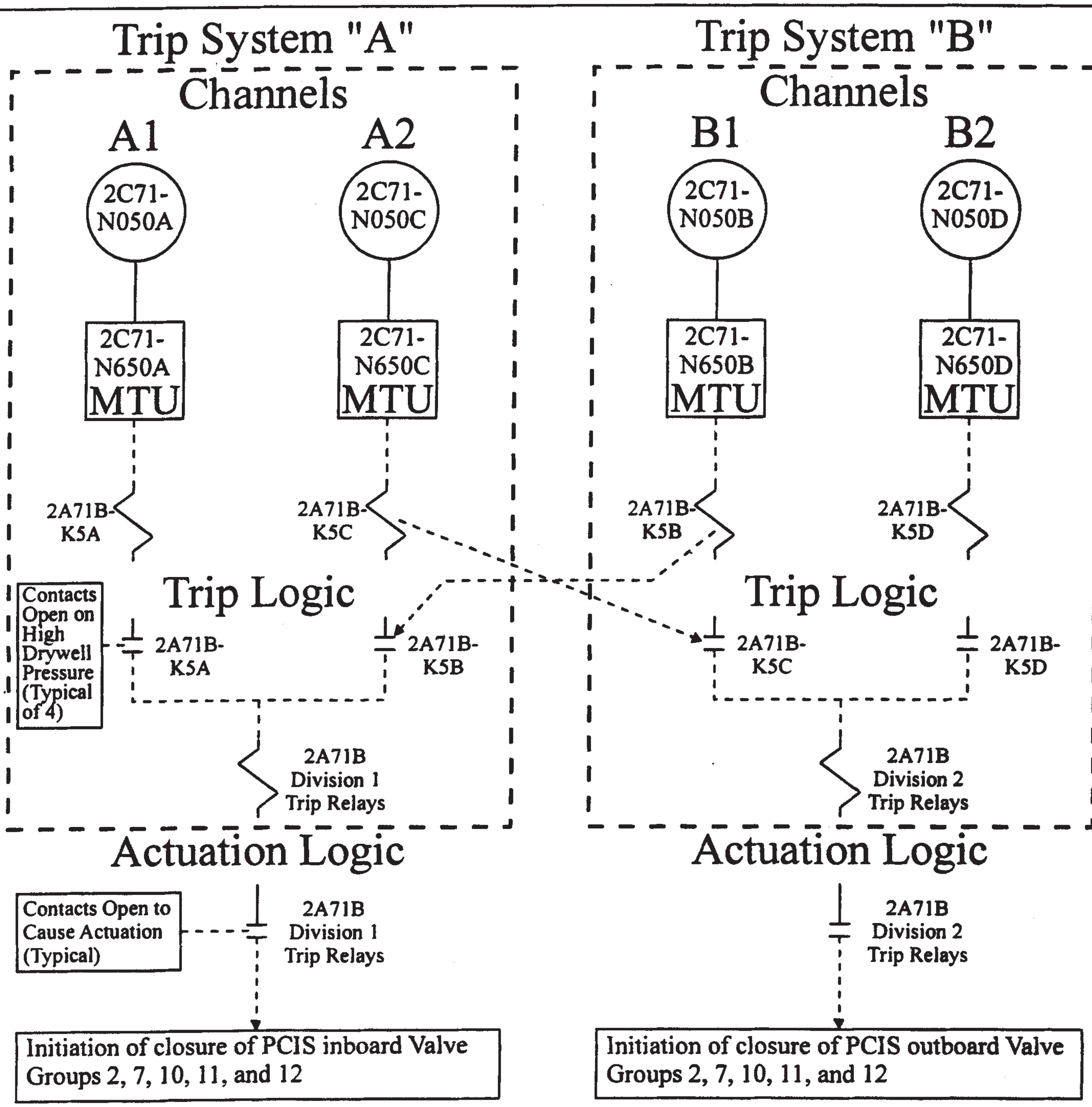
In order to maintain the capability to isolate Valve Groups 2, 6, 7, 10, 11 and 12 on low reactor water level (Level 3), channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

Elem. Ref.
H-24409 H-27456
H-24412 H-27457
H-24415 H-27610
H-24418 H-27611
H-27455

Prepared By: Stephen W. Reed
Reviewed By:

LFD-2-PCIS-07
TS 3.3.6.1-1, Item 2.a
Primary Containment Isolation,
Reactor Vessel Water Level - Low, Level 3
Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

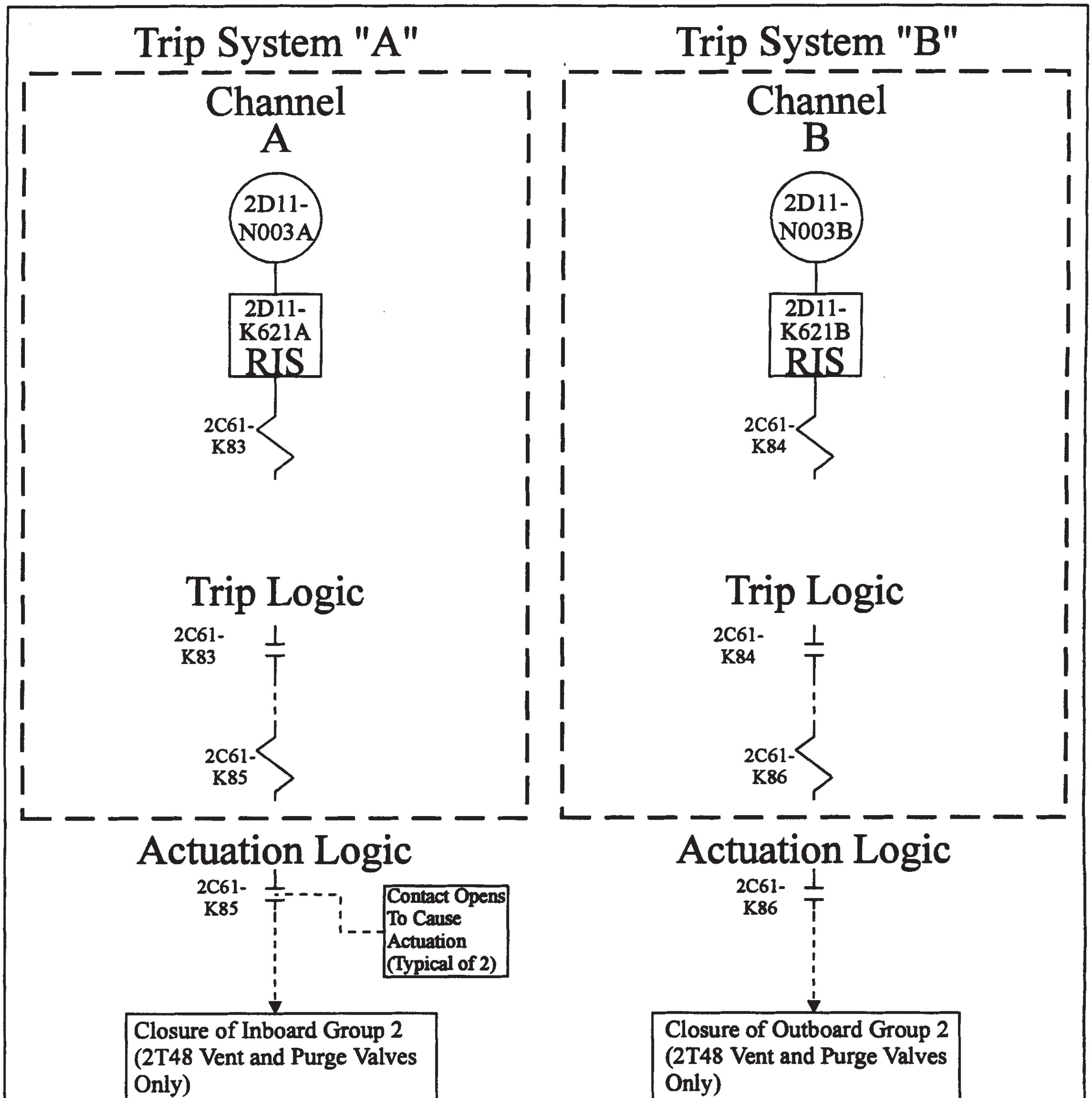
In order to maintain the capability to isolate Valve Groups 2, 7, 10, 11, and 12 on high drywell pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

Elem. Ref.	
H-24409	H-27456
H-24412	H-27457
H-24415	H-27610
H-24418	H-27611
H-27455	

Prepared By: [signature]
Reviewed By: [signature]

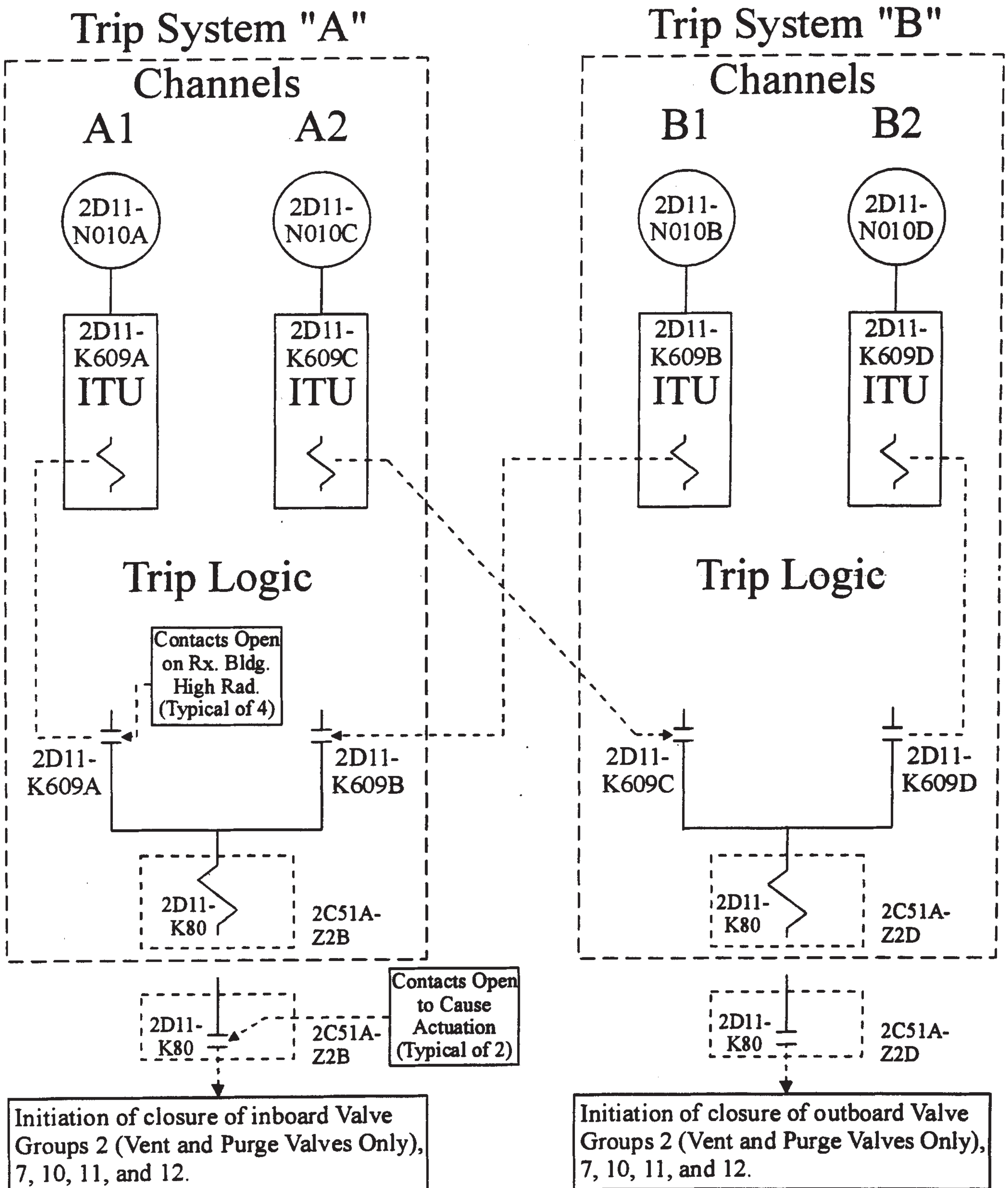
LFD-2-PCIS-08
TS 3.3.6.1-1, Item 2.b
Primary Containment Isolation, Drywell Pressure - High
TRM Rev. 57



Minimum Channel Requirements for System Initiation Capability

In order to maintain Group 2 PCIS isolation capability of the vent and purge valves on drywell high radiation, at least one of the two channels must be either operable or maintained in the tripped condition.

Elem. Ref. H-27597 H-27598 H-27875	LFD-2-PCIS-09
Prepared By: Stephen W. Neal Reviewed By: [signature]	TS 3.3.6.1-1, Item 2.c Primary Containment Isolation Drywell Radiation-High
	Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate Valve Groups 2, 7, 10, 11, and 12 on Reactor Building Exhaust High Radiation, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

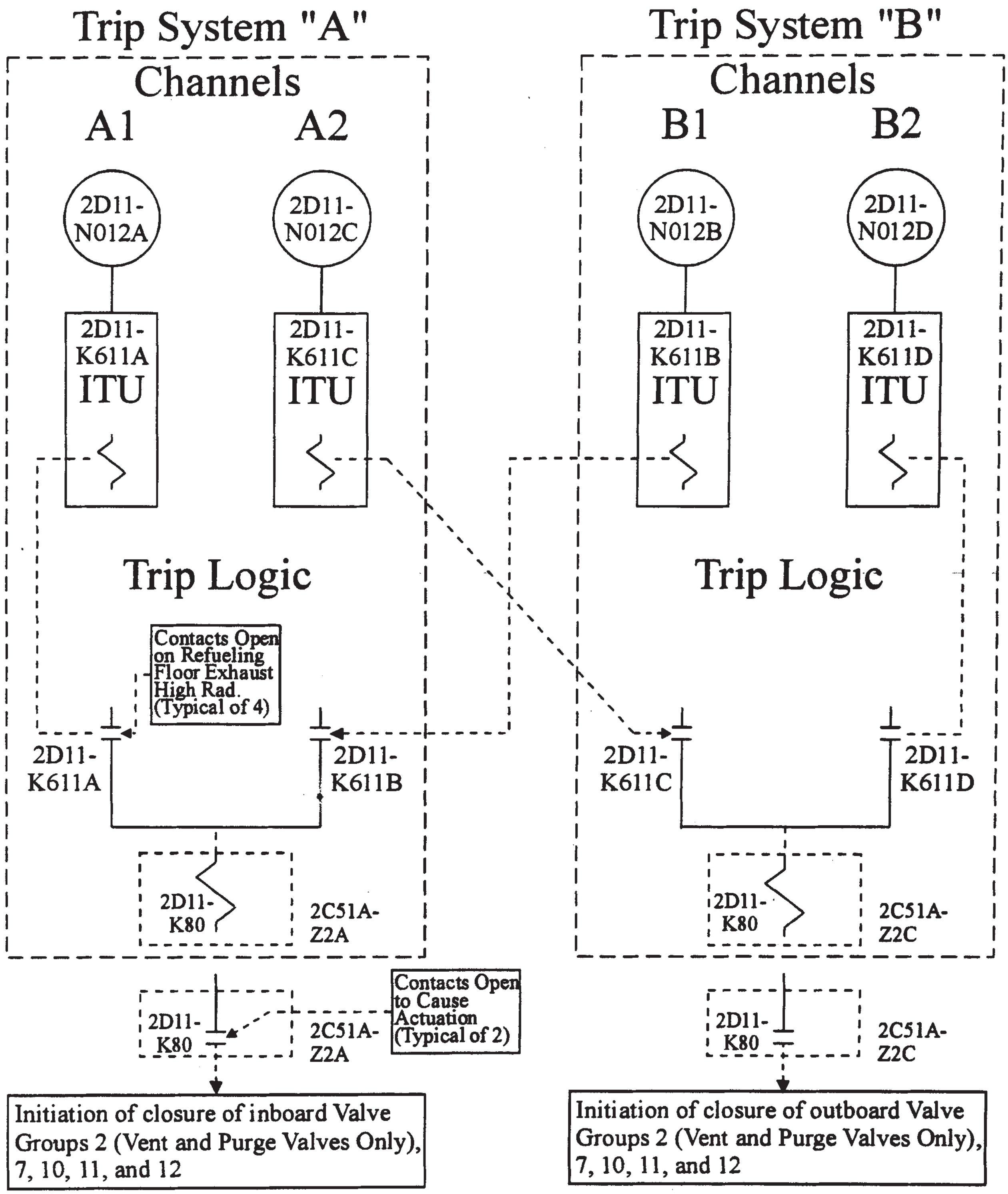
Elem. Ref.	
.-27597	H-27631
H-27598	H-27632
H-27599	H-27634
H-27629	

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-PCIS-10

TS 3.3.6.1-1, Item 2.d
Primary Containment Isolation
Reactor Building Exhaust Radiation - High

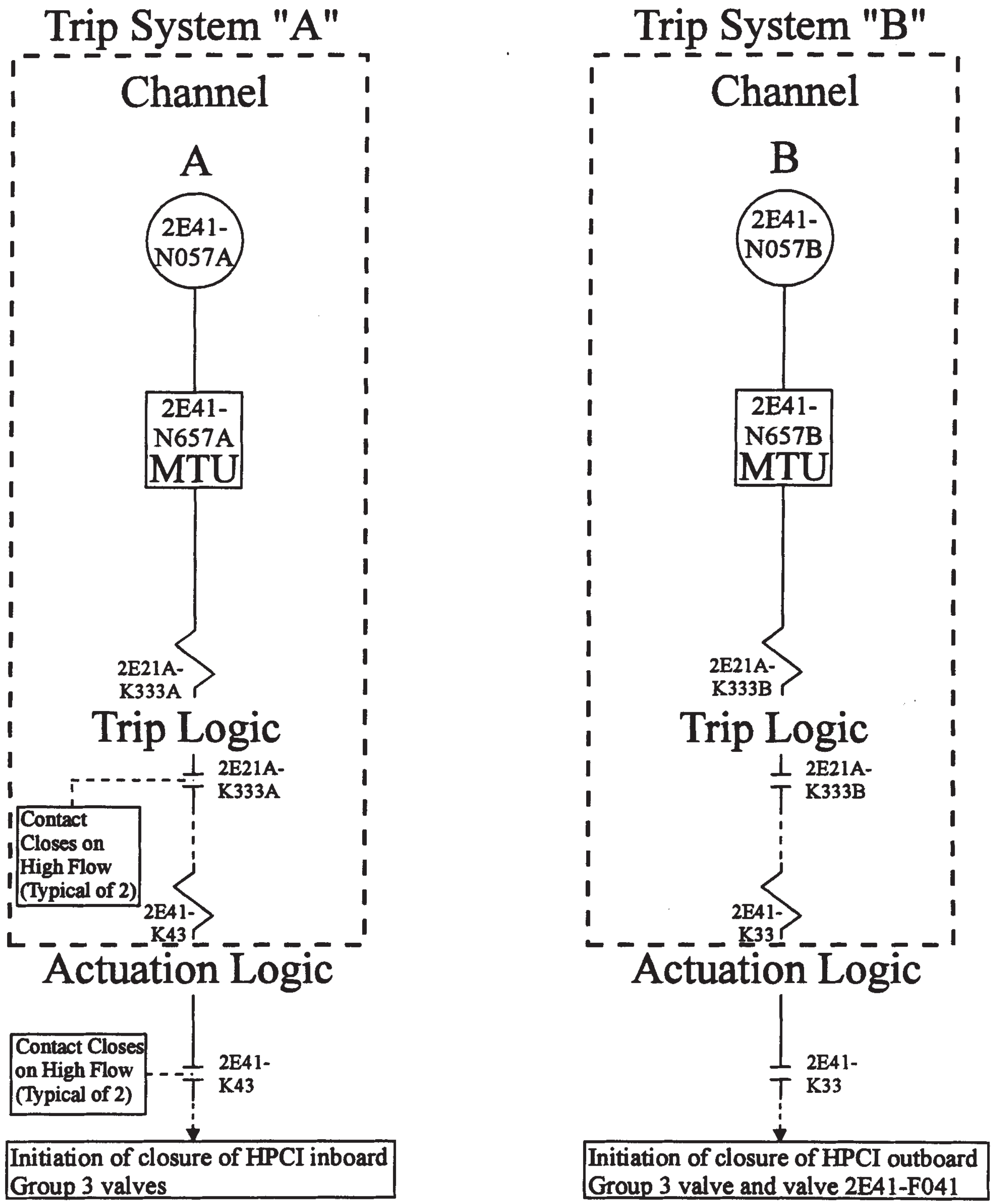
TRM Rev. 28



Minimum Channel Requirements for System Isolation Capability:

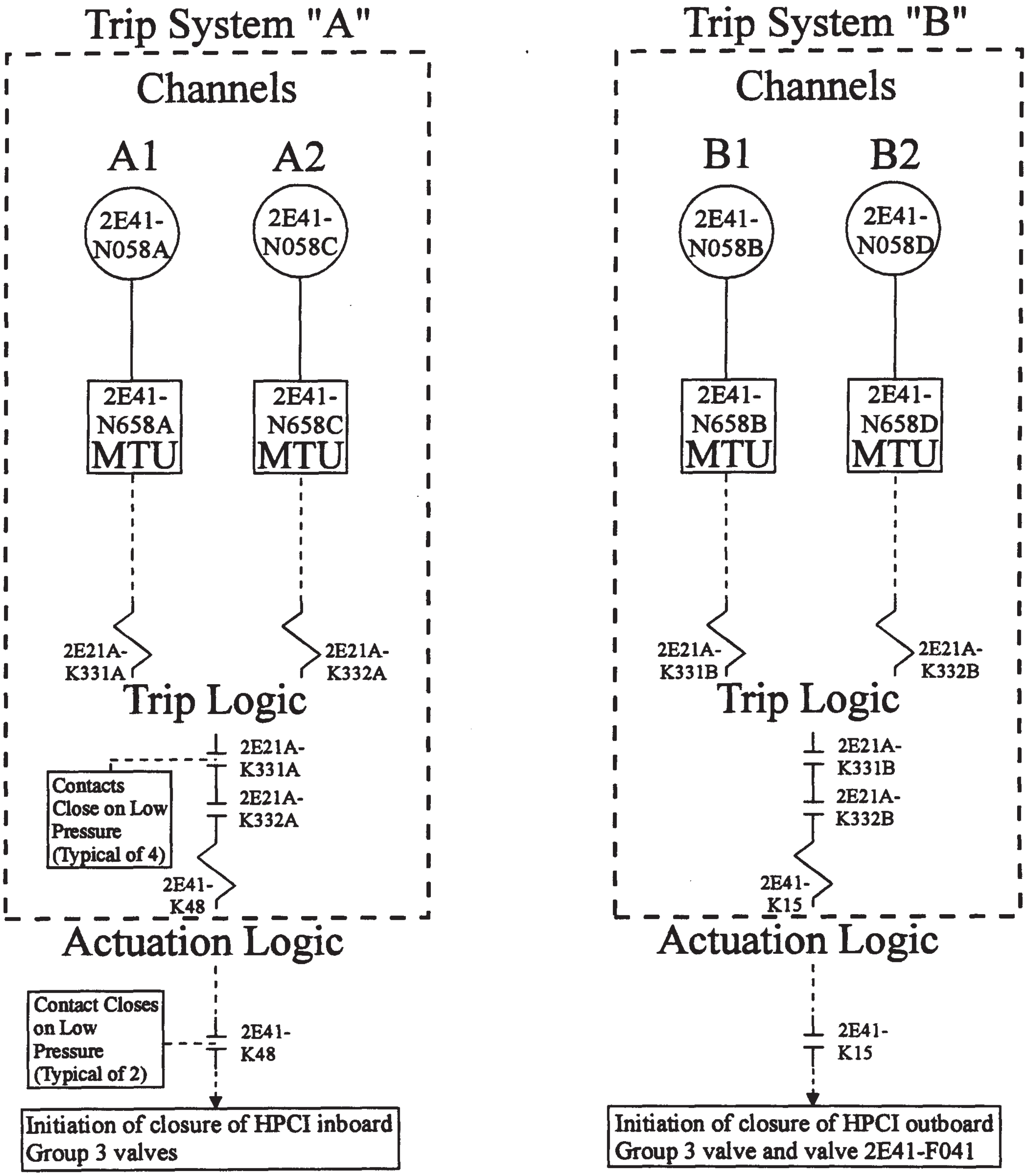
In order to maintain the capability to isolate Valve Groups 2, 7, 10, 11, and 12 on Refueling Floor Exhaust High Radiation, channels in one of the following combinations must be either operable or maintained in the tripped condition.

Elem. Ref.		LFD-2-PCIS-11
27597 H-27631 H-27598 H-27632 H-27599 H-27634 H-27629	A1 and B1 OR A2 and B2	TS 3.3.6.1-1, Item 2.e Primary Containment Isolation Refueling Floor Exhaust Radiation - High
	Prepared By: [signature] Reviewed By: [signature]	TRM Rev. 28



Minimum Channel Requirements for System Isolation Capability:
In order to maintain the capability to isolate the HPCI steam supply and torus suction lines on high flow, at least one channel is required to be operable or maintained in the tripped condition.

Elem. Ref.		
H-24422 H-27667 H-24425 H-27668 H-27664 H-27671	Prepared By: John J. Payne Reviewed By: Stephen W. Reed	LFD-2-PCIS-12 TS 3.3.6.1-1, Item 3.a HPCI System Isolation- HPCI Steam Line Flow - High Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the HPCI steam supply and torus suction lines on low pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

Elem. Ref.

H-24422 H-27667
H-24425 H-27668
H-27664 H-27671

A1 and A2
OR
B1 and B2

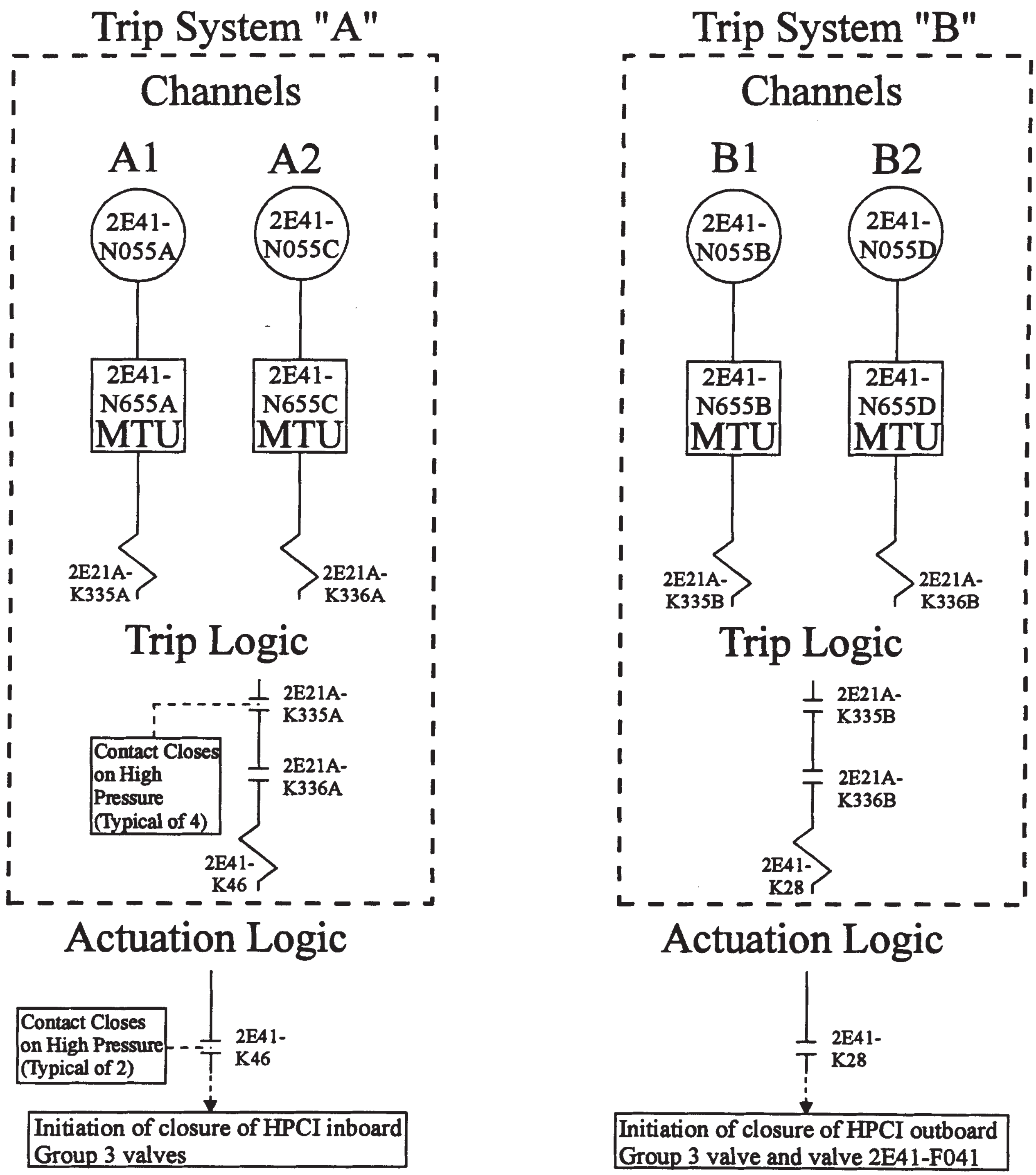
Prepared By: John d. [illegible]

Reviewed By: [illegible]

LFD-2-PCIS-13

TS 3.3.6.1-1, Item 3.b
HPCI System Isolation-HPCI Steam Supply Line Pressure - Low

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the HPCI steam supply and torus suction lines on high turbine exhaust diaphragm pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

Elem. Ref.

H-24422 H-27668
H-24425 H-27671
H-27664

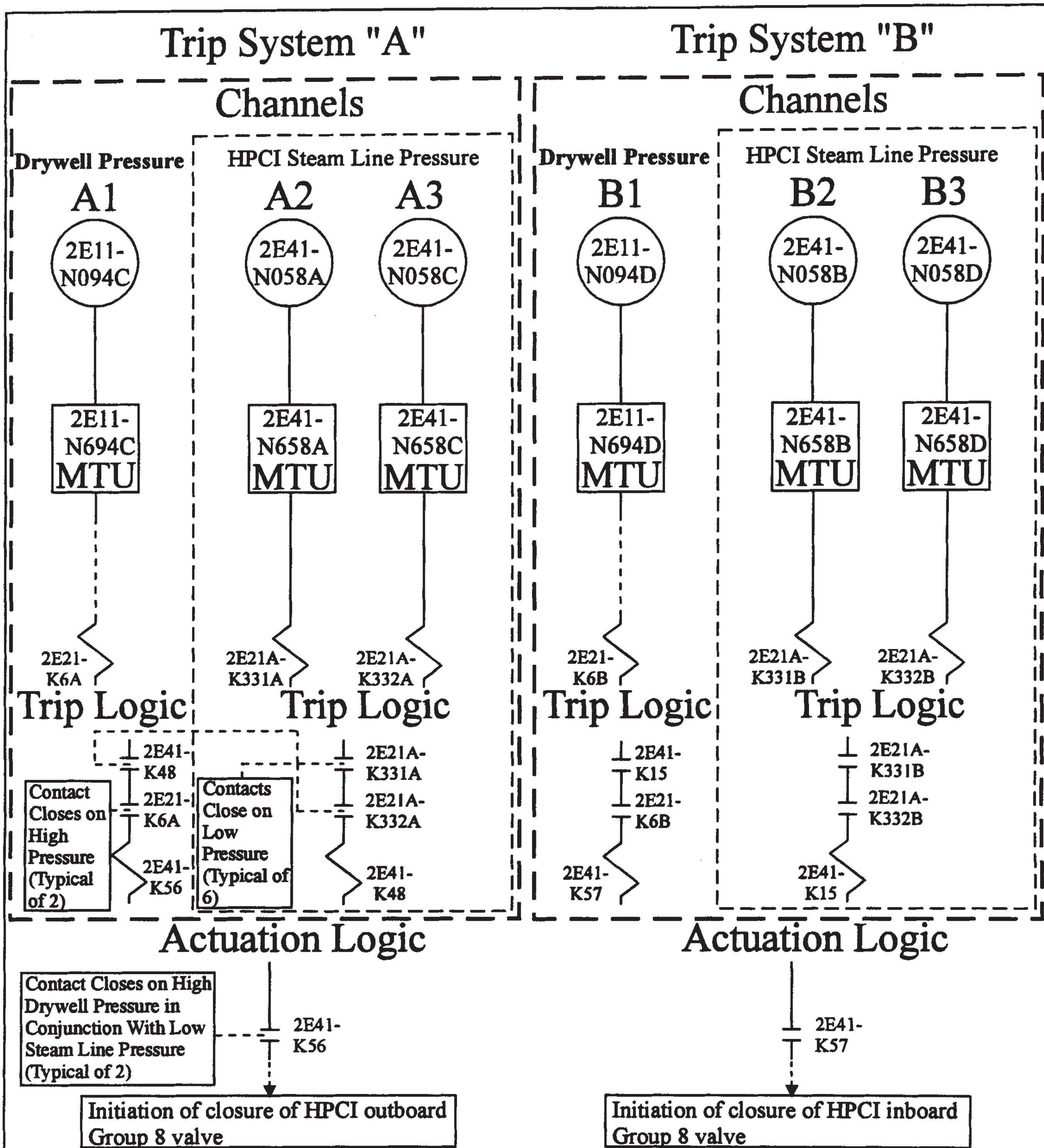
A1 and A2
OR
B1 and B2

Prepared By: John J. Payne
Reviewed By: Stephen W. Reed

LFD-2-PCIS-14

TS 3.3.6.1-1, Item 3.c
HPCI System Isolation-
HPCI Turbine Exhaust
Diaphragm Pressure - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability:

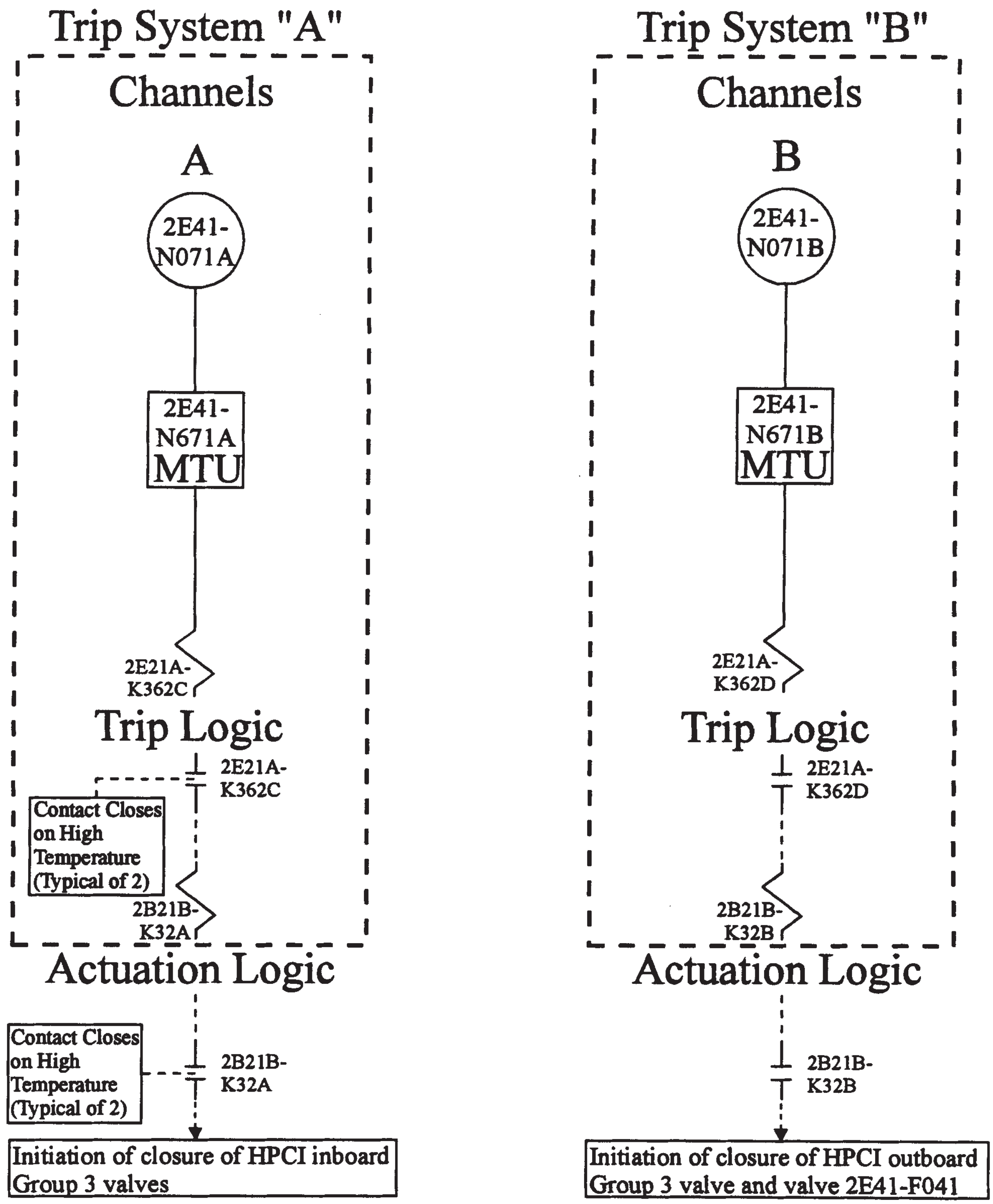
In order to maintain the capability to isolate a HPCI Group 8 valve on high drywell pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and A2 and A3

OR

B1 and B2 and B3

Elem. Ref. H-24422 H-27664 H-24425 H-27667 H-24427 H-27668 H-24430 H-27672 H-27660	Prepared By: [signature] Reviewed By: [signature]	LFD-2-PCIS-15 TS 3.3.6.1-1, Item 3.d HPCI System Isolation - Drywell Pressure - High Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to isolate the HPCI steam line on high pipe penetration room temperature, at least one channel in required to be operable or maintained in the tripped condition.

Elem. Ref.

H-24429 H-27468
H-24432 H-27668
H-27466 H-27671

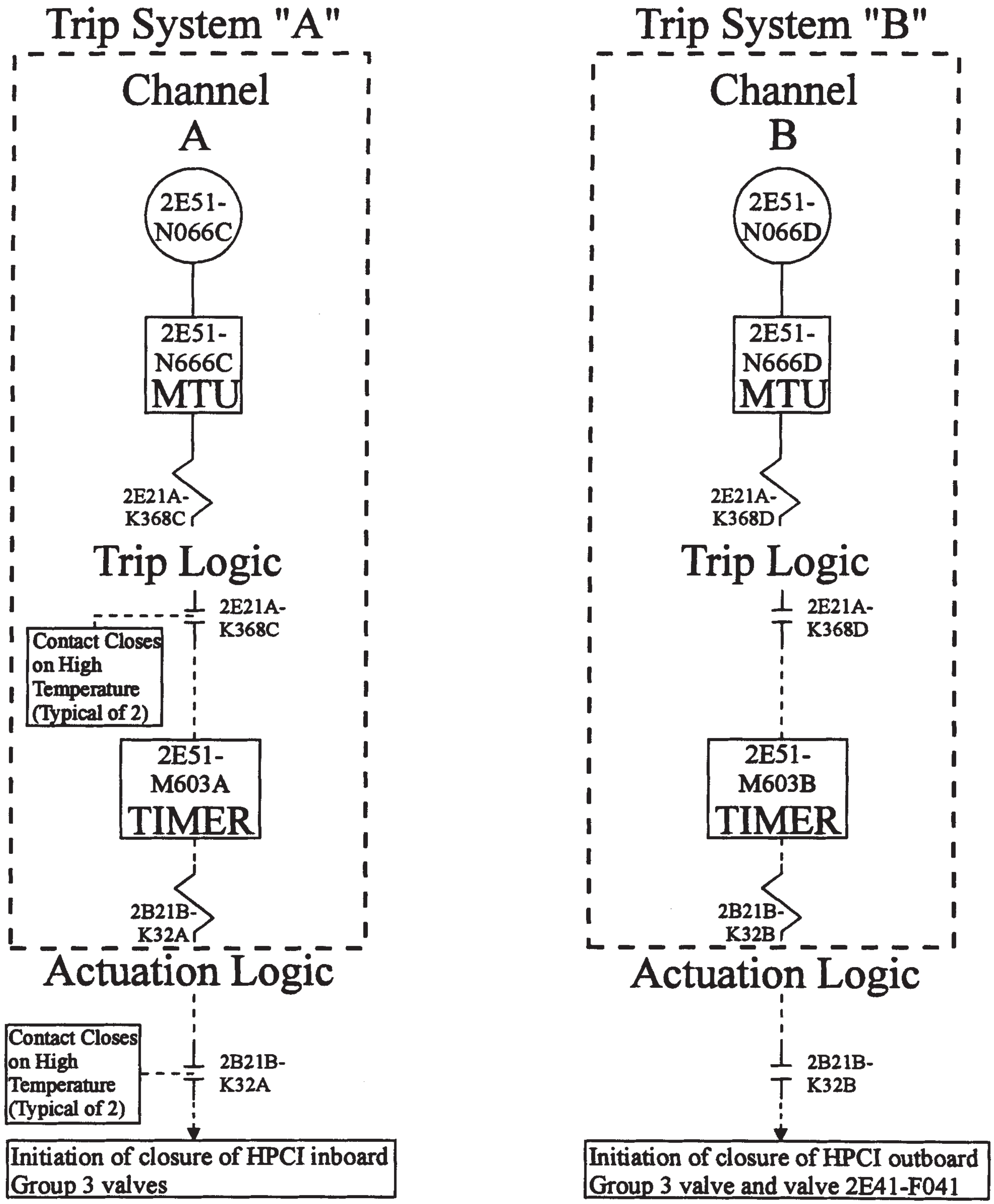
Prepared By: John J. Ryan

Reviewed: [signature]

LFD-2-PCIS-16

TS 3.3.6.1-1, Item 3.e
HPCI System Isolation-
HPCI Pipe Penetration Room
Temperature - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the HPCI steam supply and torus suction lines on high suppression pool area ambient temperature, at least one channel including its associated timer is required to be operable or maintained in the tripped condition.

Elem. Ref.

H-24429 H-27468
H-24432 H-27668
H-27466 H-27671

Prepared By: [signature]

Reviewed By: [signature]

LFD-2-PCIS-17

TS 3.3.6.1-1, Items 3.f and 3.g

HPCI System Isolation - Suppression Pool Area Ambient Temperature - High, and Suppression Pool Area Temperature - Time Delay Relays

Rev. 0 1/16/95

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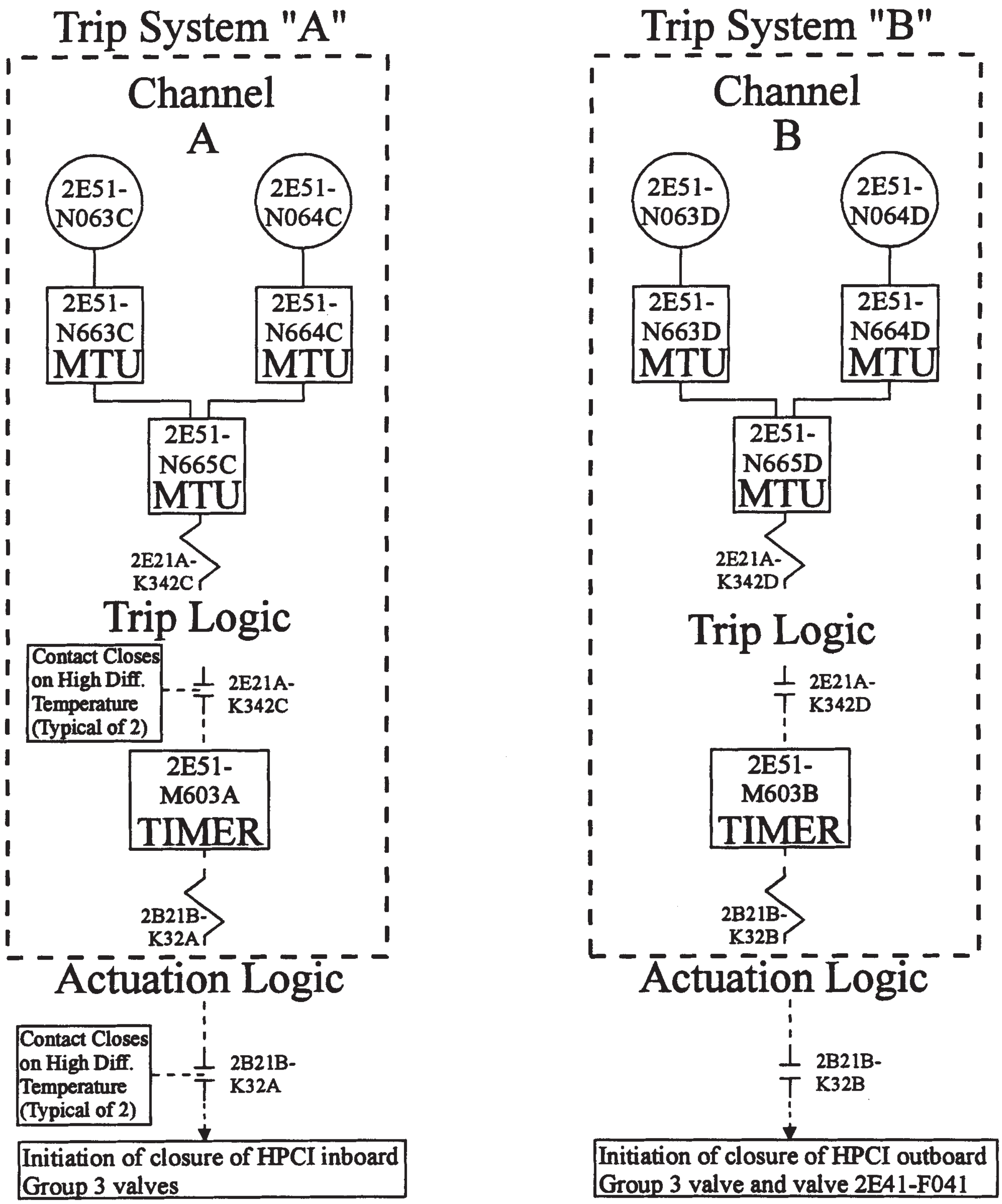


Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the HPCI steam supply and torus suction lines on high suppression pool area differential temperature, at least one channel including its associated timer is required to be operable or maintained in the tripped condition.

Elem. Ref.	
H-24428	H-27468
H-24431	H-27668
H-27466	H-27671

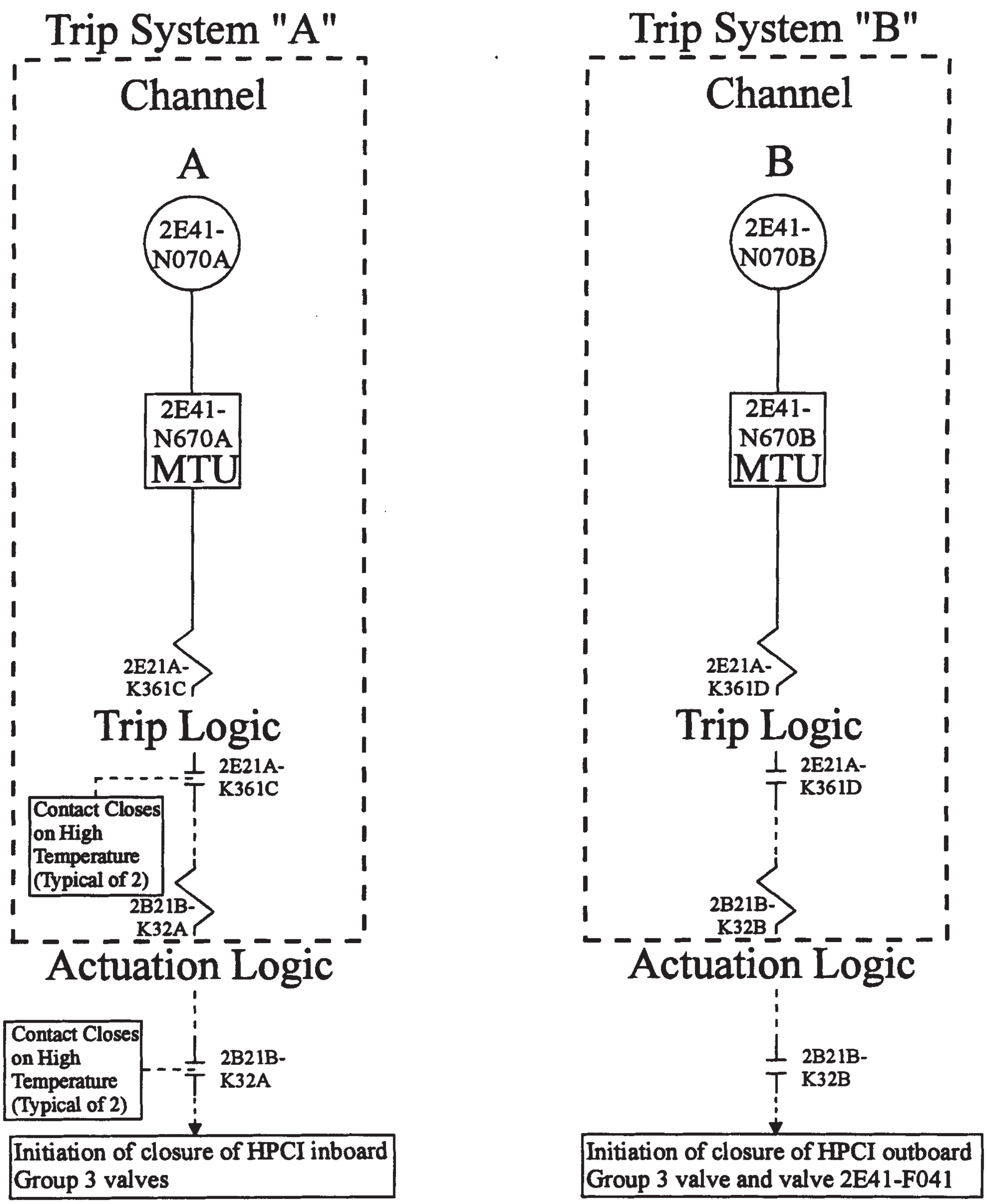
Prepared By: [signature]

Reviewed By: [signature]

LFD-2-PCIS-19

TS 3.3.6.1-1, Items 3.h and 3.g
HPCI System Isolation - Suppression Pool Area Differential Temperature - High, and Suppression Pool Area Temperature - Time Delay Relays

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the HPCI steam supply and torus suction lines on high emergency area cooler temperature, at least one channel is required to be operable or maintained in the tripped condition.

Elem. Ref.	
H-24429	H-27468
H-24432	H-27668
H-27466	H-27671

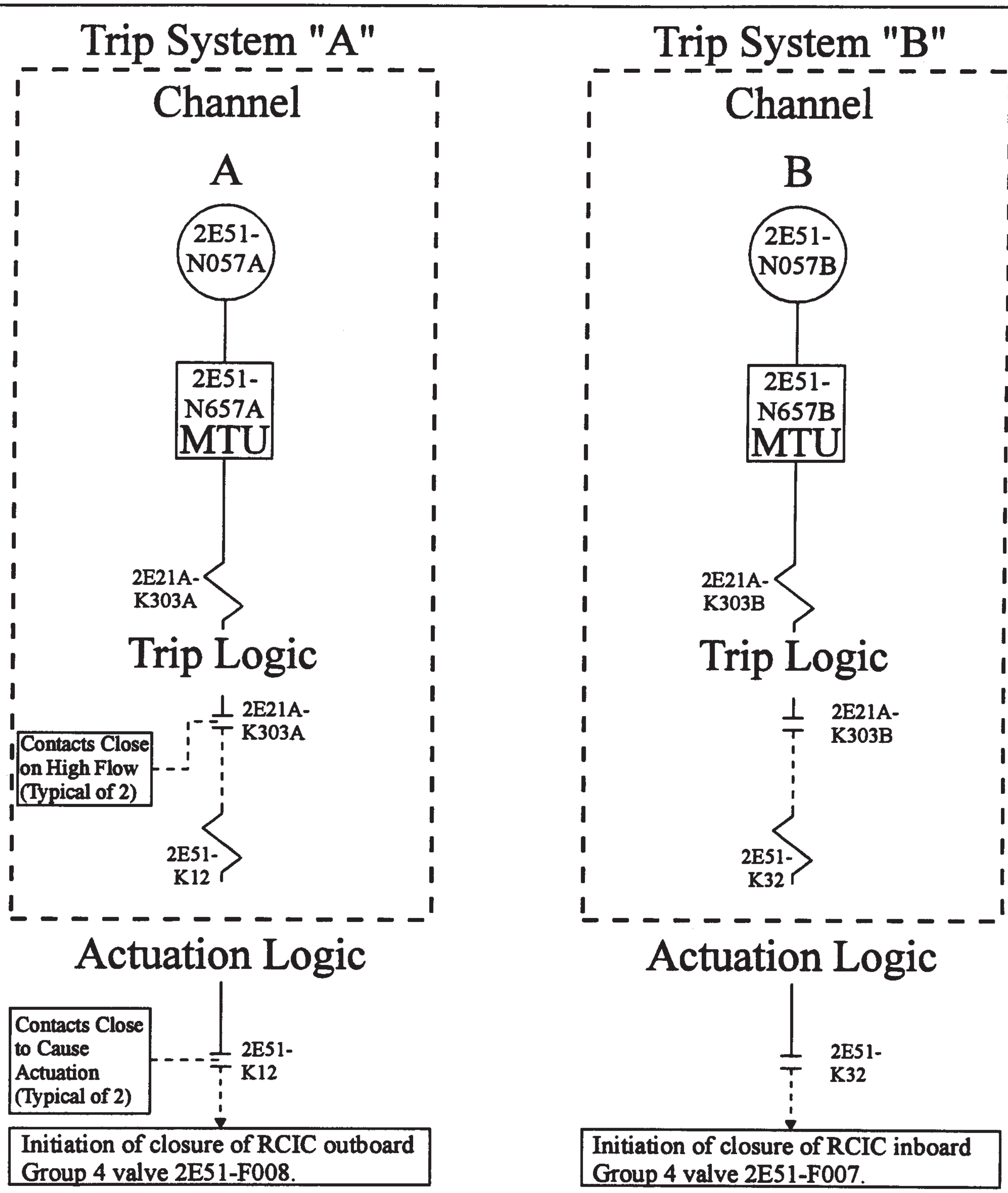
Prepared By:

Reviewed By:

LFD-2-PCIS-20

TS 3.3.6.1-1, Item 3.i
HPCI System Isolation-
Emergency Area Cooler
Temperature - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the RCIC steam supply line on high flow, at least one channel is required to be operable or maintained in the tripped condition.

Elem. Ref.

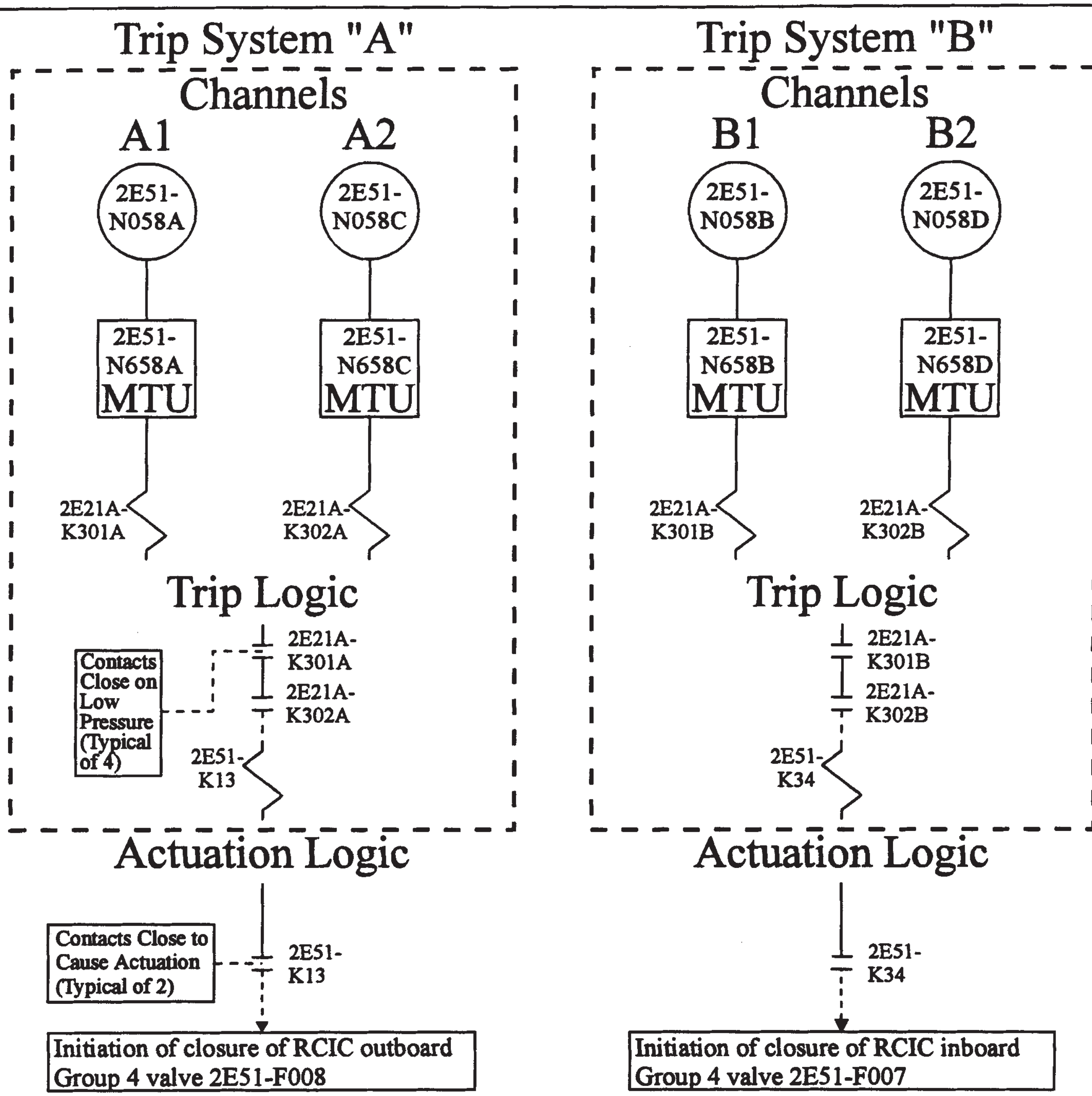
H-24421 H-27676
H-24424 H-27678
H-27675

Prepared By: Stephen W. Reed
Reviewed By: W Payne

LFD-2-PCIS-21

TS 3.3.6.1-1, Item 4.a
RCIC System Isolation
RCIC Steam Line Flow - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the RCIC steam supply line on RCIC steam supply line low pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and A2
OR
B1 and B2

Elem. Ref.	
H-24421	H-27676
H-24424	H-27678
H-27675	

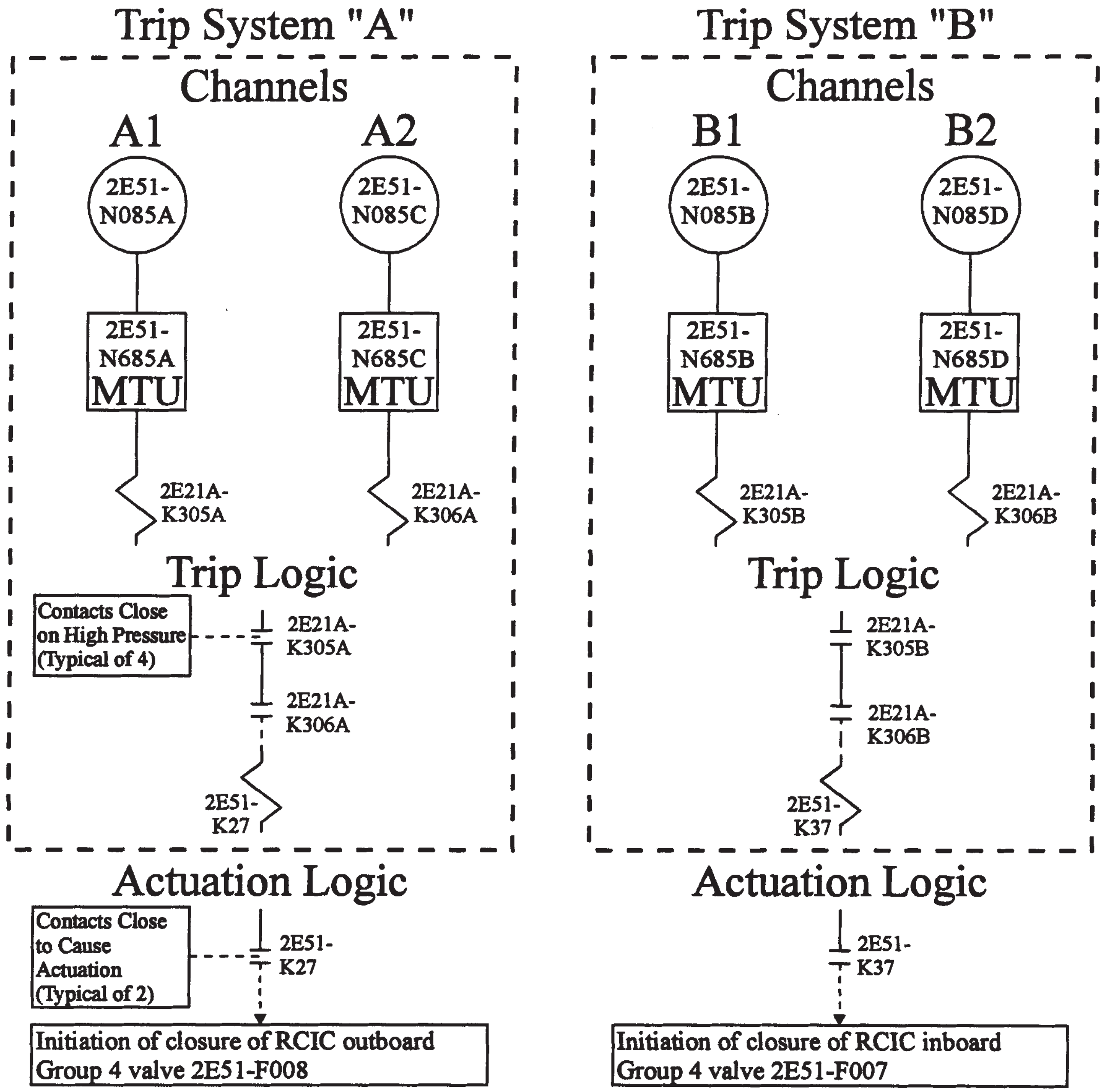
Prepared By: Stephen W. Reed

Reviewed By: [signature]

LFD-2-PCIS-22

TS 3.3.6.1-1, Item 4.b
RCIC System Isolation
RCIC Steam Supply Line Pressure - Low

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

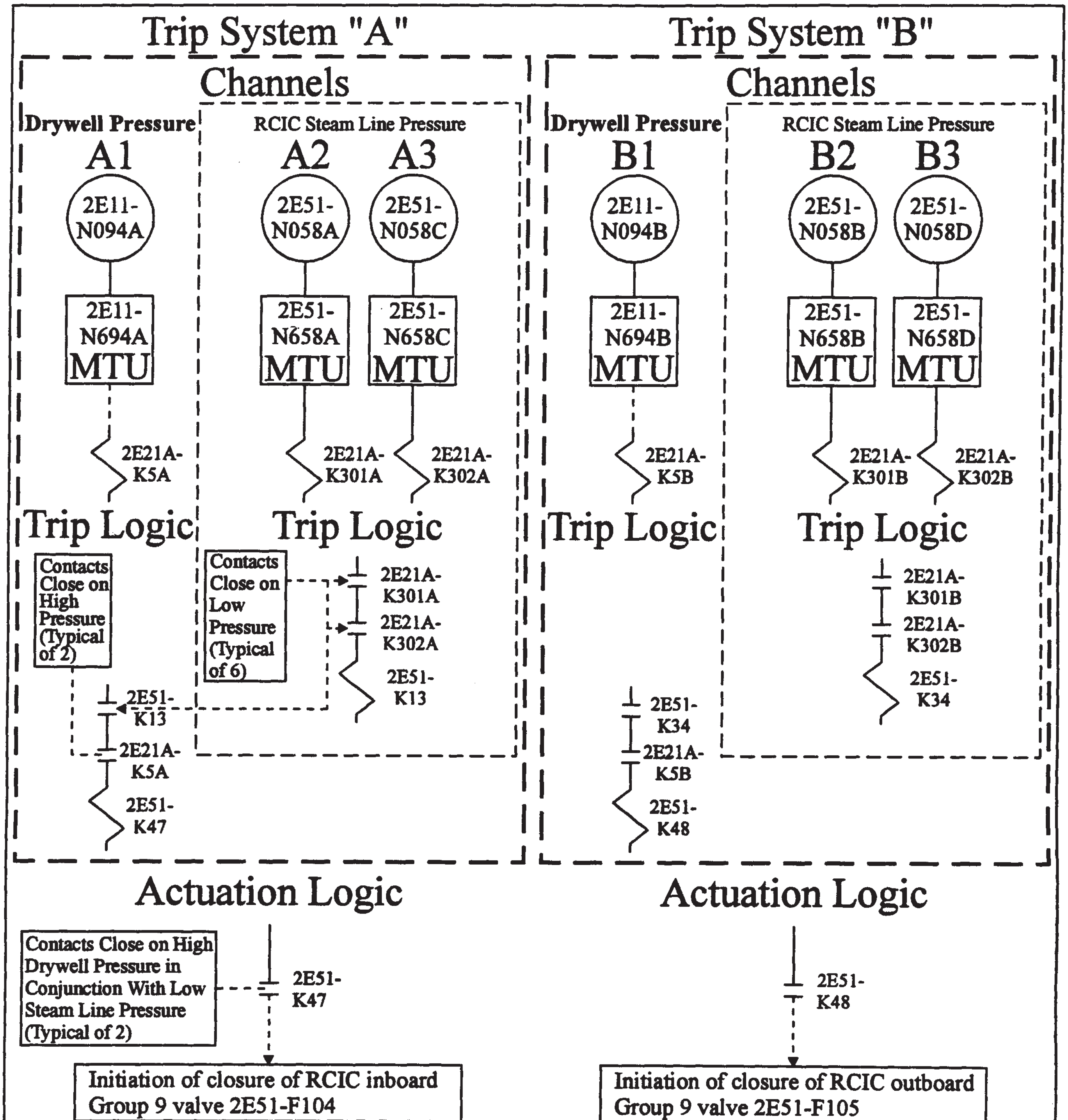
In order to maintain the capability to isolate the RCIC steam supply line on high RCIC turbine exhaust pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and A2
OR
B1 and B2

Elem. Ref.	
H-24421	H-27676
H-24424	H-27678
H-27675	

Prepared By: Stephen W. Reed
Reviewed By: [signature]

LFD-2-PCIS-23
TS 3.3.6.1-1, Item 4.c
RCIC System Isolation
RCIC Turbine Exhaust Diaphragm Pressure - High
Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the RCIC exhaust vacuum breaker line on high drywell pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and A2 and A3
OR
B1 and B2 and B3

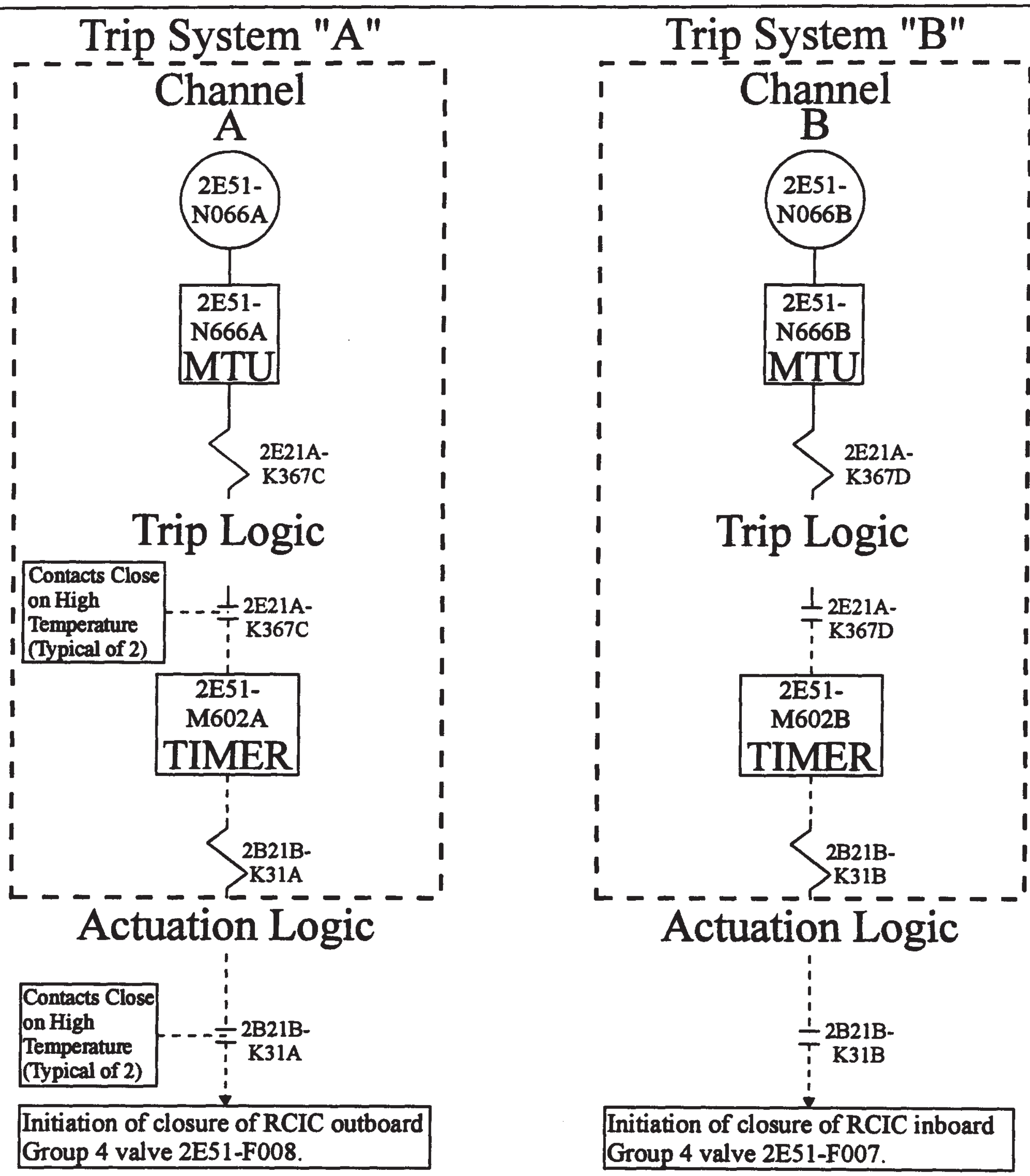
Elem. Ref.	
H-24421	H-27660
H-24424	H-27675
H-24427	H-27676
H-24430	H-27677

Prepared By: Stephen W. Reed
Reviewed By: Wayne

LFD-2-PCIS-24

TS 3.3.6.1-1, Item 4.d
RCIC System Isolation
Drywell Pressure - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the RCIC steam supply line on high suppression pool ambient area temperature, at least one channel including its associated timer is required to be operable or maintained in the tripped condition.

Elem. Ref.	
H-24429	H-27675
H-24432	H-27676
H-27468	H-27678

Prepared By: Steph W. Reed

Reviewed By: JPayne

LFD-2-PCIS-25

TS 3.3.6.1-1, Items 4.e and f
RCIC System Isolation
RCIC Suppression Pool Ambient Area Temperature - High and Suppression Pool Area Temperature - Time Delay Relays

Rev. 0 1/16/95

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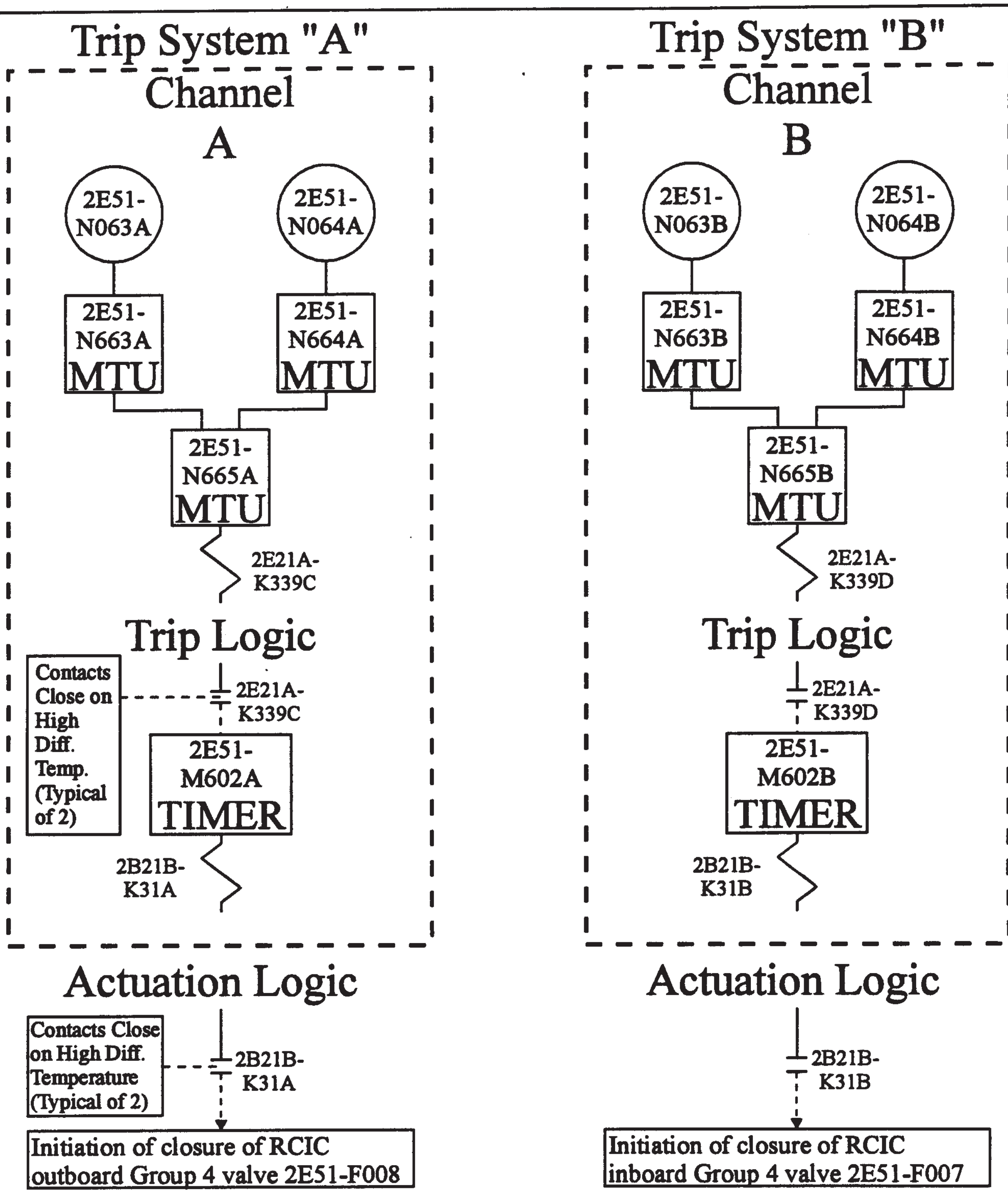
Prepared By:	N/A
Reviewed By:	N/A



Minimum Channel Requirements for System Isolation Capability:

In order to maintain the capability to isolate the RCIC steam supply line on high suppression pool area differential temperature, at least one channel including its associated timer is required to be operable or maintained in the tripped condition.

Elem. Ref.	
H-24428	H-27675
H-24431	H-27676
H-27468	H-27678

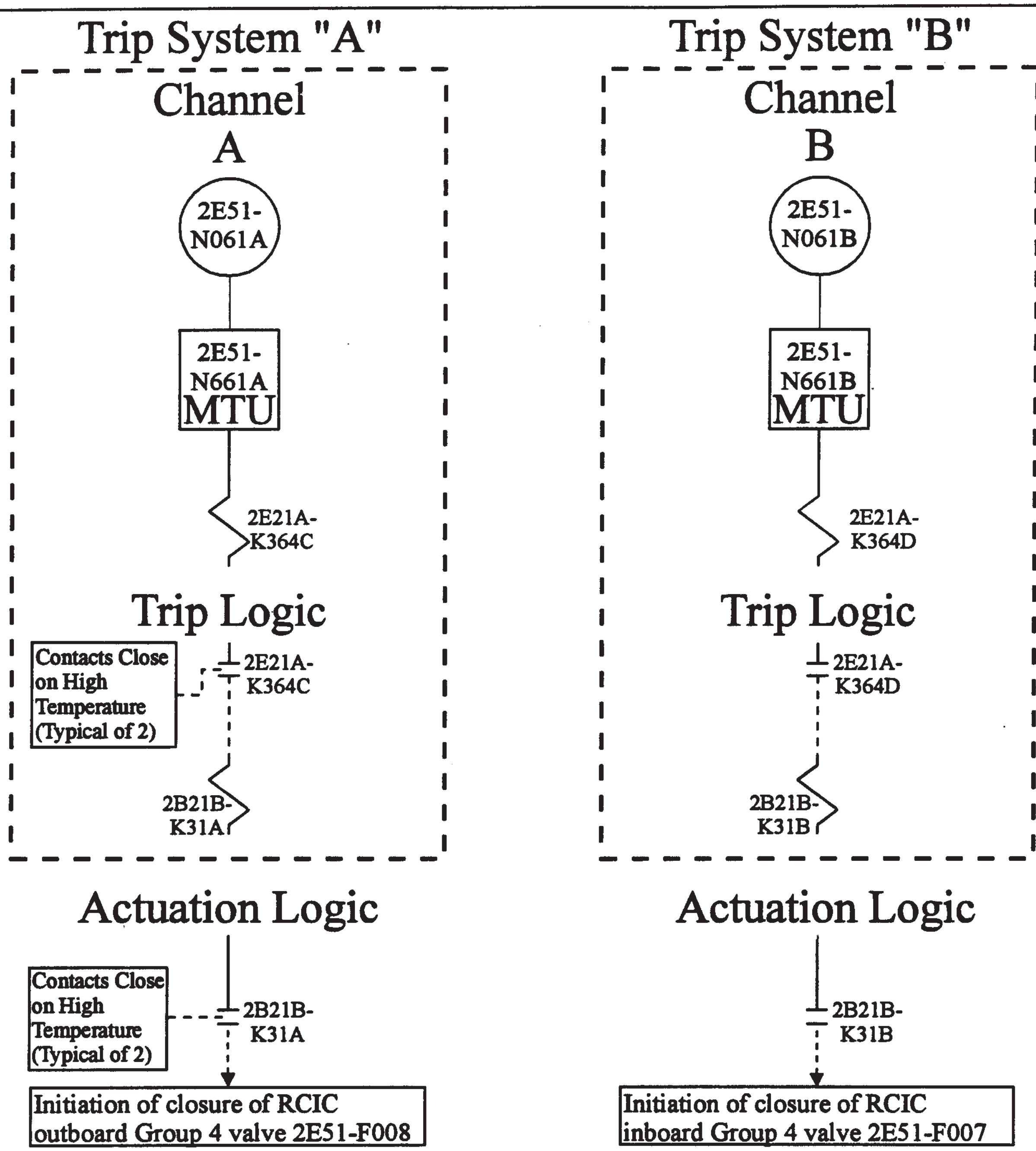
Prepared By:

Reviewed By:

LFD-2-PCIS-27

TS 3.3.6.1-1, Items 4.f and g
RCIC System Isolation
Suppression Pool Area
Temperature-Time Delay
Relays and RCIC
Suppression Pool Area
Differential Temp. - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation Capability:

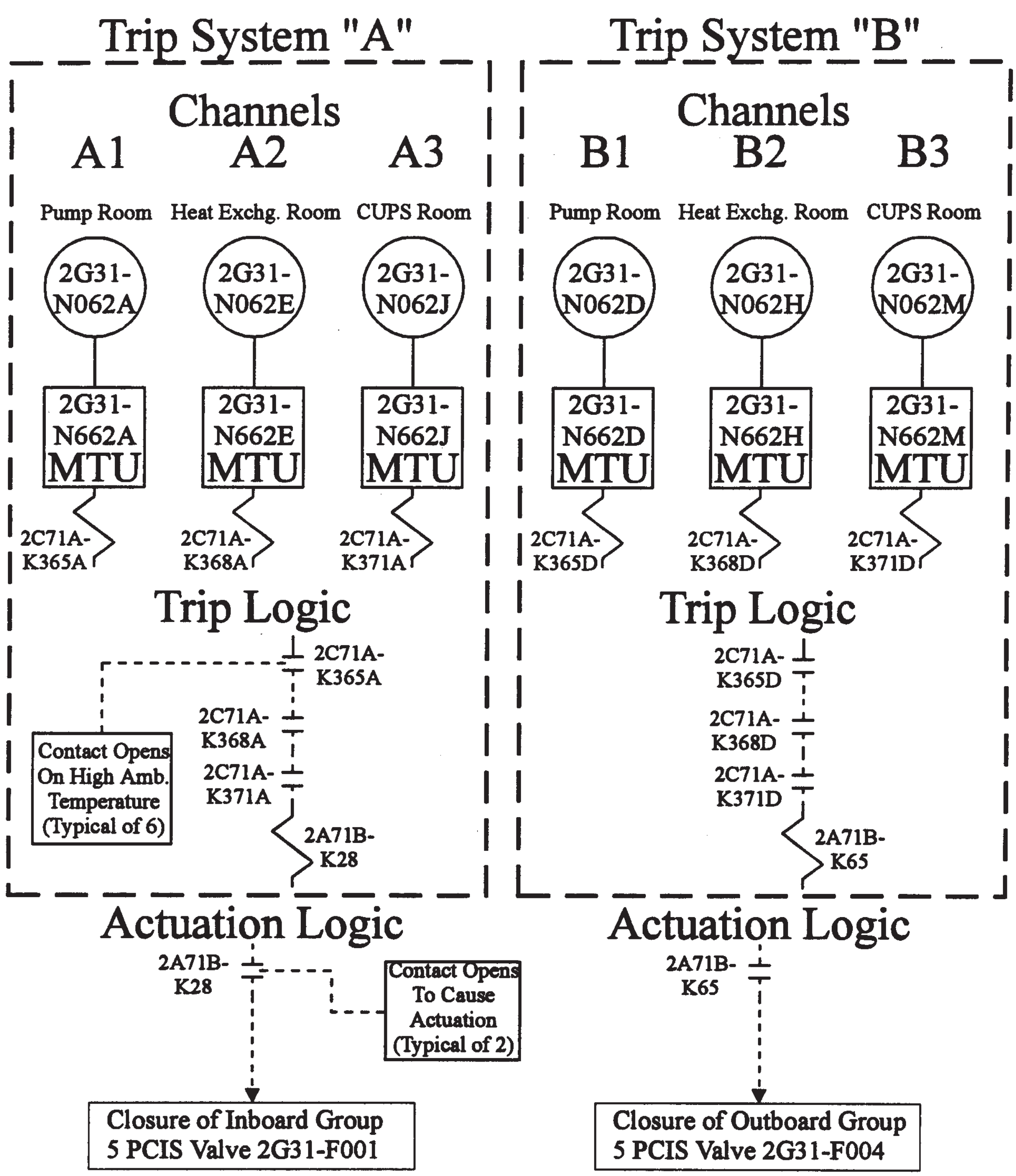
In order to maintain the capability to isolate the RCIC steam supply line on high emergency area equipment cooler temperature, at least one channel is required to be operable or maintained in the tripped condition.

Elem. Ref.	
H-24429	H-27675
H-24432	H-27676
H-27468	H-27678

Prepared By:

Reviewed By:

LFD-2-PCIS-28
TS 3.3.6.1-1, Item 4.h
RCIC System Isolation
Emergency Area Cooler
Temperature - High
Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability

In order to maintain Group 5 PCIS isolation capability on high area temperature, channels in one of the following combinations must be either operable or maintained in the tripped condition.

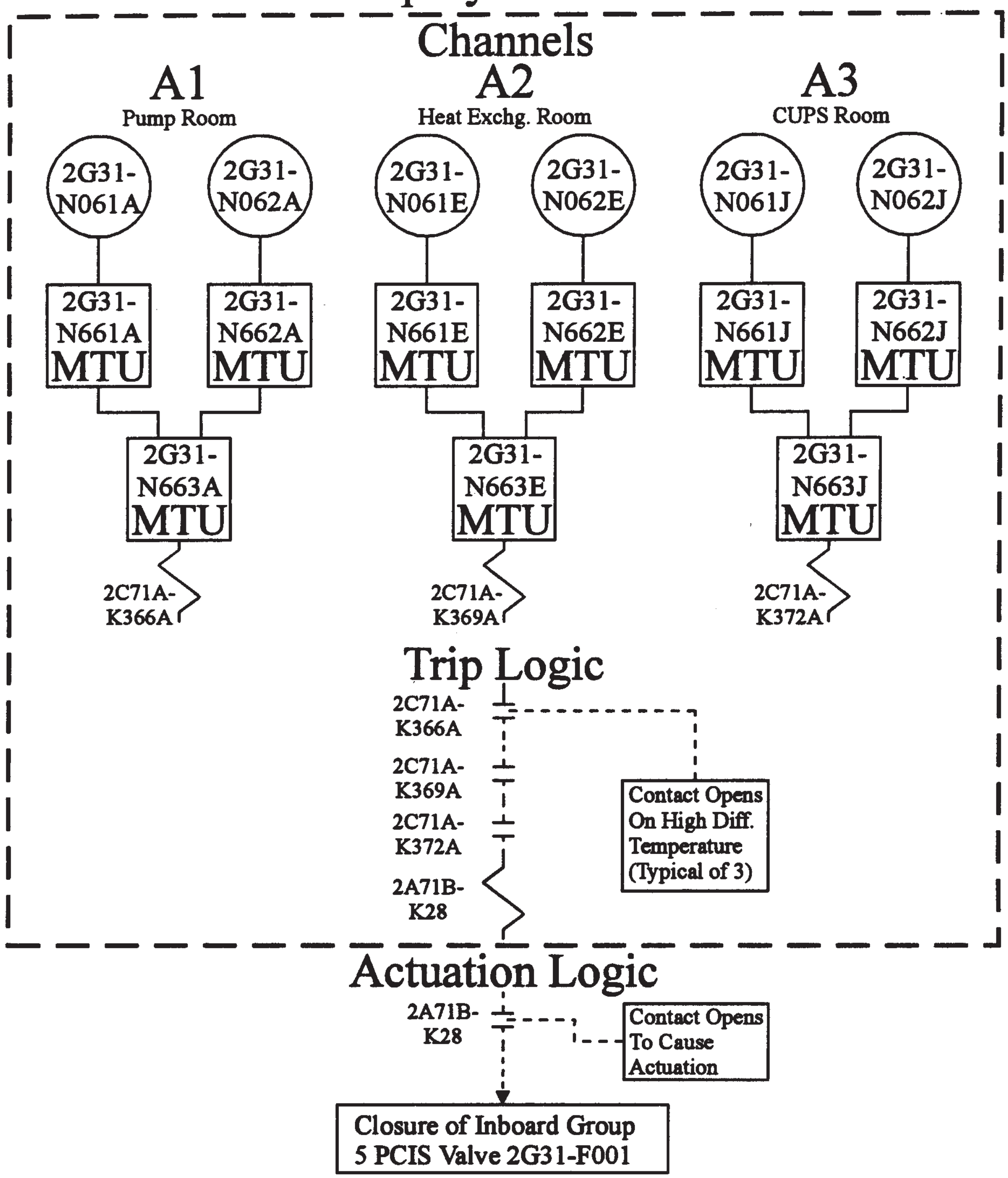
A1 or B1
AND
A2 or B2
AND
A3 or B3

Elem. Ref.
H-24411
H-24420
H-27462
H-27463

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-PCIS-29	
TS 3.3.6.1-1, Item 5.a	
RWCU System Isolation Area Temperature-High	
Rev. 0	1/16/95

Trip System "A"



Minimum Channel Requirements for System Initiation Capability

See Sheet 2 of 2 for statement of minimum channel requirements.

Elem. Ref.
H-24411
H-27462
H-27463

Prepared By:
Reviewed By:

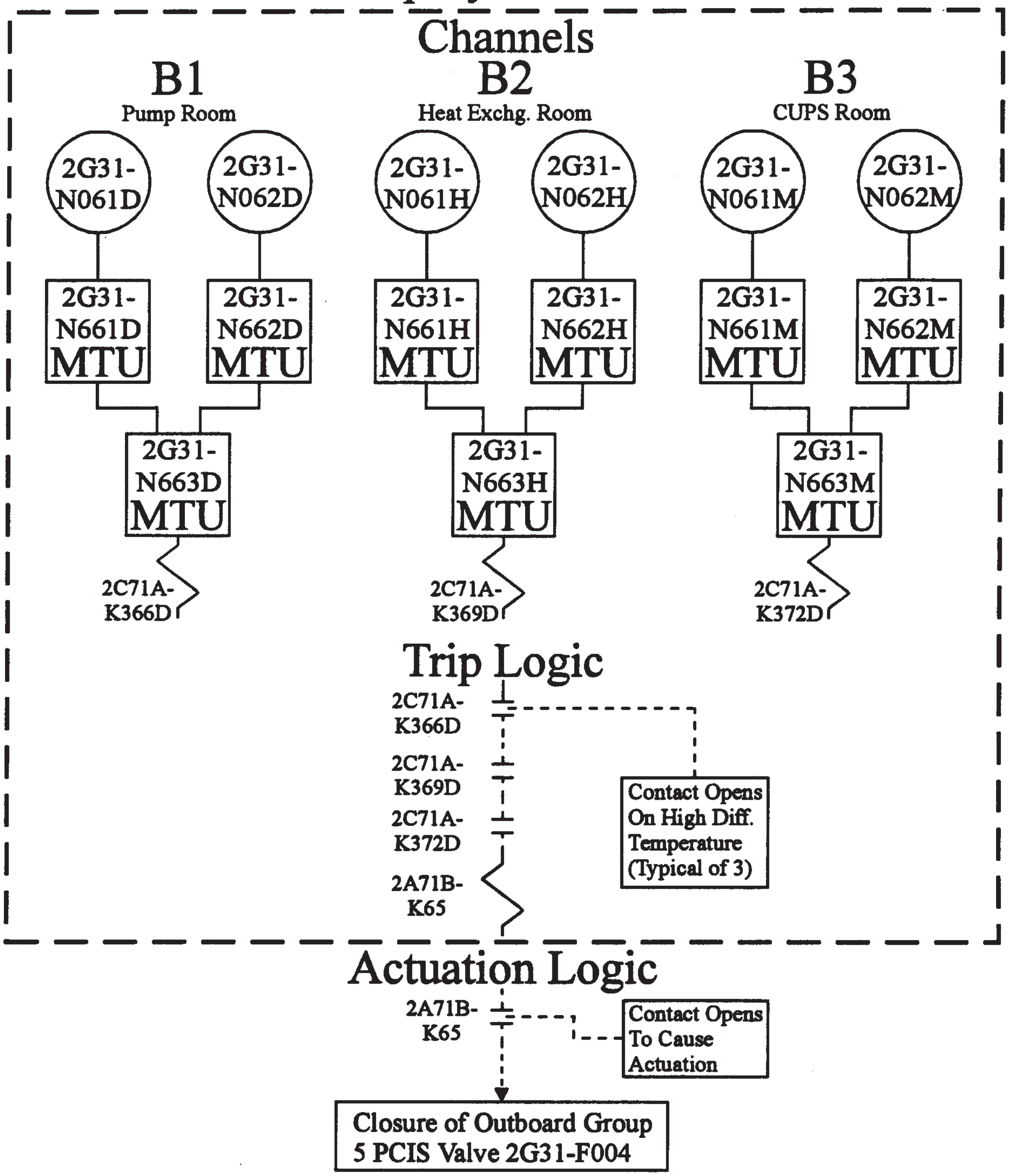
LFD-2-PCIS-30
Sheet 1 of 2

TS 3.3.6.1-1, Item 5.b

RWCU System Isolation
Differential Temp.-High

Rev. 0 1/16/95

Trip System "B"



Minimum Channel Requirements for System Isolation Capability:

In order to maintain Group 5 PCIS isolation capability on high ventilation differential temperature, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or B1
AND
A2 or B2
AND
A3 or B3

Elem. Ref.

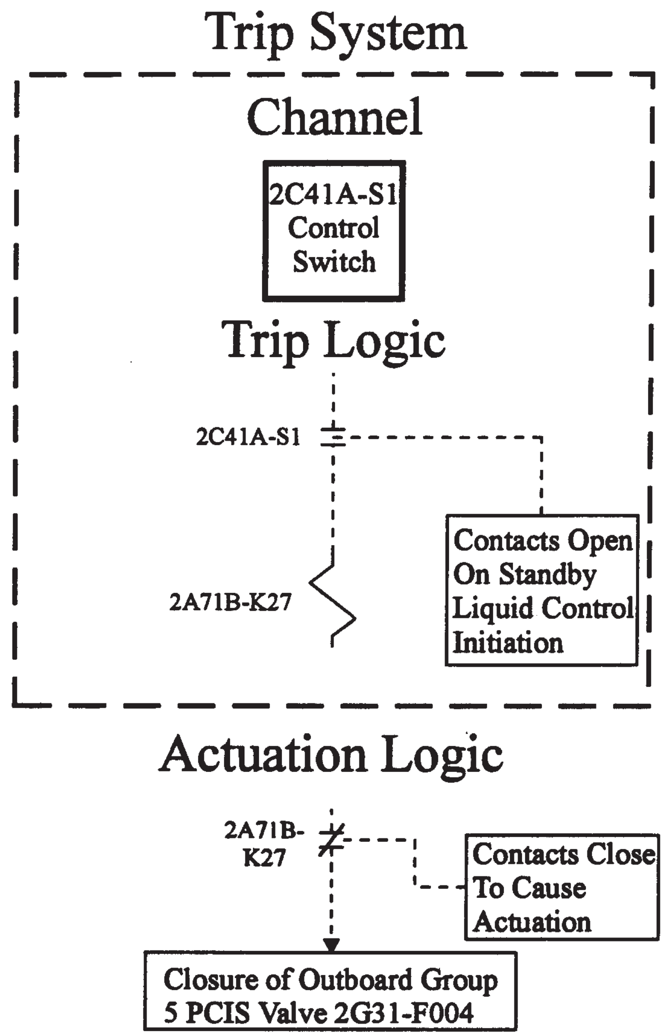
H-24420
H-27462
H-27463

LFD-2-PCIS-30
Sheet 2 of 2

TS 3.3.6.1-1, Item 5.b

RWCU System Isolation Differential Temp.-High

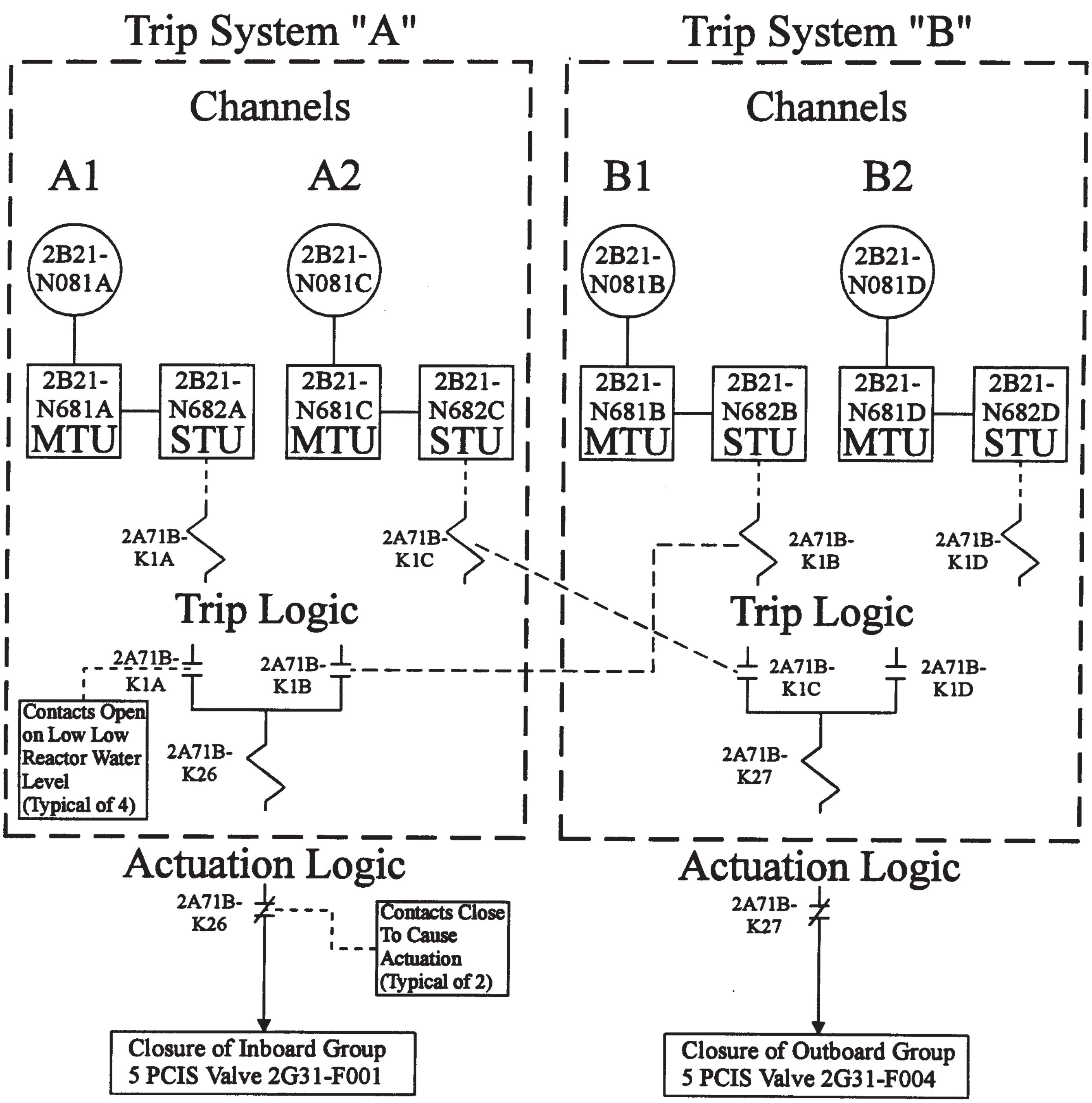
Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability

In order to maintain the capability to isolate the outboard Group 5 PCIS valve 2G31-F004 on Standby Liquid Control System initiation, this channel must be operable or maintained in the tripped condition.

Elem. Ref.		LFD-2-PCIS-31
H-27525		TS 3.3.6.1-1, Item 5.c
H-27462	Prepared By:	RWCU System Isolation SLC System Initiation
H-27463	Reviewed By:	Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability

In order to maintain Group 5 PCIS isolation capability on low low reactor water level, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

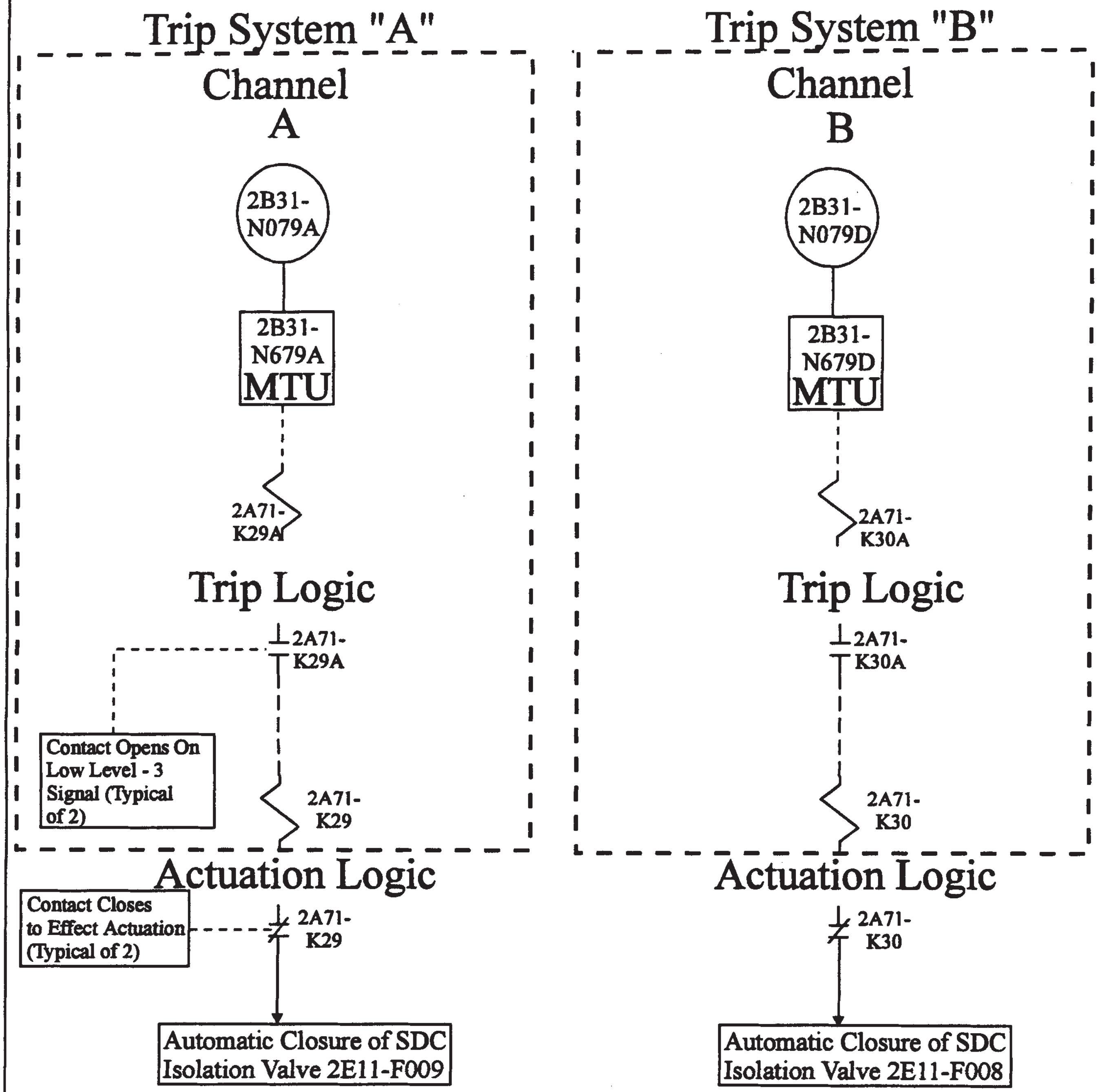
Elem. Ref.	
H-24409	H-27455
H-24412	H-27456
H-24415	H-27462
H-24418	H-27463

Prepared By: Stephen W. Reed
Reviewed By: [signature]

LFD-2-PCIS-32

TS 3.3.6.1-1, Item 5.d
RWCU System Isolation
Reactor Vessel Water
Level - Low Low, Lvl. 2

Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability:

In order to maintain RHR Shutdown Cooling System isolation capability on a Reactor Steam Dome Pressure - High signal, either channel "A" or "B" is required to be operable or maintained in the tripped condition.

Note: This is not a PCIS function; however, it is an SDC isolation function. Therefore, automatic isolation capability of 1E11-F009 is required even though it is not a PCIS valve.

Elem. Ref.	
H-24409	H-27462
H-24418	H-27463

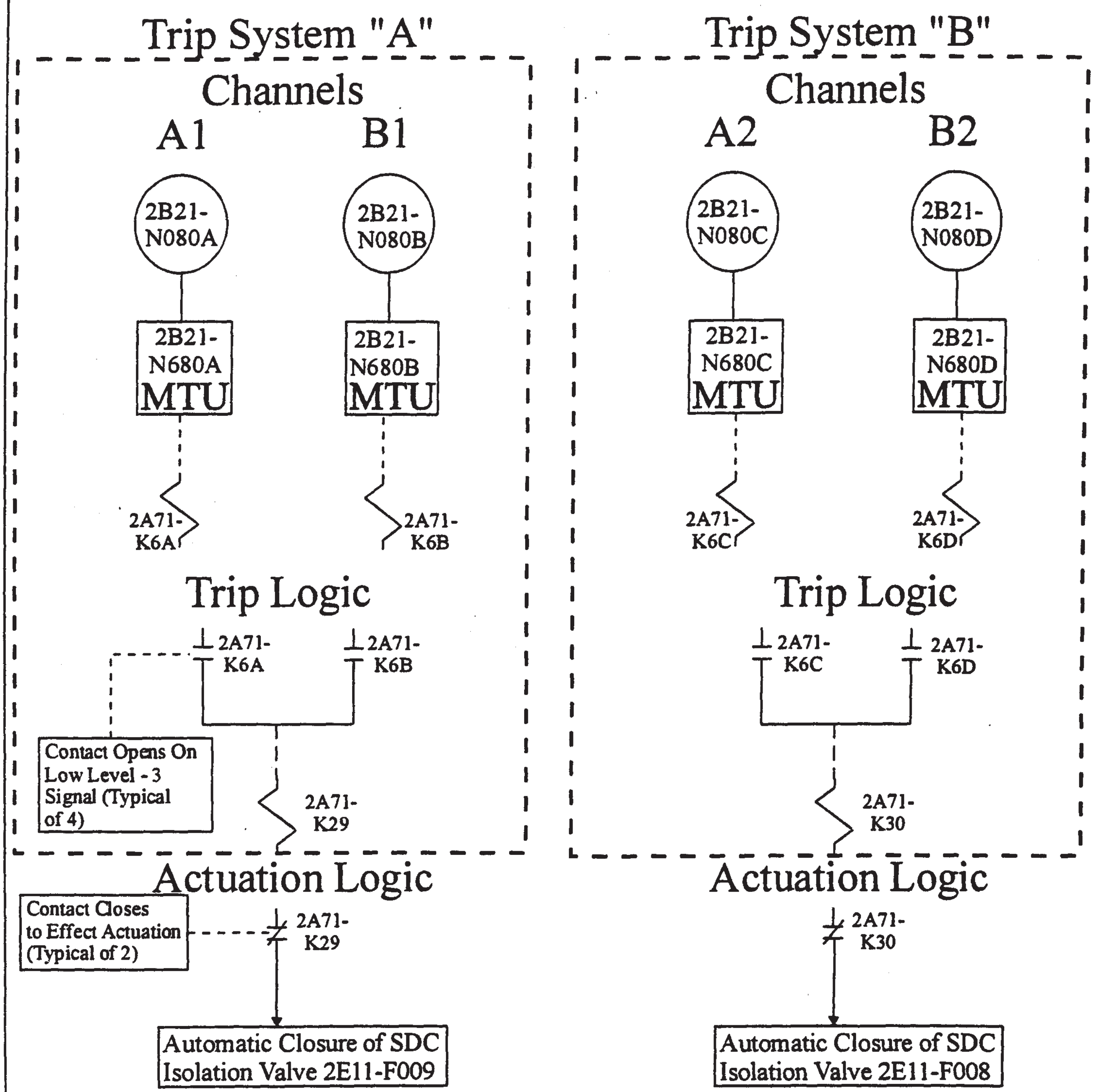
Prepared By: S. A. Brun

Reviewed By: Royce Clark

LFD-2-PCIS-33

TS 3.3.6.1-1, Item 6.a RHR SDC System Isolation, Reactor Steam Dome Pressure - High

Rev. 0 1/16/95



Minimum Channel Requirements for System Initiation Capability:

In order to maintain RHR Shutdown Cooling System isolation capability on a Reactor Vessel Water Level - Low, Level 3 signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

Note: This is not a PCIS function; however, it is an SDC isolation function. Therefore, automatic isolation capability of 2E11-F009 is required even though it is not a PCIS valve.

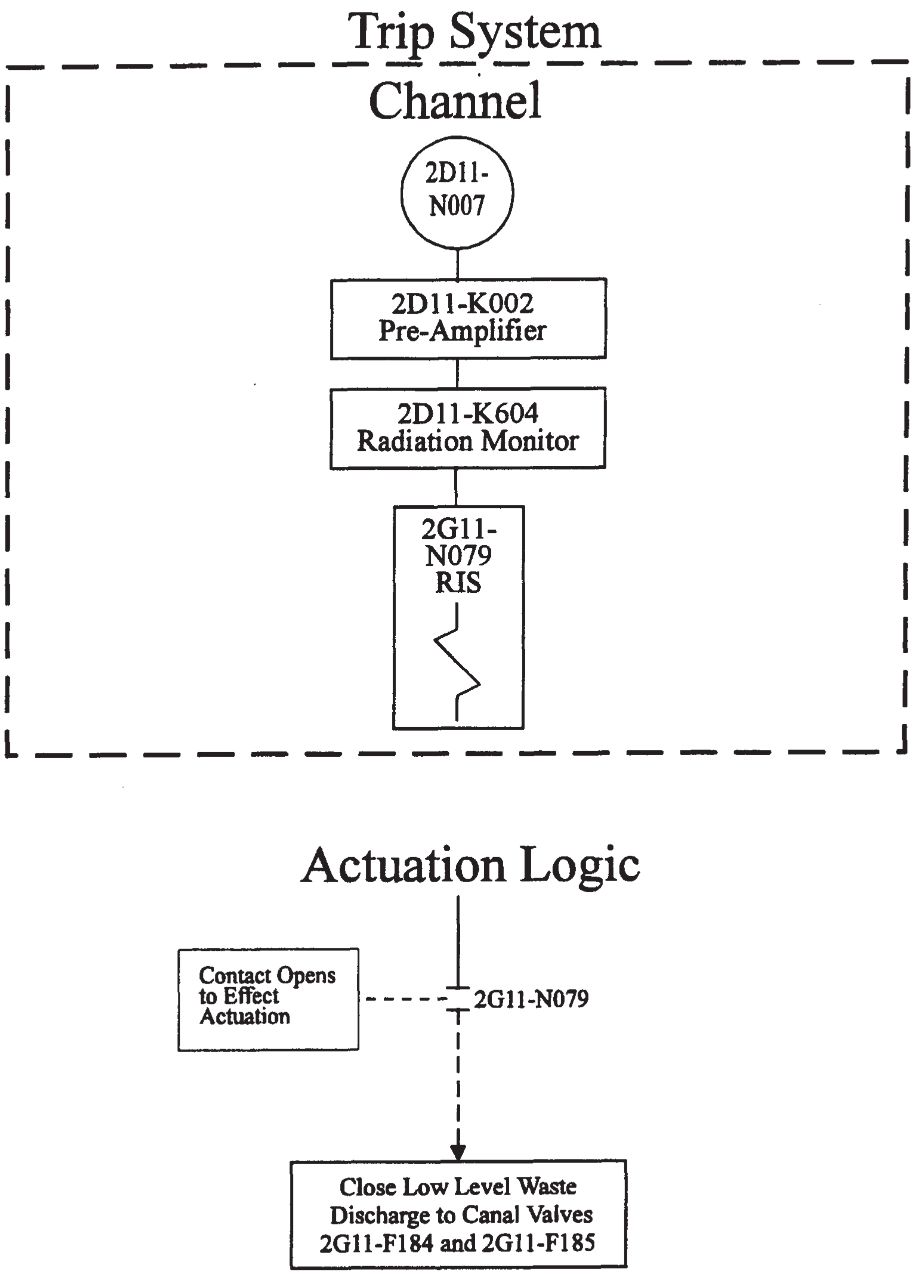
Elem. Ref.	
H-24409	H-27456
H-24412	H-27462
H-24415	H-27463
H-24418	H-27610
H-27455	H-27611

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-PCIS-34

TS 3.3.6.1-1, Item 6.b RHR SDC System Isolation, Reactor Vessel Water Level - Low, Level 3

TRM Rev. 30



Minimum Channel Requirements for System Initiation Capability:

In order to maintain automatic isolation capability of the liquid radwaste discharge line (to the river) on a Liquid Radwaste Effluent Line Radiation-High signal, this channel must be operable.

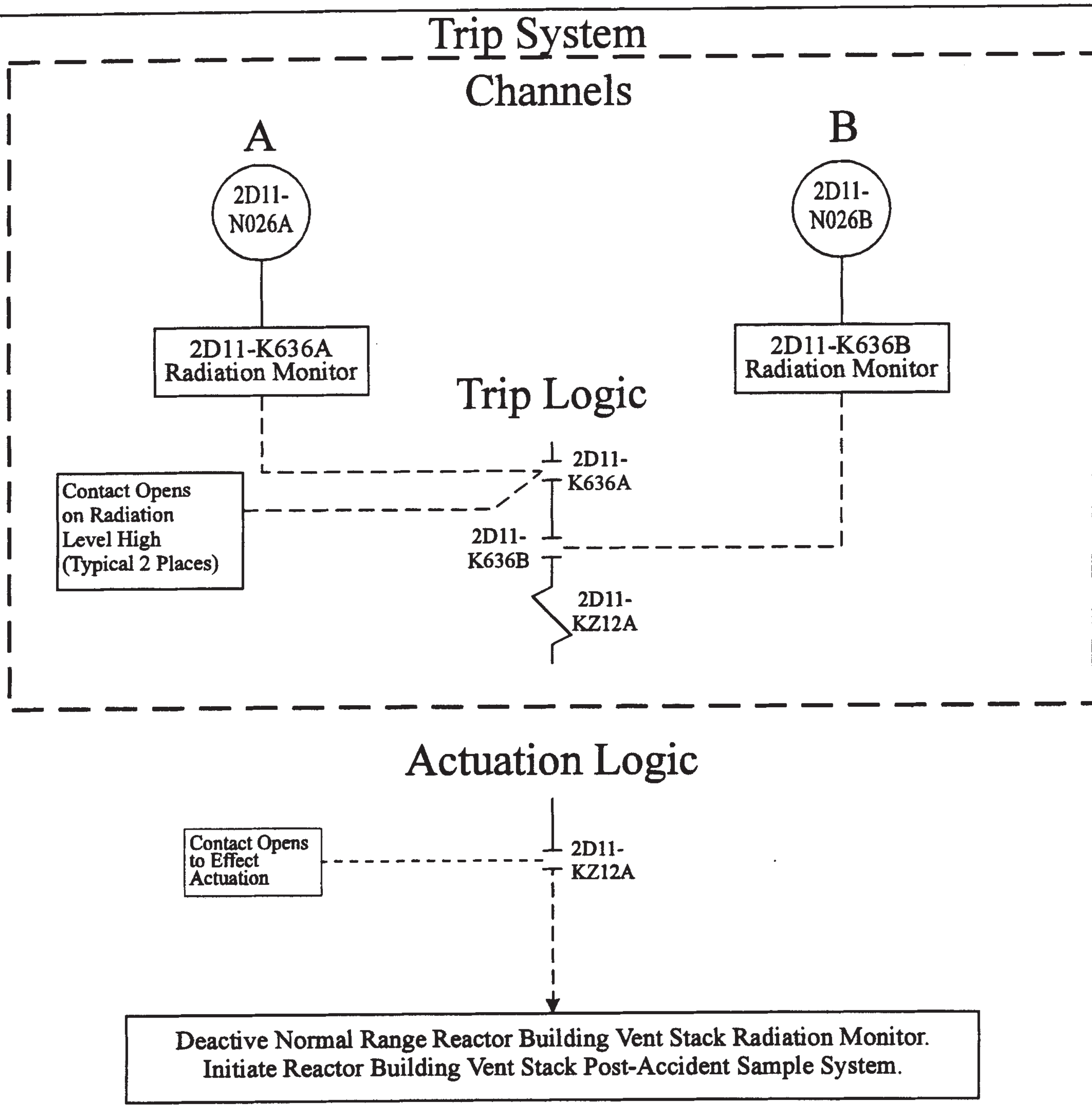
Elem. Ref.
H-27628
H-27151

Prepared By: RBR
Reviewed By: JSB

LFD-2-PRM-01

ODCM 2-1, Item 1
Liquid Radwaste
Effluent Line
Radiation High

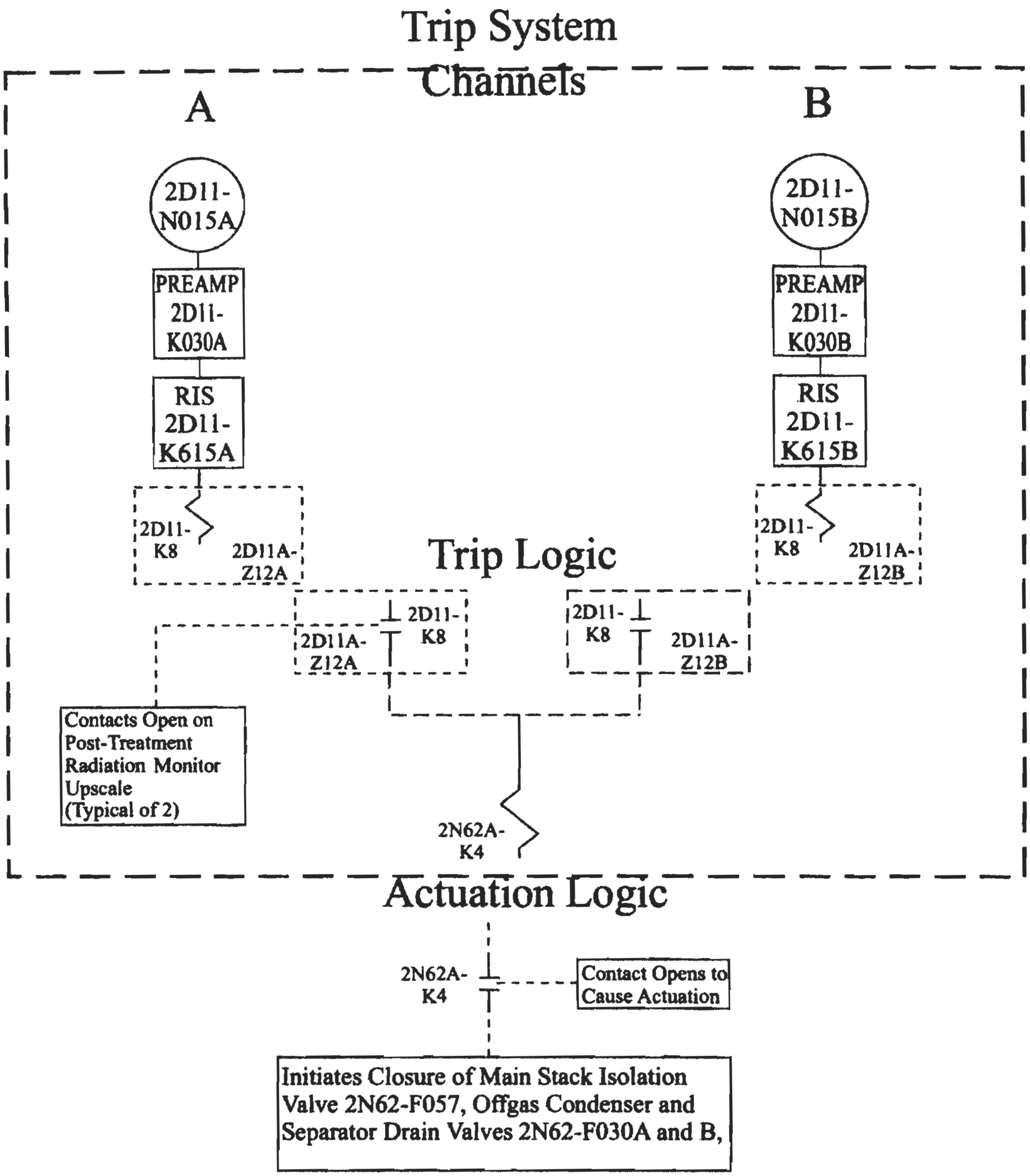
Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain accident range monitoring automatic initiation capability due to a reactor building vent stack monitor high radiation signal, at least one channel must be operable.

Elem. Ref. H-27236 H-27628	Prepared By: RBR Reviewed By: JSB	LFD-2-PRM-02 ODCM 3-1, Item 1.a Reactor Building Vent Stack Monitoring System Radiation High Rev. 0 11/16/94



Minimum Channel Requirements for System Isolation Capability:

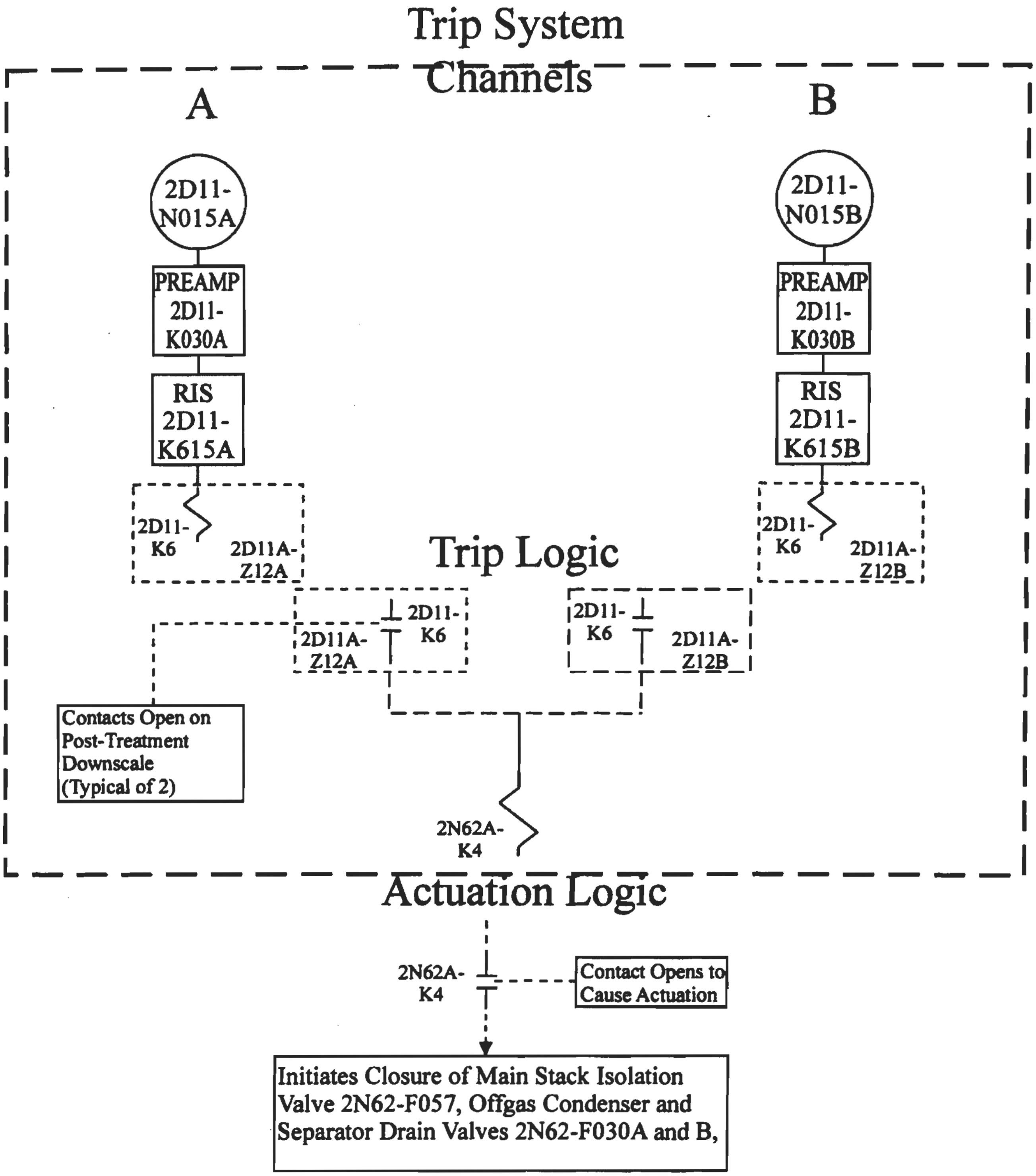
In order to maintain Offgas System isolation capability on a Post-Treatment Radiation Upscale condition, each channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27627
H-27783
H-27811
H-27818
H-27819

Prepared By:
Reviewed By:

LFD-2-PRM-03

TRM T3.3.8-1, Item 1
Offgas System Isolation
Post-Treatment Radiation
Monitor Upscale



Minimum Channel Requirements for System Isolation Capability:

In order to maintain Offgas System isolation capability on a Post-Treatment Radiation Downscale condition, each channel must be functional or maintained in the tripped condition.

Elem. Ref.
H-27627
H-27783
H-27811
H-27818
H-27819

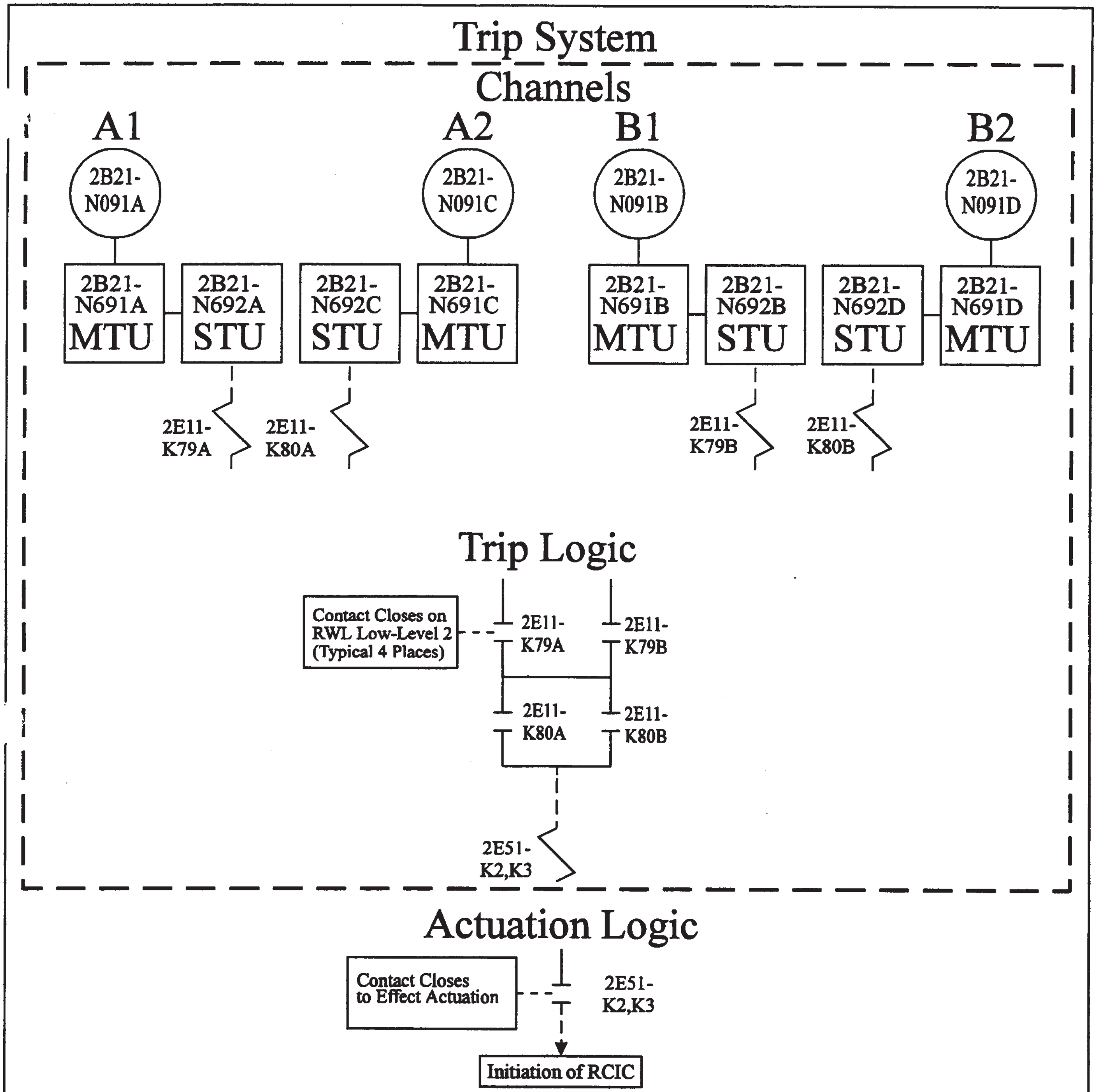
Prepared By: TLC

Reviewed By: [signature]

LFD-2-PRM-04

TRM T3.3.8-1, Item 2
Offgas System Isolation
Post-Treatment
Radiation Downscale

TRM REV. 62



Minimum Channel Requirements for System Initiation Capability:

In order to maintain RCIC initiation capability due to low reactor water level, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 & A2
A1 & B2
B1 & A2
B1 & B2

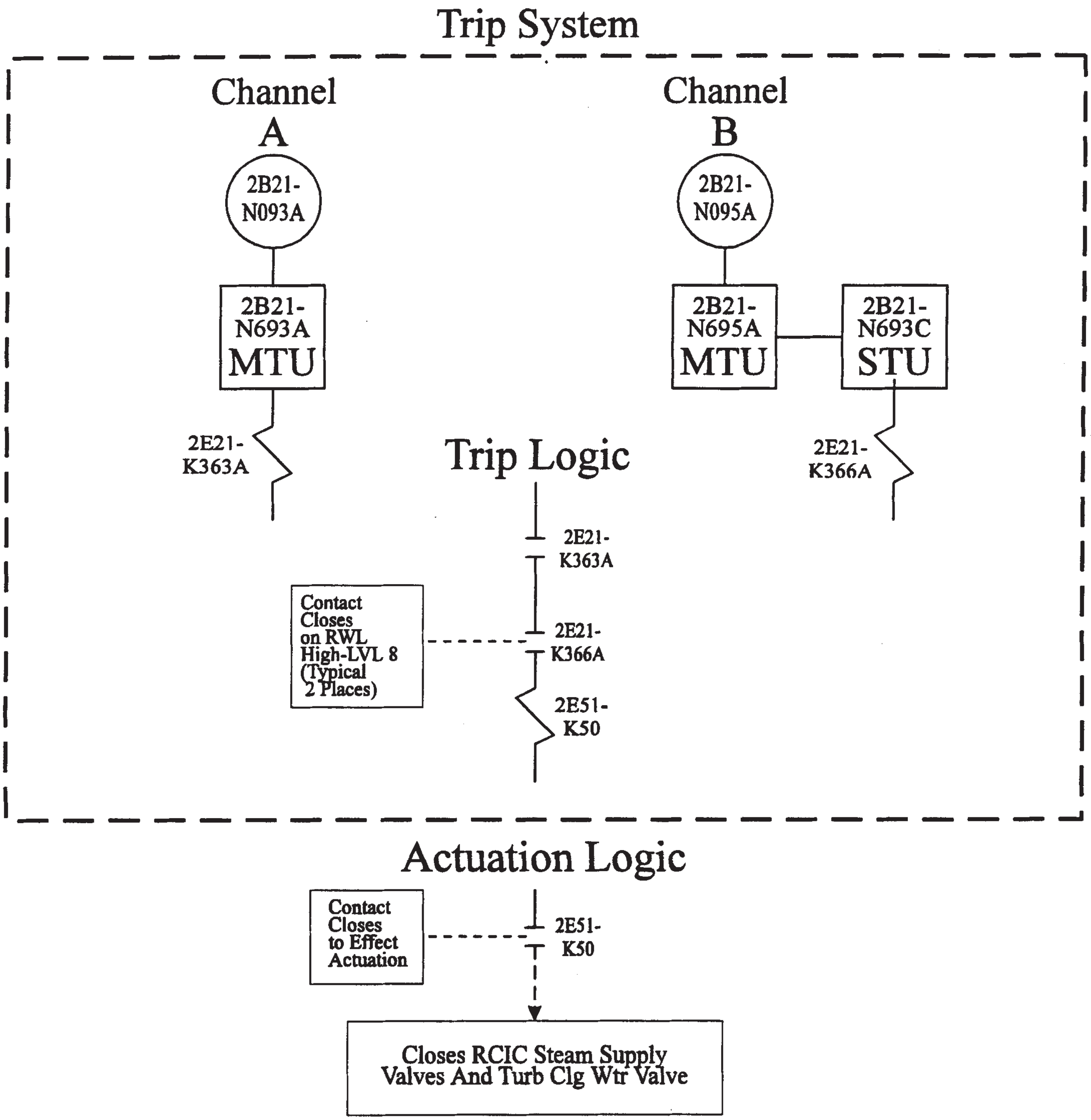
Elem. Ref.
H-24423 H-27638
H-24426 H-27641
H-24429 H-27675
H-24432

Prepared By: [signature]
Reviewed By: J.C. Fields

LFD-2-RCIC-01

TS 3.3.5.2-1, Item 1
RCIC System
Reactor Vessel
Water Level-
Low Low, Level 2

TRM Rev. 7



Minimum Channel Requirements for System Trip Capability:

In order to ensure RCIC system trip capability on a RWL-HIGH- Level 8 signal, both channels must be operable.

Elem. Ref.
H-24102
H-24423
H-27675
H-27679

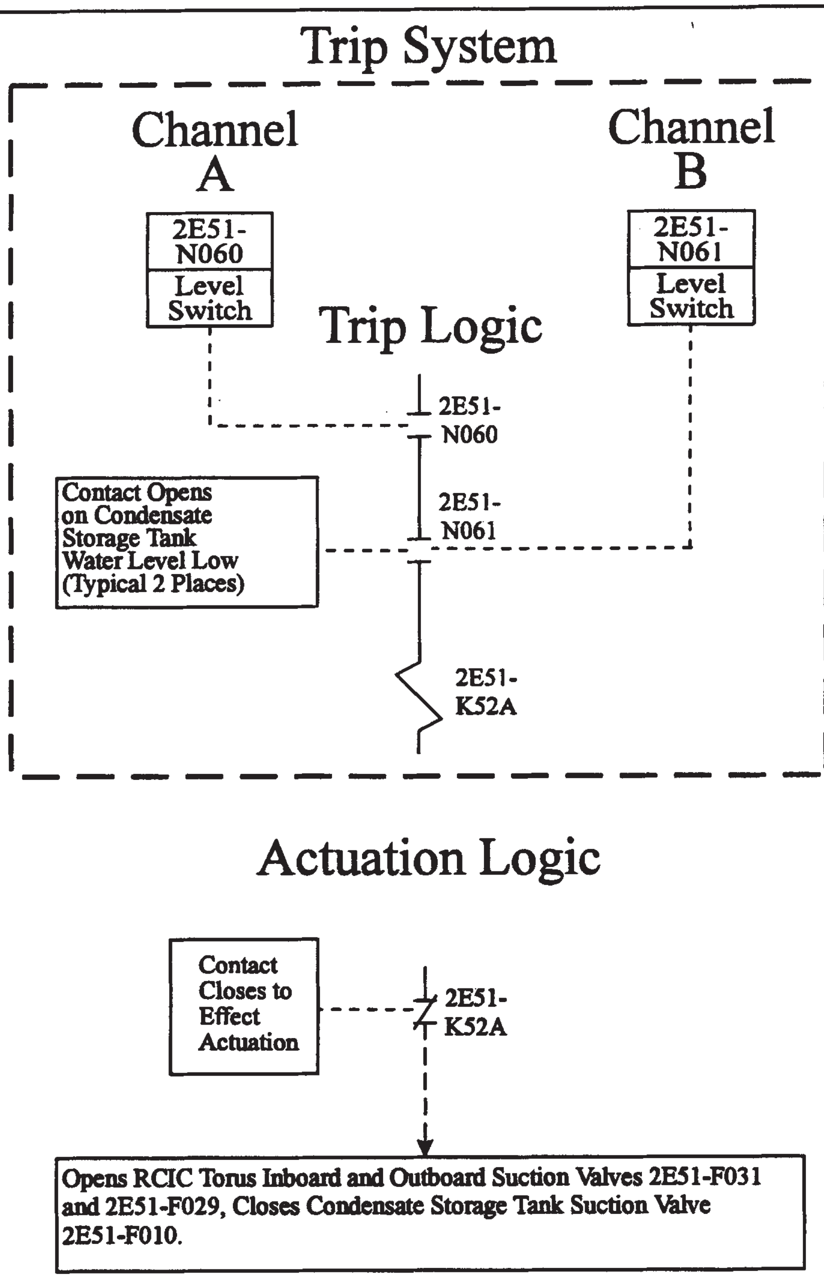
Prepared By: J98

Reviewed By: LCC

LFD-2-RCIC-02

TS 3.3.5.2-1, Item 2
RCIC System
Reactor Vessel
Water Level - High,
Level 8

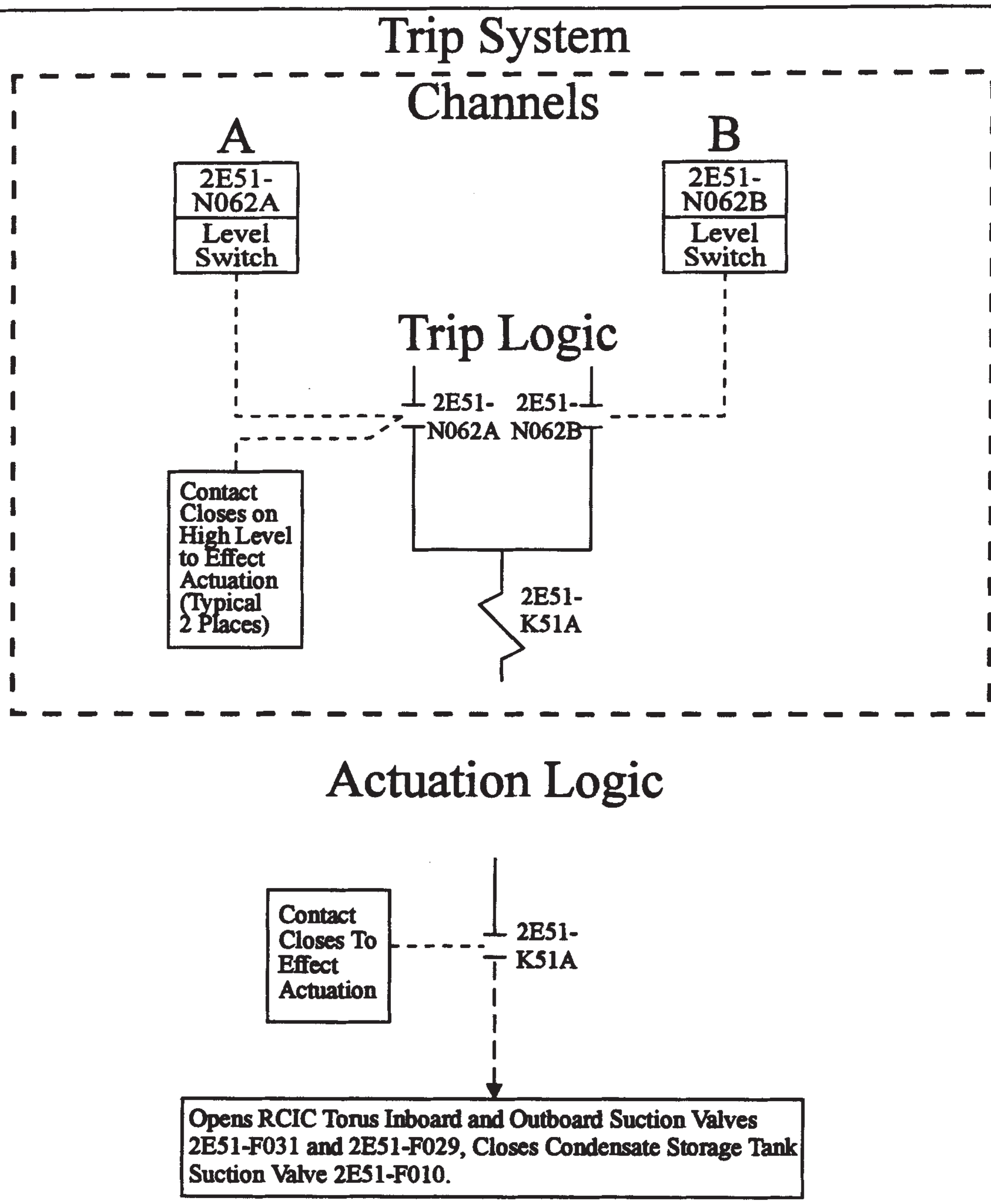
Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the ability to automatically transfer the RCIC pump suction from the CST to the Suppression Pool on a CST low level signal, one of the two channels must be operable or maintained in the tripped condition.

Elem. Ref. H-27675 H-27679	Prepared By: JDB Reviewed By: JJR	LFD-2-RCIC-03 TS 3.3.5.2-1, Item 3 RCIC System Condensate Storage Tank Level-Low Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the ability to automatically transfer the RCIC pump suction from the CST to the Suppression Pool on a high Suppression Pool water level signal, one of the two channels must be operable or maintained in the tripped condition.

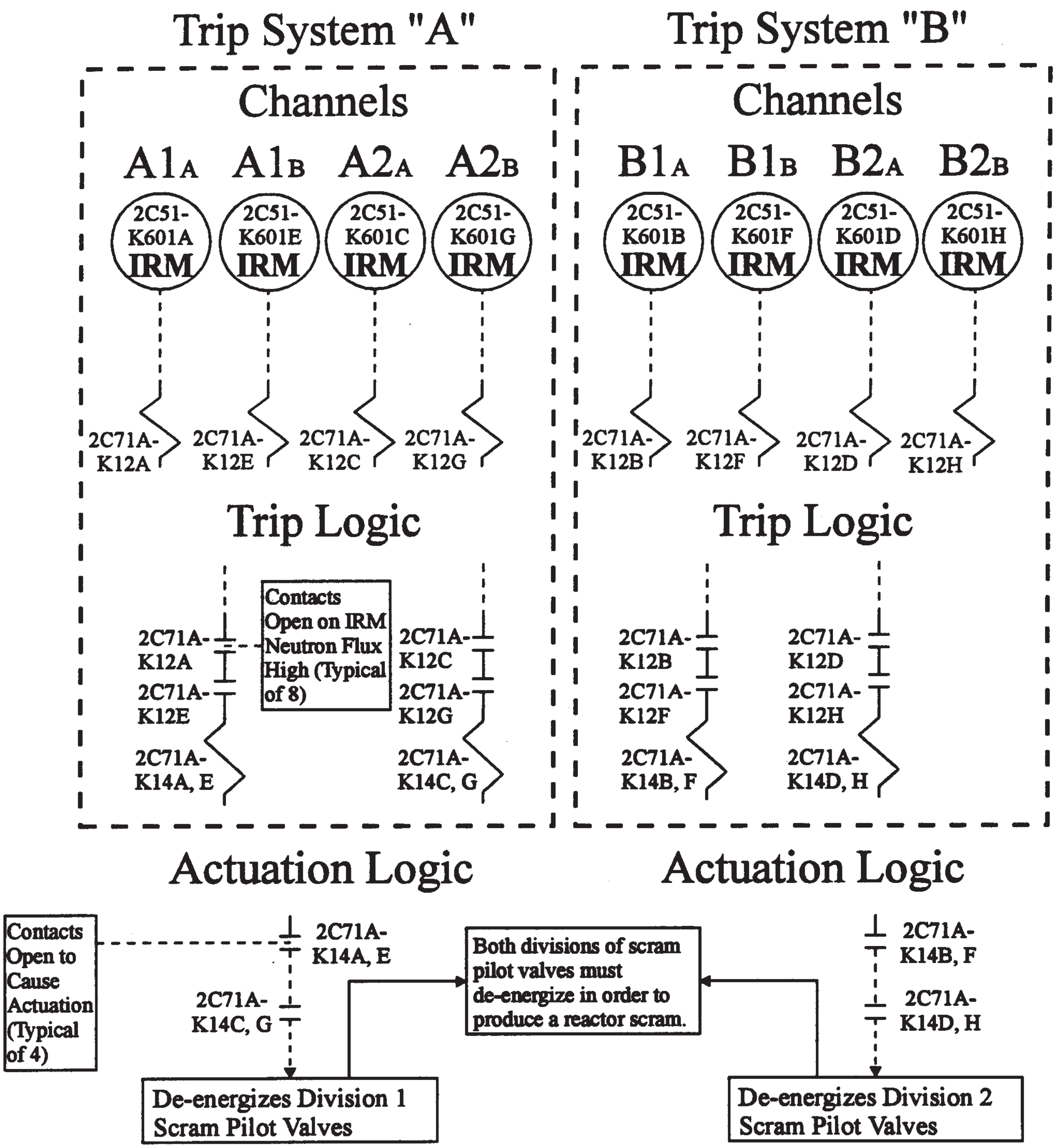
Elem. Ref.
H-27675
H-27679

Prepared By: JDB
Reviewed By: JDR

LFD-2-RCIC-04

TS 3.3.5.2-1, Item 4
RCIC System
Suppression Pool
Water Level-High

Rev. 0 11/16/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on IRM neutron flux high, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1A or A1B or A2A or A2B

AND

B1A or B1B or B2A or B2B

Elem. Ref.

H-27610 H-27613
H-27611 H-27614
H-27612

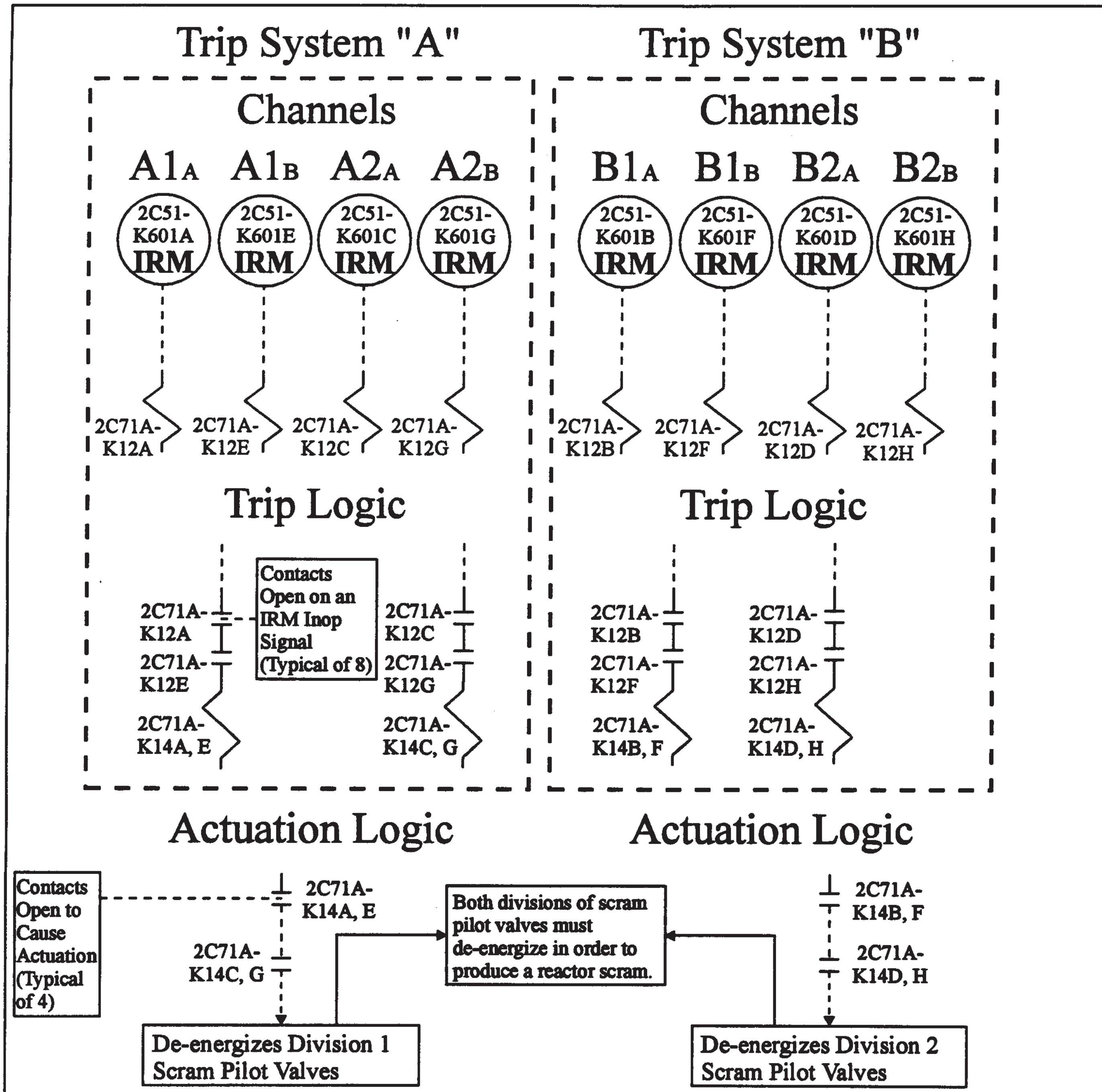
Prepared By: Royce Clark

Reviewed By: S. Q. Bruner

LFD-2-RPS-01

TS 3.3.1.1-1, Item 1.a
Reactor Protection System Instrumentation
IRM Neutron Flux - High

Rev. 0 12/1/94



Minimum Channel Requirements for System Initiation Capability:

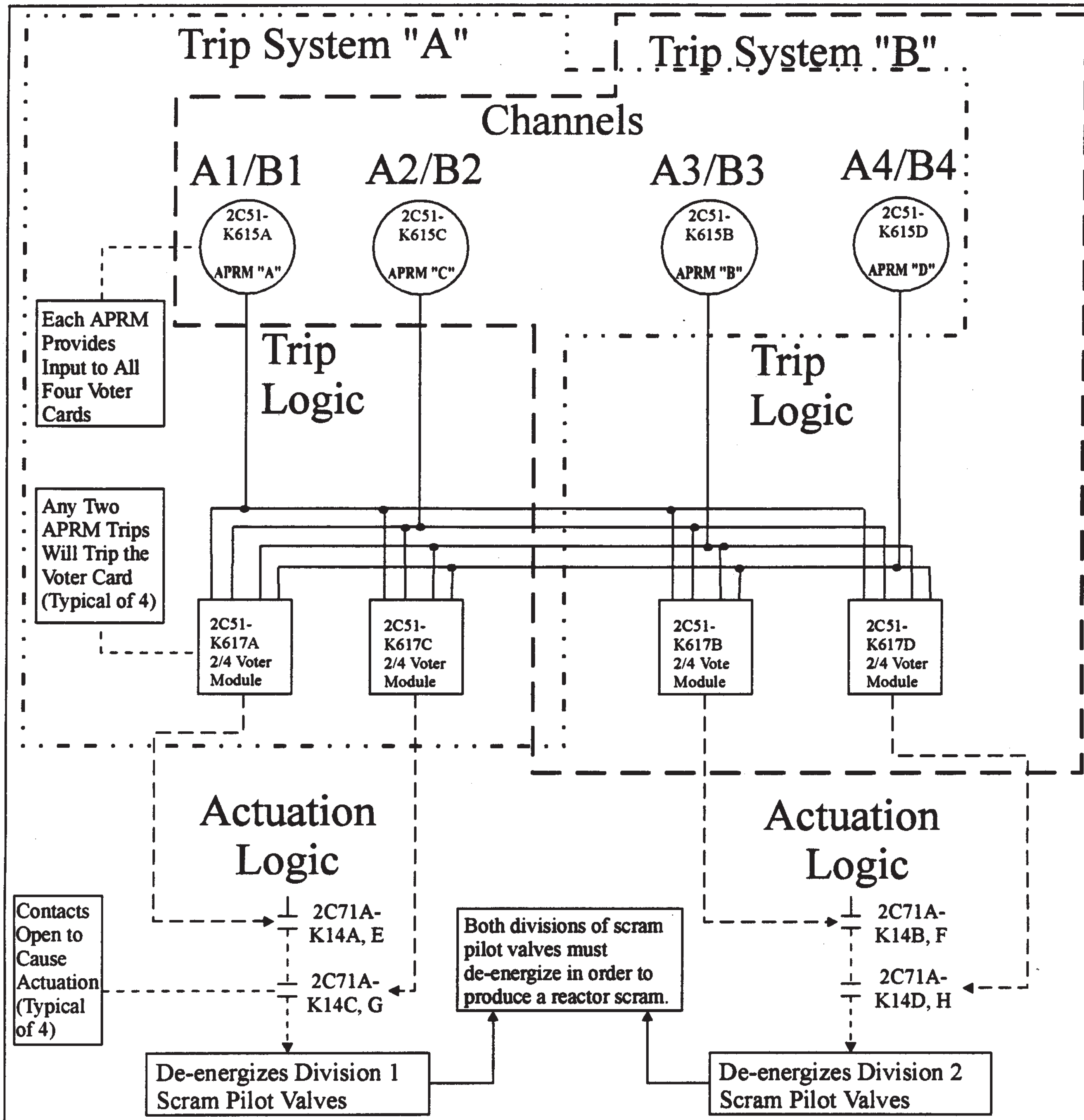
In order to maintain the capability to scram the reactor on an IRM inop signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1A or A1B or A2A or A2B
AND
B1A or B1B or B2A or B2B

Elem. Ref.
H-27610 H-27613
H-27611 H-27614
H-27612

Prepared By: Royce Clark
Reviewed By: S. R. Brunson

LFD-2-RPS-02
TS 3.3.1.1-1, Item 1.b
Reactor Protection System Instrumentation - IRM Inop
Rev. 0 12/1/94



<u>Minimum Channel Requirements for System Initiation Capability:</u>

In order to maintain the capability to scram the reactor on APRM neutron flux high (setdown), channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1/B1 and A2/B2
A1/B1 and A3/B3
A1/B1 and A4/B4
A2/B2 and A3/B3
A2/B2 and A4/B4
A3/B3 and A4/B4

Elem. Ref.	
H-27610	H-52003
H-27611	H-52004
H-27612	H-52005
H-27613	H-52006
H-27614	H-52010

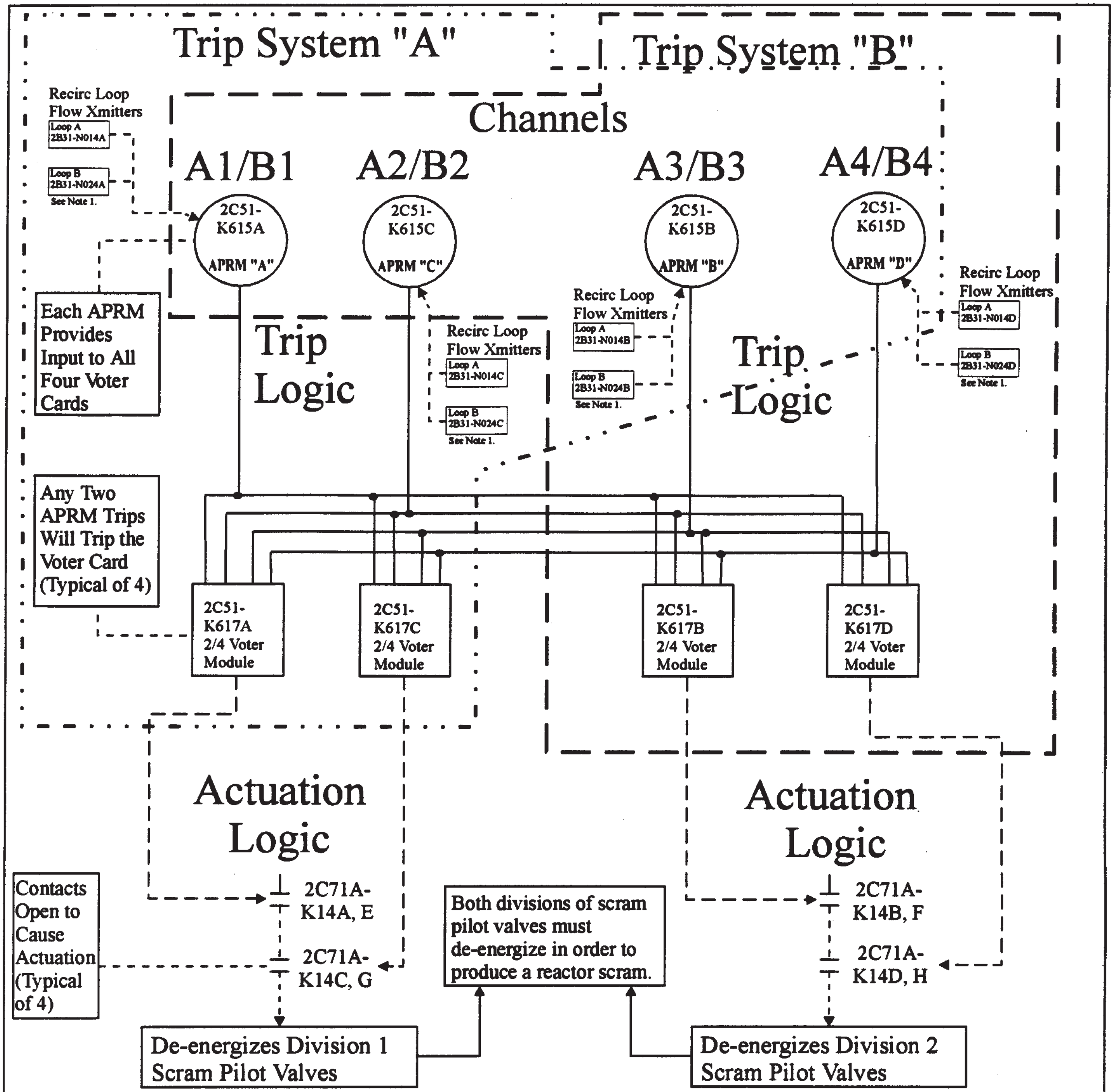
Prepared By: S.R. Brown

Reviewed By: Kathryn Wilkins

LFD-2-RPS-03

TS 3.3.1.1-1, Item 2.a
Reactor Protection System Instrumentation - APRM Neutron Flux - High (Setdown)

TRM Rev. 13



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on APRM Simulated Thermal Power - High, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1/B1 and A2/B2
A1/B1 and A3/B3
A1/B1 and A4/B4
A2/B2 and A3/B3
A2/B2 and A4/B4
A3/B3 and A4/B4

Note 1: For the STP High function of an APRM to be considered operable, both of the associated Recirc Flow transmitters must be operable.

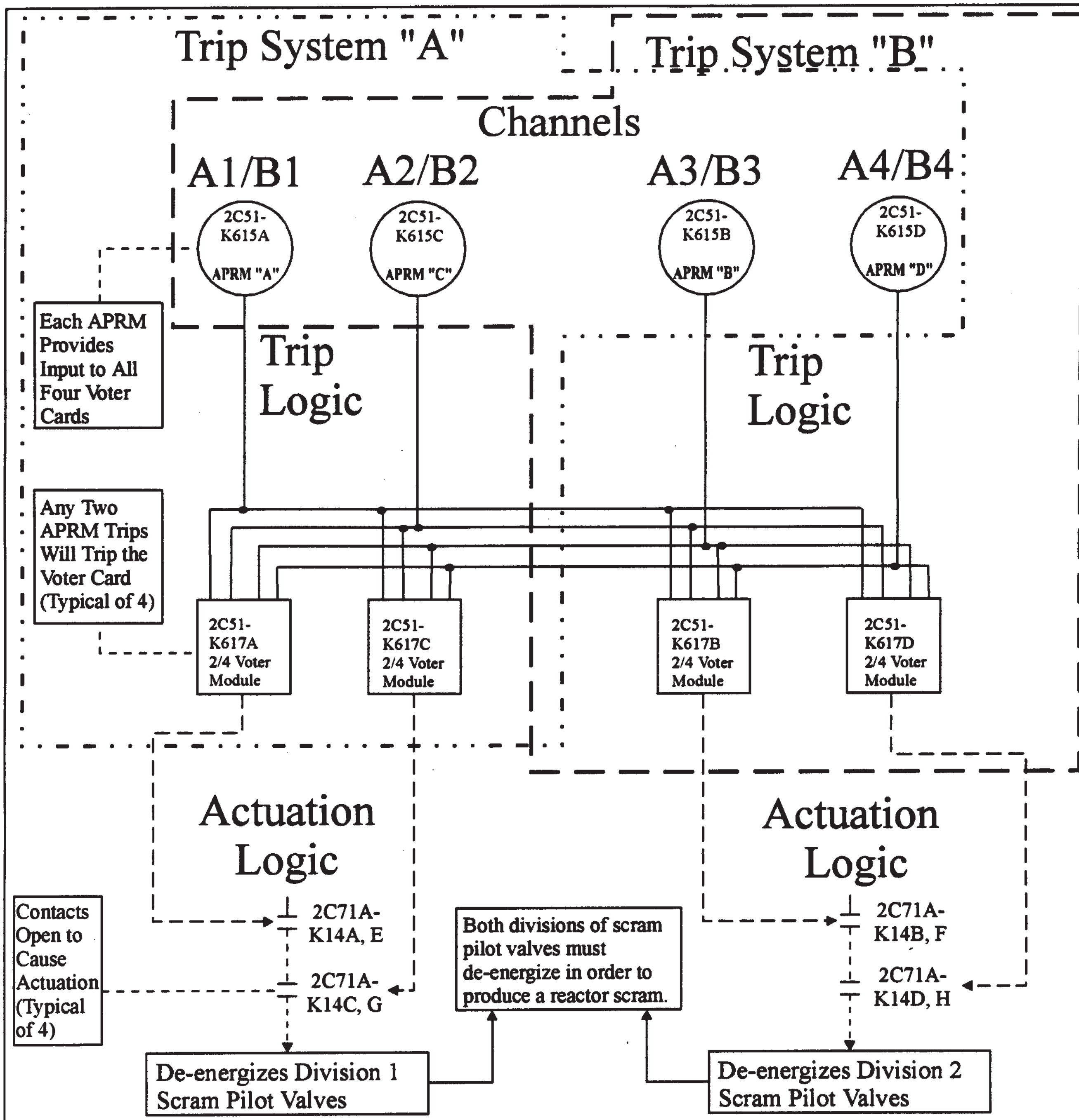
Elem. Ref.	
H-27610	H-52003
H-27611	H-52004
H-27612	H-52005
H-27613	H-52006
H-27614	H-52010

Prepared By: S. R. Bruno

Reviewed By: Kathryn Wilkins

LFD-2-RPS-04

TS 3.3.1.1-1, Item 2.b
Reactor Protection System
Instrumentation - Simulated
Thermal Power - High



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on APRM Neutron Flux - High, channels in one of the following combinations must be either operable or maintained in the tripped condition.

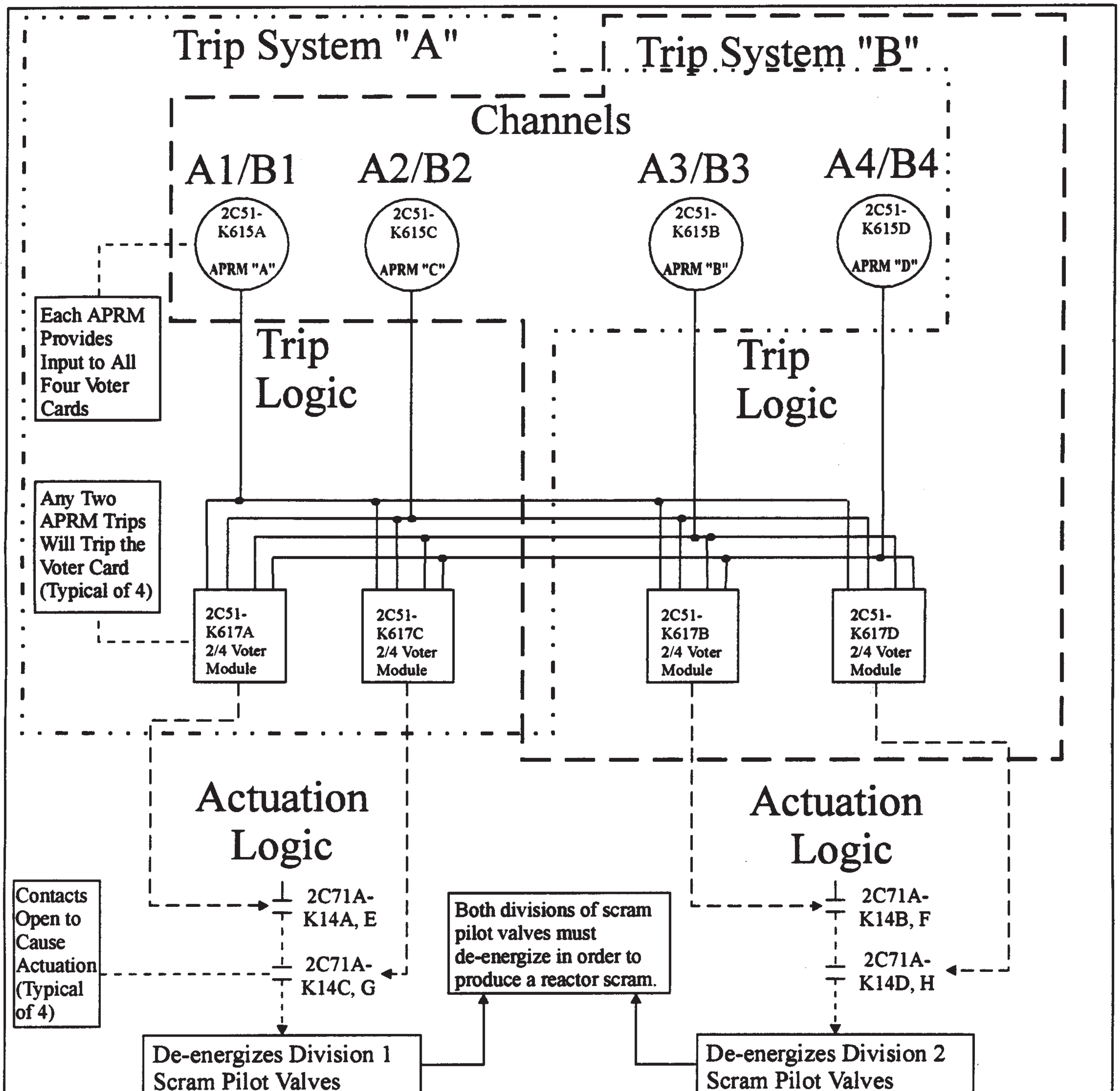
A1/B1 and A2/B2
A1/B1 and A3/B3
A1/B1 and A4/B4
A2/B2 and A3/B3
A2/B2 and A4/B4
A3/B3 and A4/B4

Elem. Ref.	
H-27610	H-52003
H-27611	H-52004
H-27612	H-52005
H-27613	H-52006
H-27614	H-52010

Prepared By: S.L. Brun
Reviewed By: Kathryn Wilkins

LFD-2-RPS-05

TS 3.3.1.1-1, Item 2.c
Reactor Protection System Instrumentation - Neutron Flux - High



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on APRM Inop, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1/B1 and A2/B2
A1/B1 and A3/B3
A1/B1 and A4/B4
A2/B2 and A3/B3
A2/B2 and A4/B4
A3/B3 and A4/B4

Elem. Ref.	
H-27610	H-52003
H-27611	H-52004
H-27612	H-52005
H-27613	H-52006
H-27614	H-52010

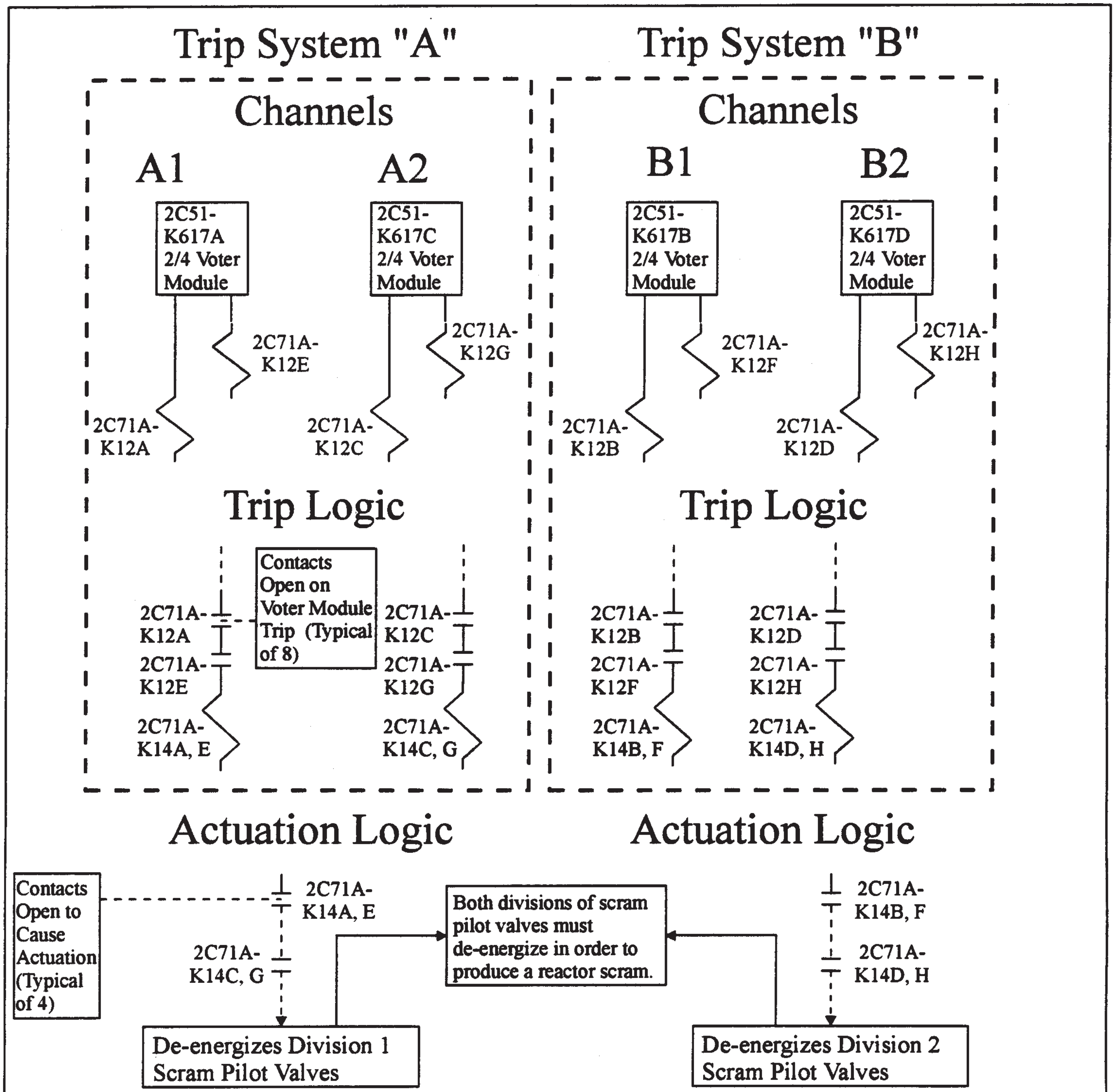
Prepared By:

Reviewed By:

LFD-2-RPS-06

TS 3.3.1.1-1, Item 2.d
Reactor Protection System
Instrumentation - APRM
Inop

TRM Rev. 13

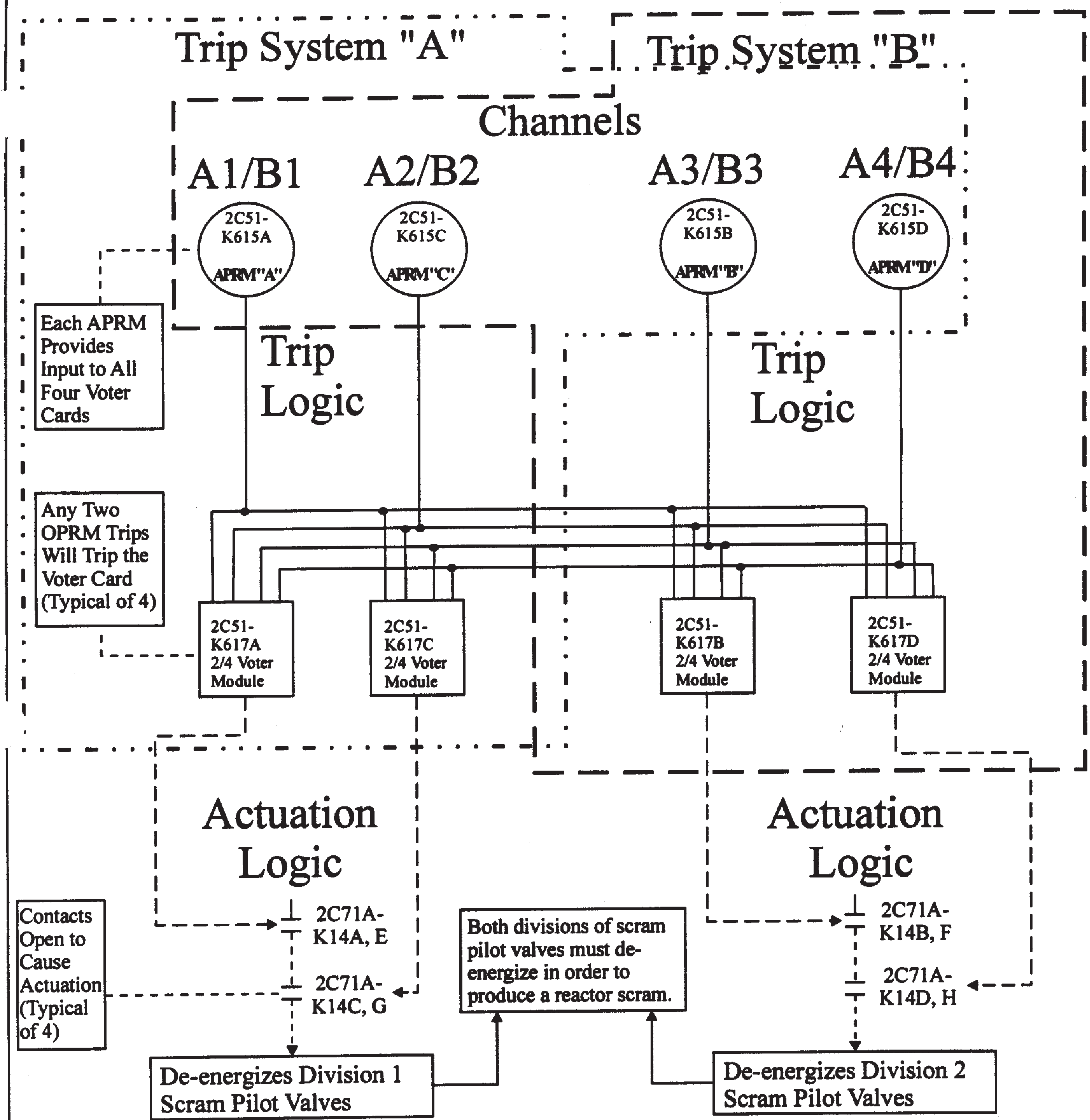


Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on APRM Voter Module circuit function, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref. H-27610 H-27613 H-27611 H-27614 H-27612 H-52010	Prepared By: [signature] Reviewed By: [signature]	LFD-2-RPS-07 TS 3.3.1.1-1, Item 2.e Reactor Protection System Instrumentation - APRM Two-Out-of-Four Voter Circuit TRM Rev. 13



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on OPRM Upscale, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1/B1 and A2/B2
A1/B1 and A3/B3
A1/B1 and A4/B4
A2/B2 and A3/B3
A2/B2 and A4/B4
A3/B3 and A4/B4

Elem. Ref.	
H-27610	H-52003
H-27611	H-52004
H-27612	H-52005
H-27613	H-52006
H-27614	H-52010

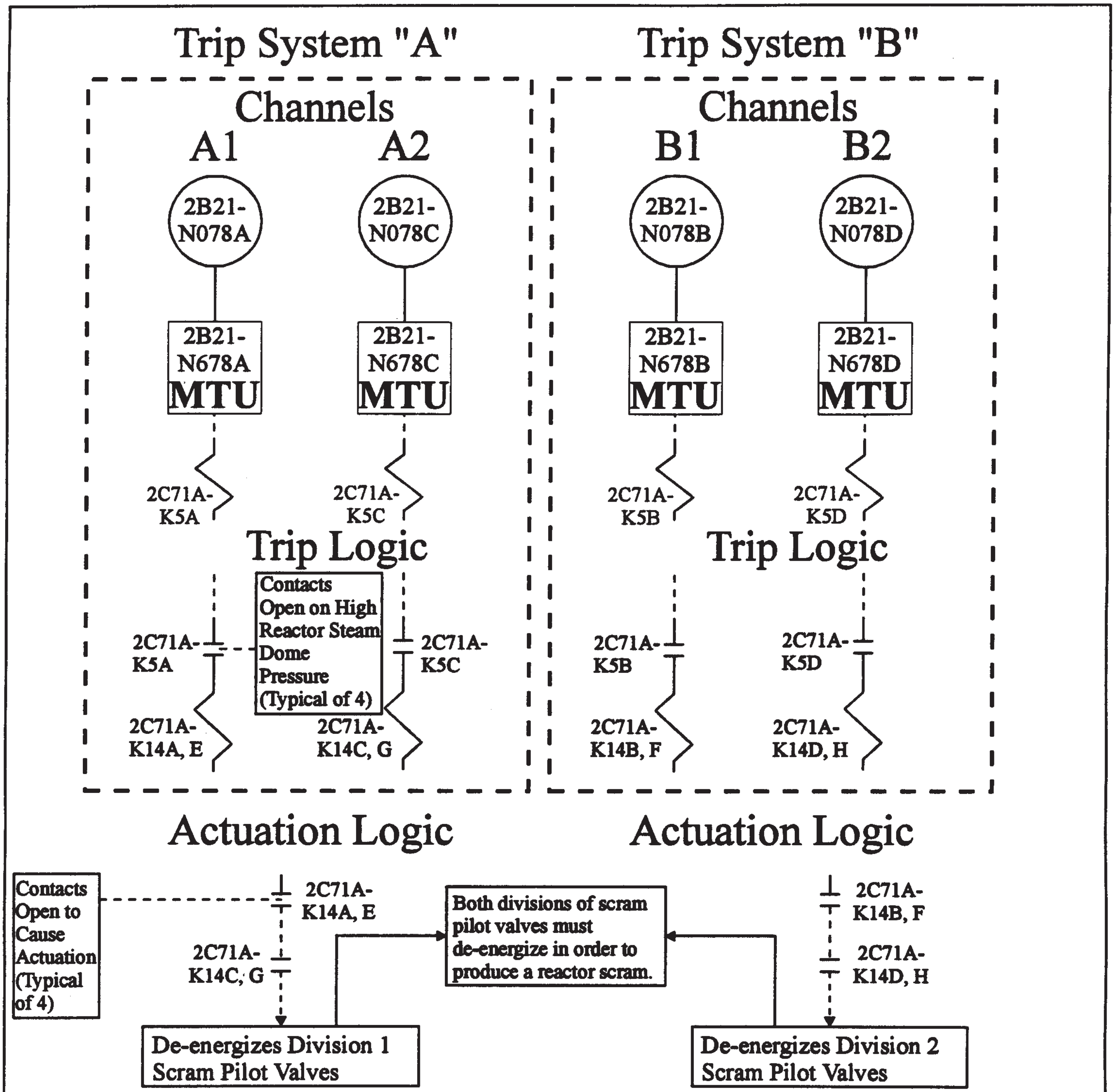
Prepared By: [signature]

Reviewed By: Stephen W. Reed

LFD-2-RPS-07a

TS 3.3.1.1-1, Item 2.f
Reactor Protection System Instrumentation - OPRM Upscale

TRM Rev. 30



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on high reactor vessel steam dome pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.	
H-27610	H-24409
H-27611	H-24412
H-27612	H-24415
H-27613	H-24418
H-27614	

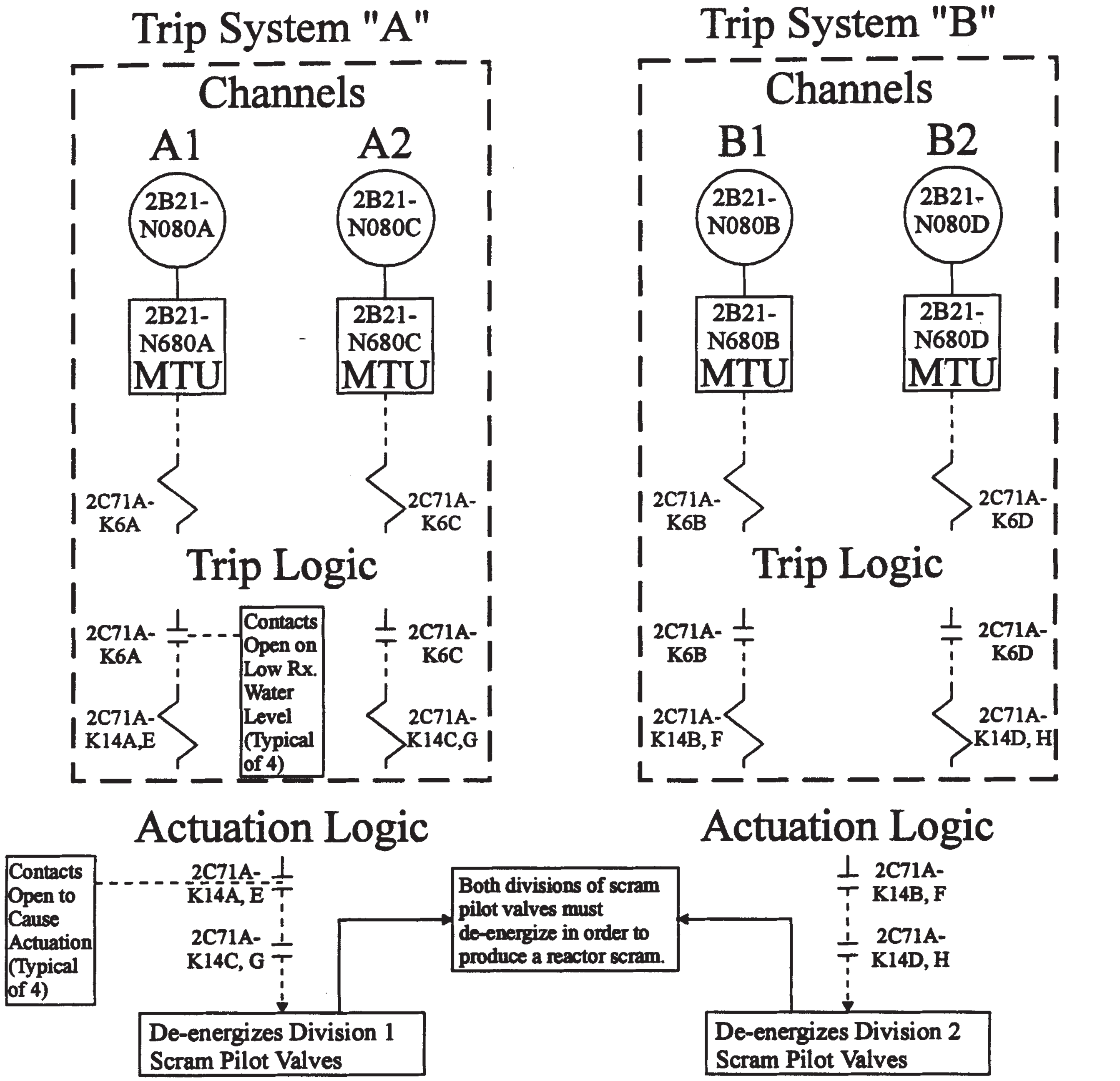
Prepared By: Roger Clark

Reviewed By: [signature]

LFD-2-RPS-08

TS 3.3.1.1-1, Item 3
Reactor Protection System Instrumentation - Reactor Vessel Steam Dome Pressure - High

Rev. 0 12/2/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on low reactor water level (Level 3), channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.
H-24409 H-27611
H-24412 H-27612
H-24415 H-27613
H-24418 H-27614
H-27610

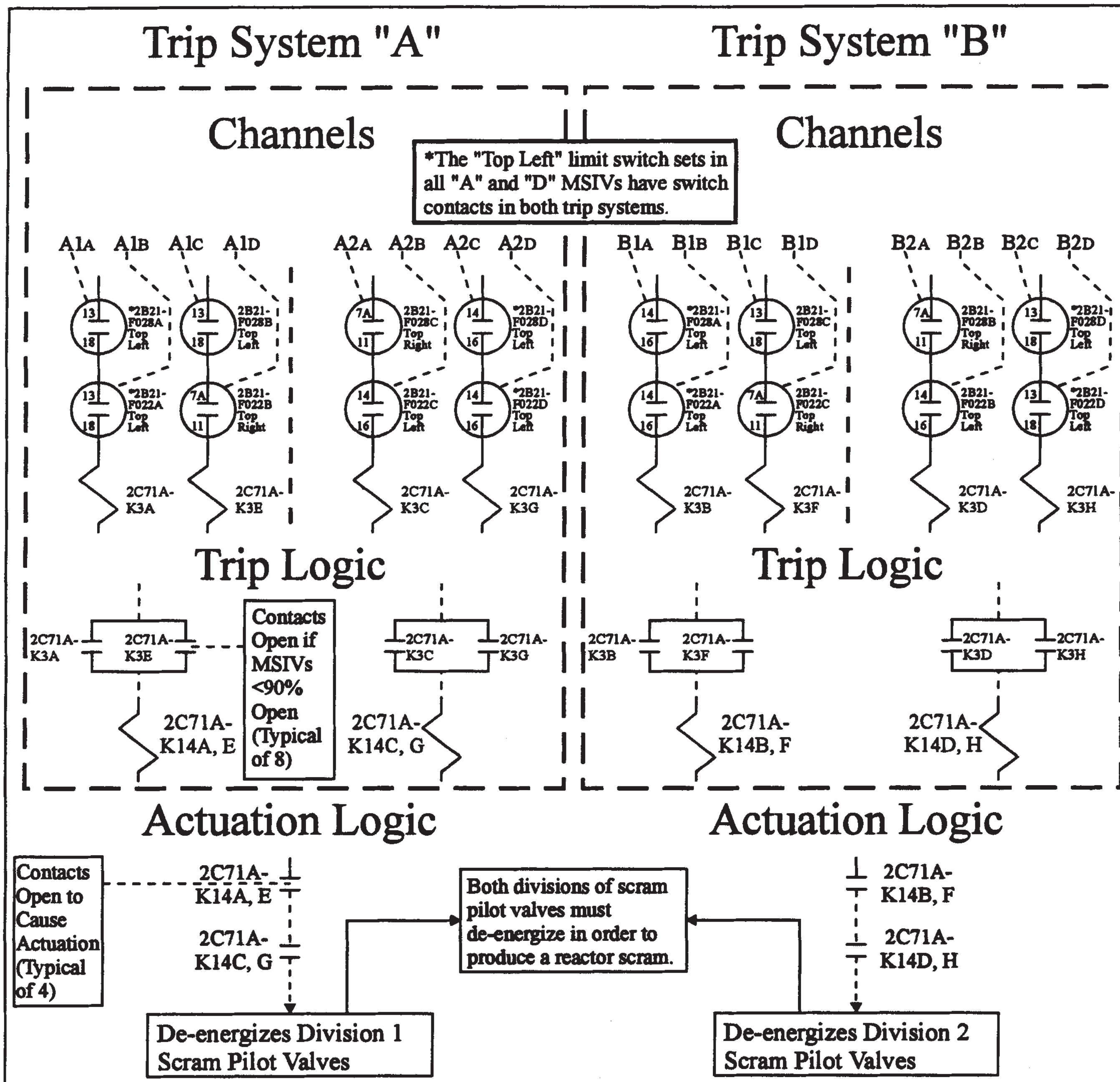
Prepared By: Roger Clark

Reviewed By: Stephen W. Reed

LFD-2-RPS-09

TS 3.3.1.1-1, Item 4
Reactor Protection System Instrumentation
Reactor Vessel Water Level - Low, Level 3

Rev. 0 11/23/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on Main Steam Isolation Valve closure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

[(A1A or A1B) and (A1C or A1D)
OR
(A2A or A2B) and (A2C or A2D)]

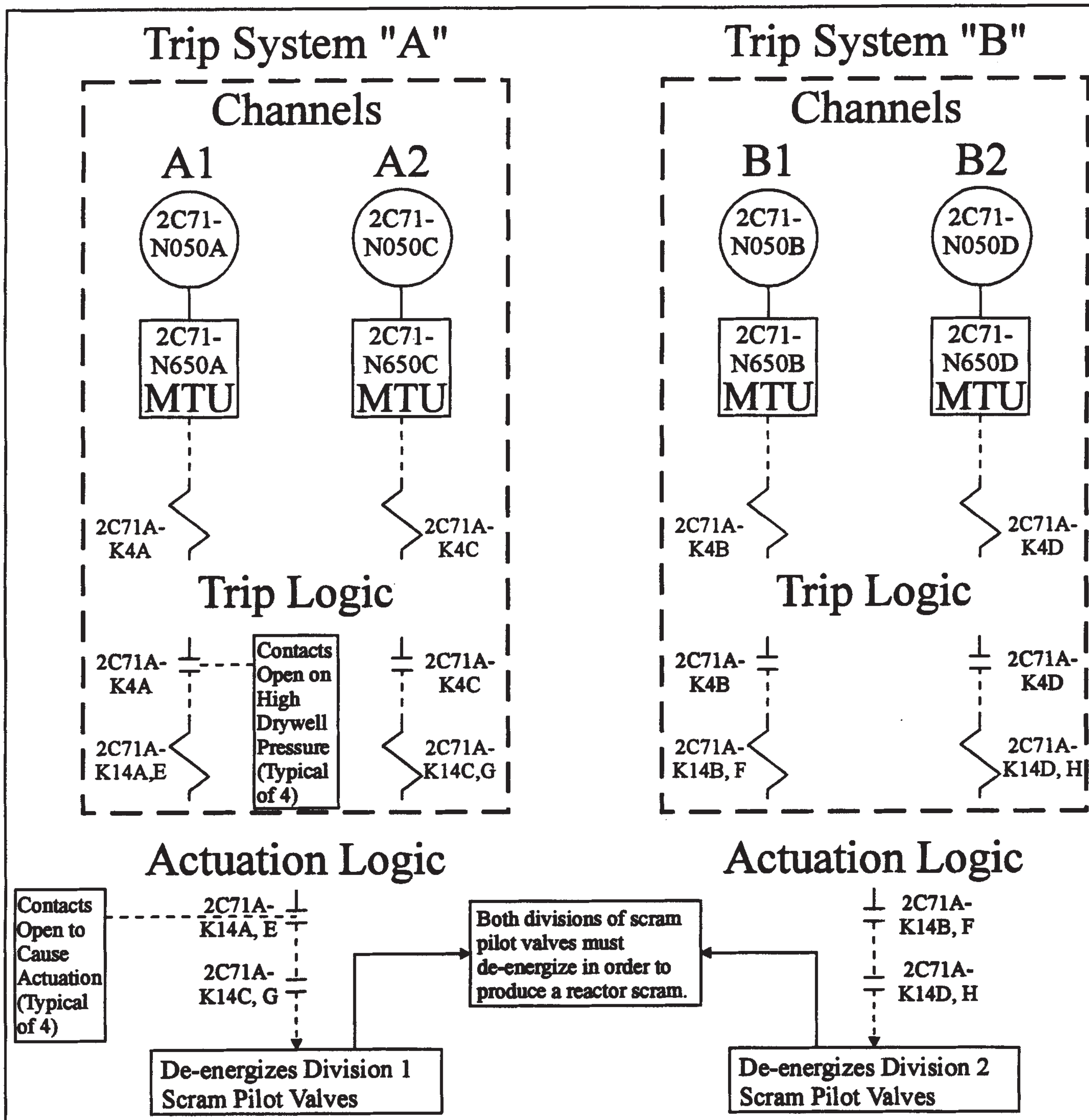
AND

[(B1A or B1B) and (B1C or B1D)
OR
(B2A or B2B) and (B2C or B2D)]

Elem. Ref.
H-27610 H-27614
H-27611 H-27825
H-27612 H-27989
H-27613

Prepared By: Stephen W. Reed
Reviewed By: Roger Clark

LFD-2-RPS-10
TS 3.3.1.1-1, Item 5
Reactor Protection System Instrumentation - Main Steam Isolation Valve - Closure
Rev. 0 12/5/94



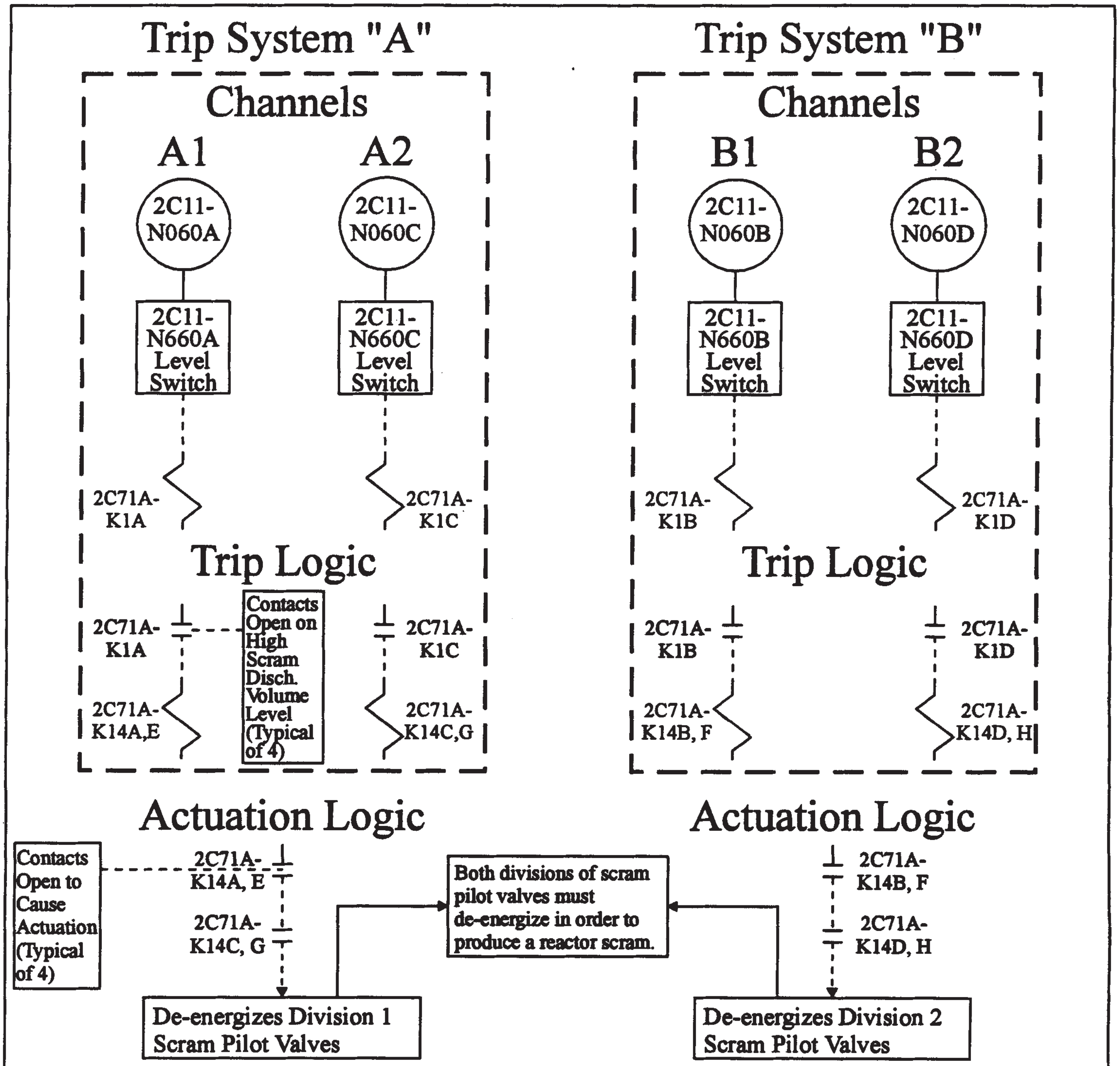
Minimum Channel Requirements for System Initiation Capability:
In order to maintain the capability to scram the reactor on high drywell pressure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.
H-24409 H-27611
H-24412 H-27612
H-24415 H-27613
H-24418 H-27614
H-27610

Prepared By: Royce Clark
Reviewed By: Stephen W. Reed

LFD-2-RPS-11
TS 3.3.1.1-1, Item 6
Reactor Protection System Instrumentation Drywell Pressure - High
Rev. 0 11/23/94



<u>Minimum Channel Requirements for System Initiation Capability:</u>

In order to maintain the capability to scram the reactor on scram discharge volume high level (resistance temperature detectors), channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.	
H-27610	H-27613
H-27611	H-27614
H-27612	H-27615

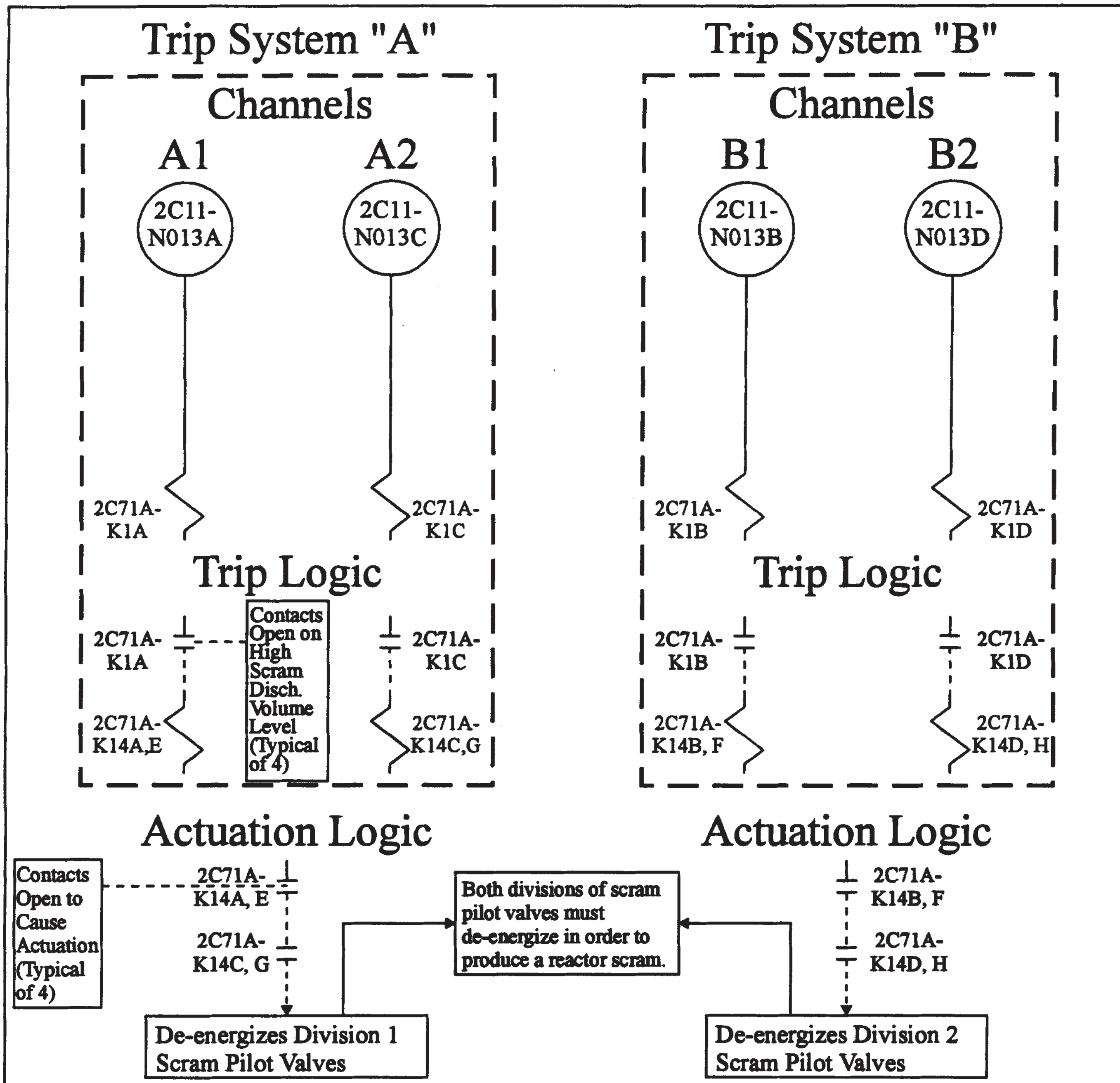
Prepared By: Royce Clark

Reviewed By: Stephen W. Reed

LFD-2-RPS-12

TS 3.3.1.1-1, Item 7.a Reactor Protection System Instrumentation - Scram Discharge Volume Water Level - High, Resistance Temperature Detector

Rev. 0 12/2/94



<u>Minimum Channel Requirements for System Initiation Capability:</u>

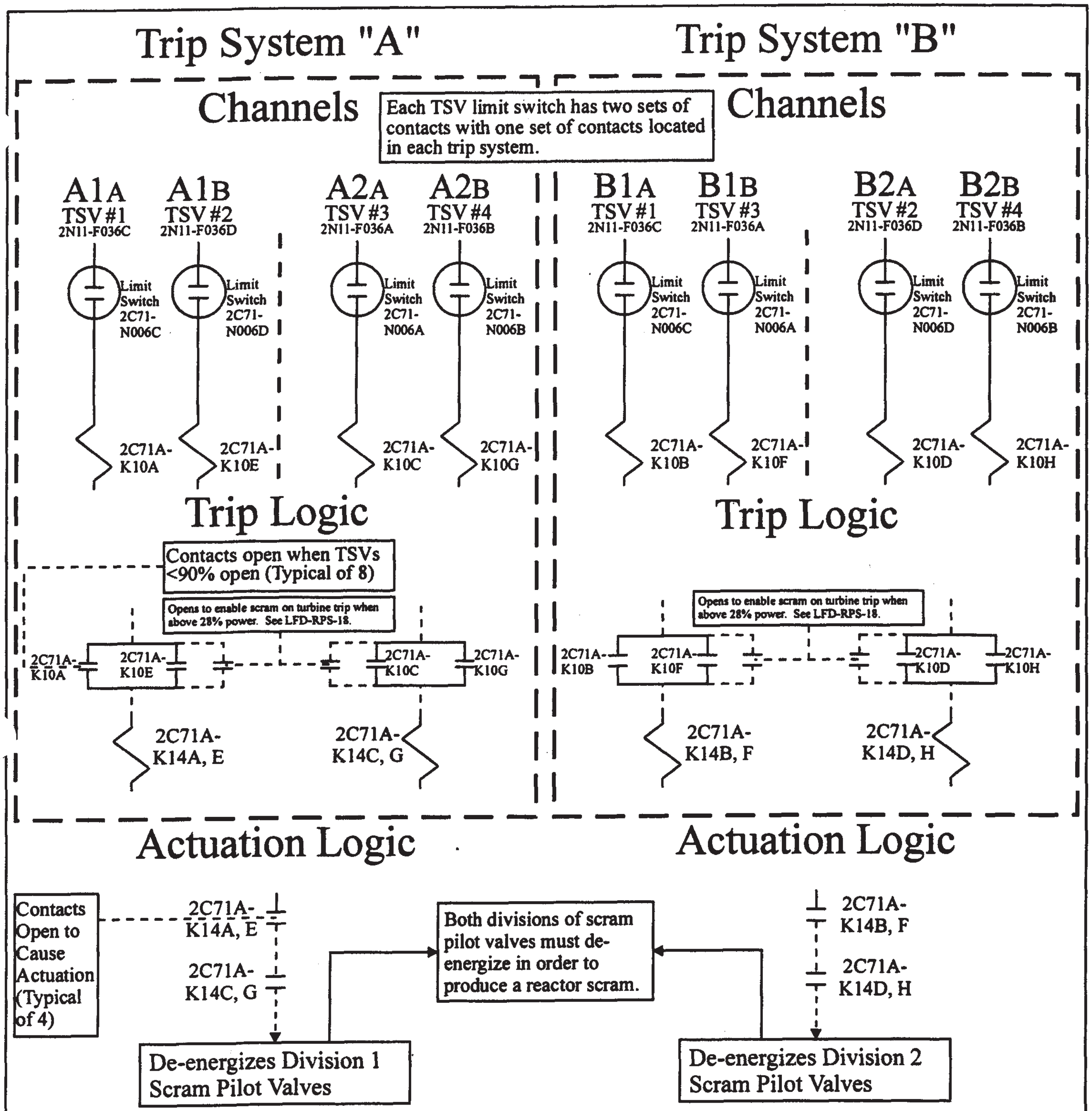
In order to maintain the capability to scram the reactor on scram discharge volume high level (float switches), channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.	
H-27610	H-27613
H-27611	H-27614
H-27612	H-27615

Prepared By: Royce Clark
Reviewed By: Stephen W. Reed

LFD-2-RPS-13
TS 3.3.1.1-1, Item 7.b
Reactor Protection System Instrumentation - Scram Discharge Volume Water Level - High, Float Switch
Rev. 0 12/1/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on Turbine Stop Valve closure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

[A1A and A1B OR A2A and A2B] AND [B1A and B1B OR B2A and B2B]

Elem. Ref.

H-21242 H-27612
H-23444 H-27613
H-27610 H-27614
H-27611

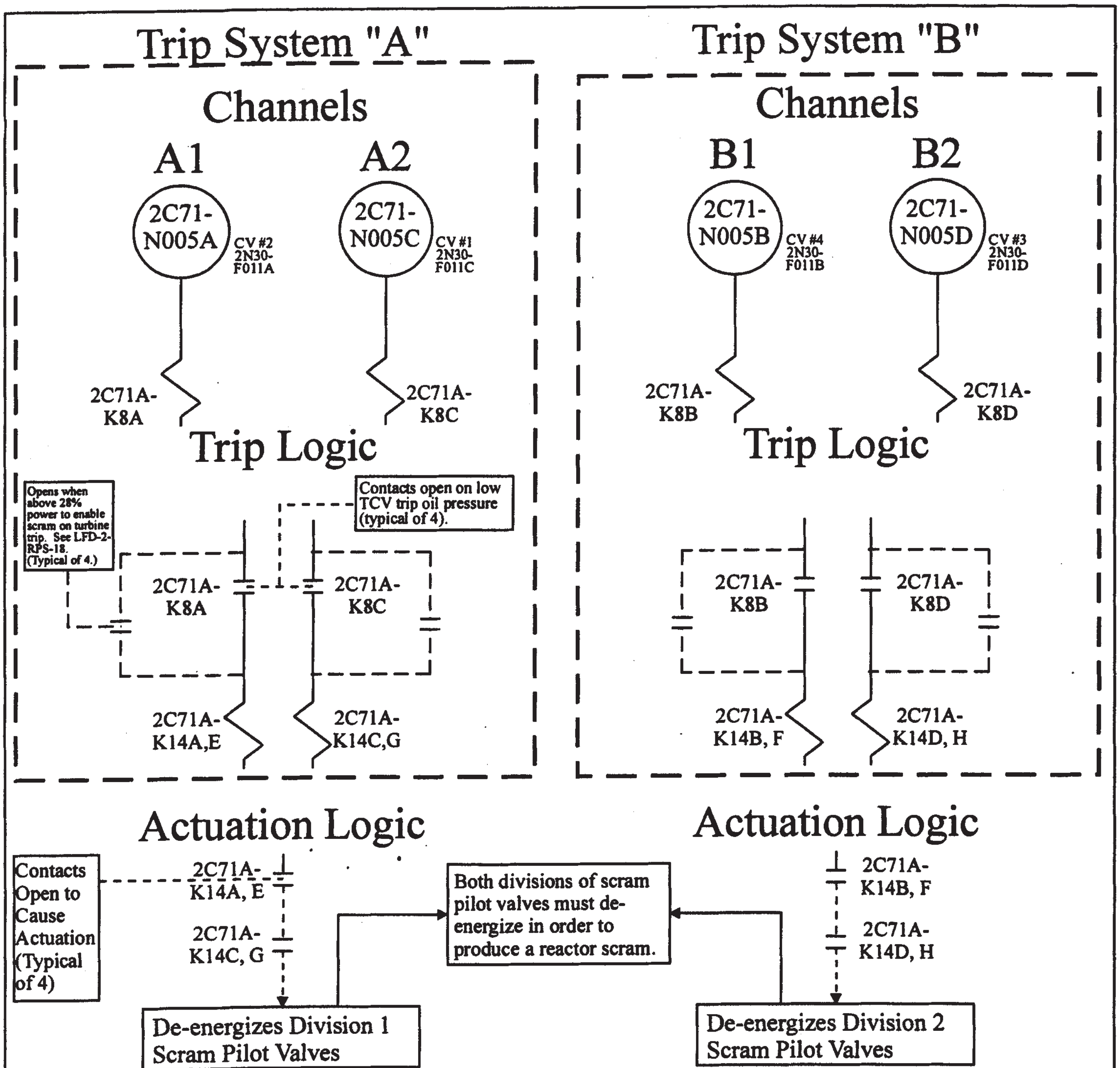
Prepared By: [signature]

Reviewed By: [signature]

LFD-2-RPS-14

TS 3.3.1.1-1, Item 8
Reactor Protection System Instrumentation - Turbine Stop Valve - Closure

TRM Rev. 37



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor on Turbine Control Valve fast closure, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.	
H-21242	H-27612
H-23444	H-27613
H-27610	H-27614
H-27611	

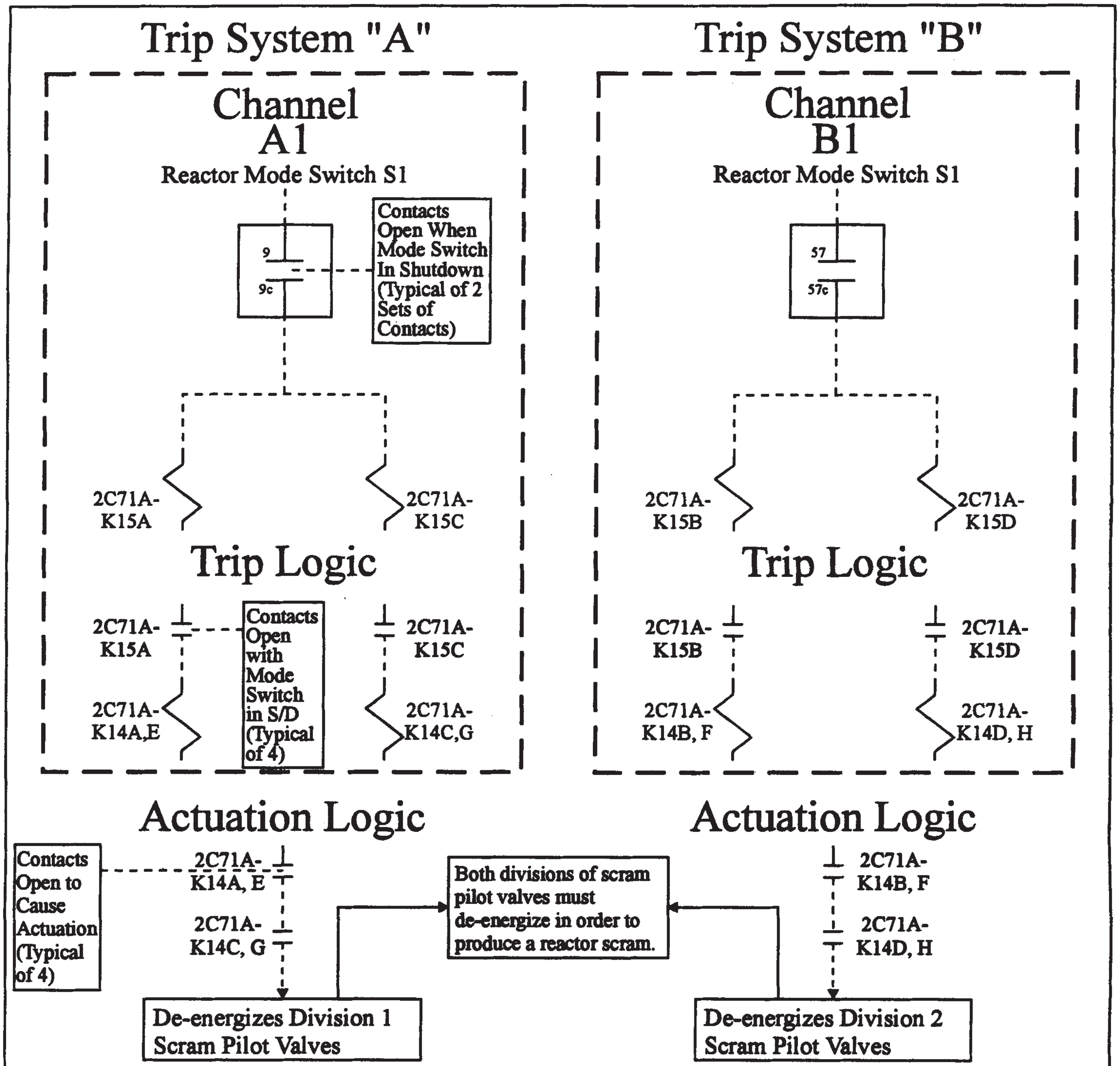
Prepared By: [signature]

Reviewed By: [signature]

LFD-2-RPS-15

TS 3.3.1.1-1, Item 9
Reactor Protection System Instrumentation - Turbine Control Valve Fast Closure, Trip Oil Pressure - Low

TRM Rev. 37



Minimum Channel Requirements for System Initiation Capability:

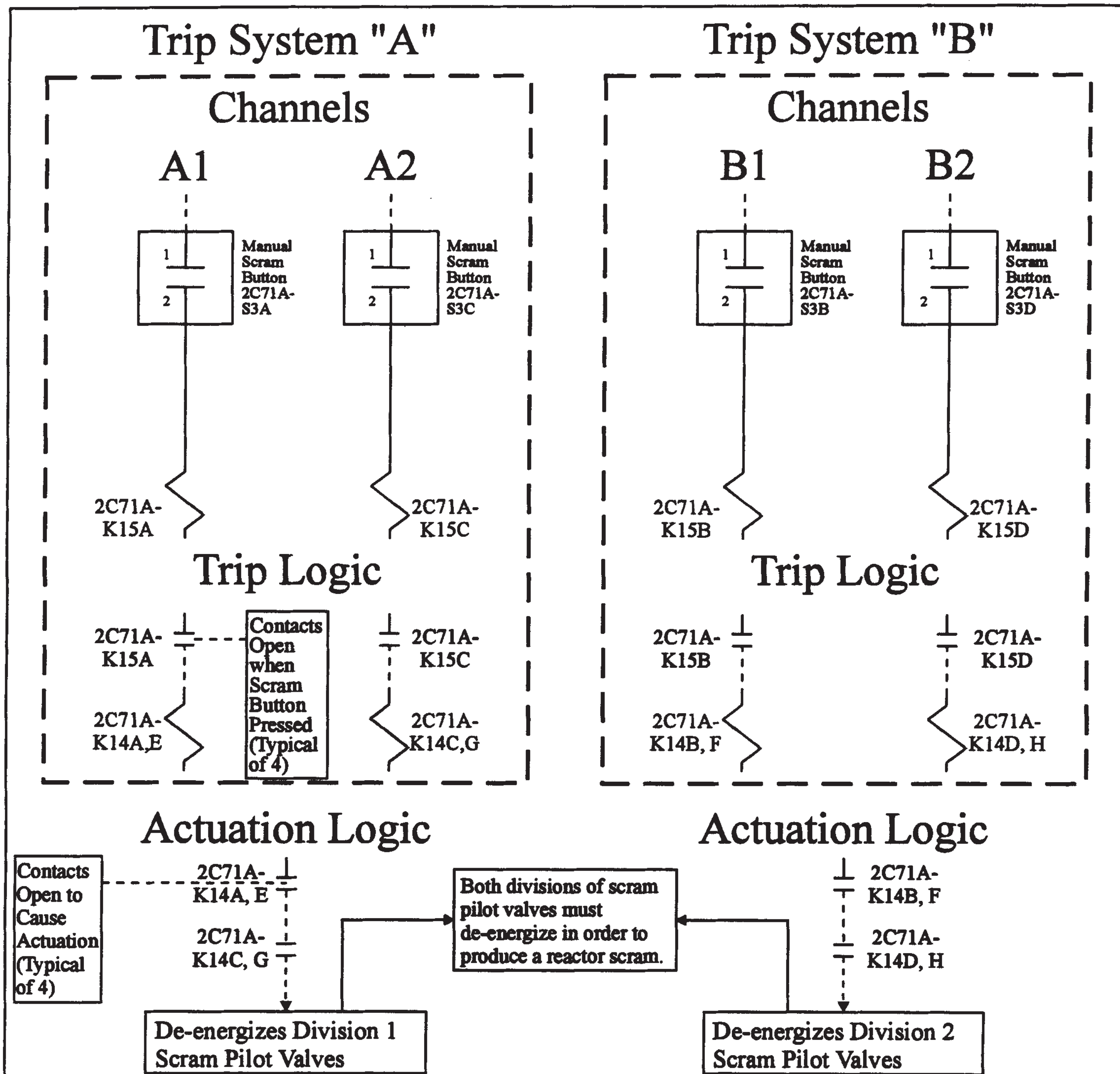
In order to maintain the capability to scram the reactor on Reactor Mode Switch position (Mode Switch in Shutdown), each channel must be operable or maintained in the tripped condition.

Elem. Ref.
H-27607
H-27612
H-27613
H-27614

Prepared By: Royce Clark

Reviewed By: Stephen W. Reed

LFD-2-RPS-16
TS 3.3.1.1-1, Item 10
Reactor Protection System Instrumentation
Reactor Mode Switch - Shutdown Position
Rev. 0 12/2/94



Minimum Channel Requirements for System Initiation Capability:

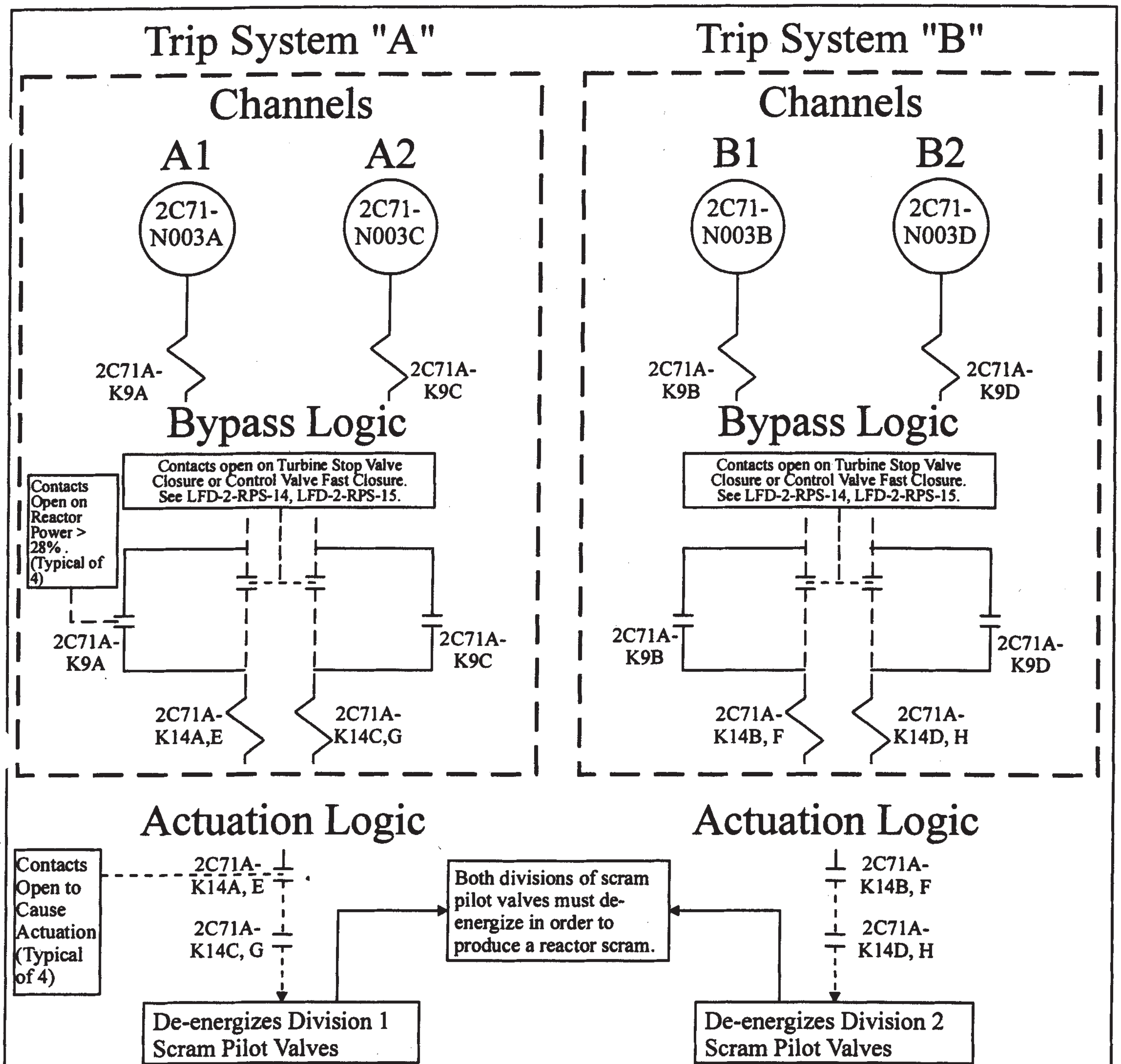
In order to maintain the capability to manually scram the reactor using the Manual Scram Pushbuttons, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 or A2
AND
B1 or B2

Elem. Ref.
H-27607
H-27612
H-27613
H-27614

Prepared By: Royce Clark
Reviewed By: Stephen W. Reed

LFD-2-RPS-17	
TS 3.3.1.1-1, Item 11 Reactor Protection System Instrumentation Manual Scram	
Rev. 0	12/1/94



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to scram the reactor above 28 percent power on Turbine Stop Valve closure or Turbine Control Valve fast closure, channels in one of the following combinations must be either operable or circuit continuity otherwise interrupted.

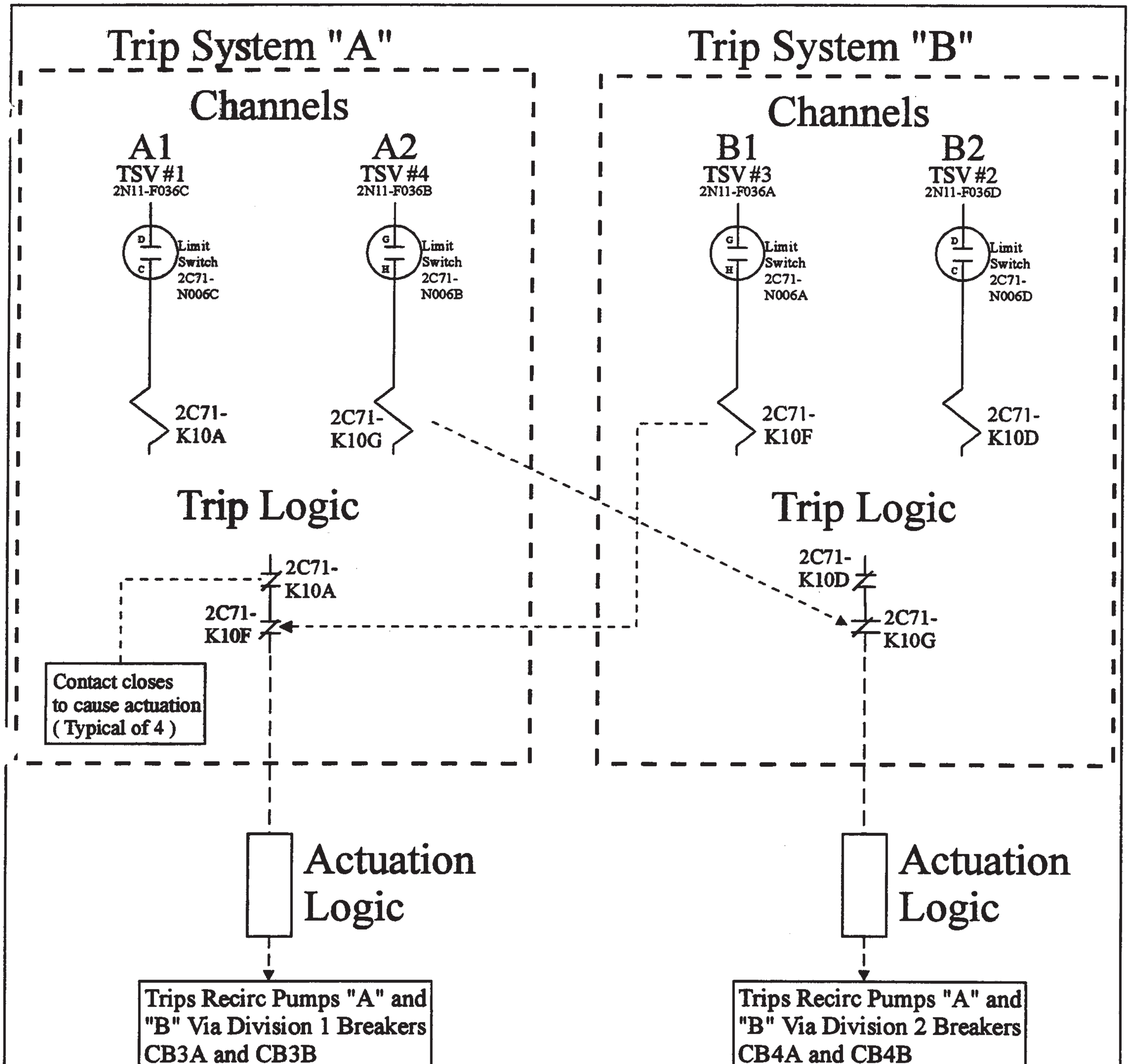
A1 or A2
AND
B1 or B2

Elem. Ref.
H-27610 H-27611
H-27612 H-27613
H-27614

Prepared By: [signature]

Reviewed By: [signature]

LFD-2-RPS-18
TS SR 3.3.1.1.11
Reactor Protection System Instrumentation Bypass, Items 8 & 9
TRM Rev. 37



Minimum Channel Requirements to Maintain Trip Capability:

In order to maintain Recirc pump trip capability on a TSV Closure signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

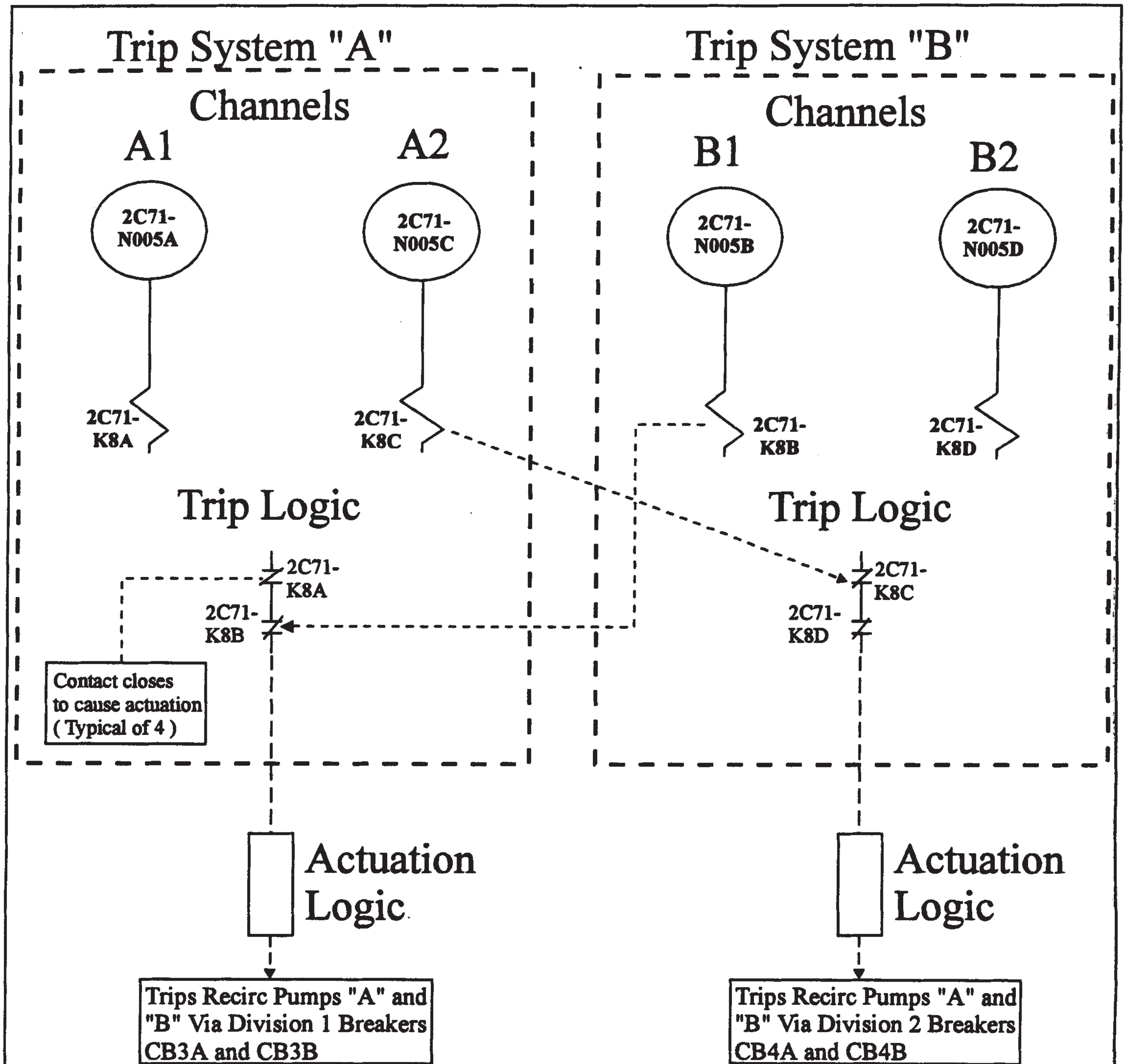
A1 and B1
OR
A2 and B2

Elem. Ref.
H-21242
H-27610
H-27611
H-27850

Prepared By: T.A. Brunson
Reviewed By: Stephen W. Reed

LFD-2-RPT-01
TS 3.3.4.1.a.1
EOC-RPT, TSV CLOSURE

TRM Rev. 8



Minimum Channel Requirements to Maintain Trip Capability:

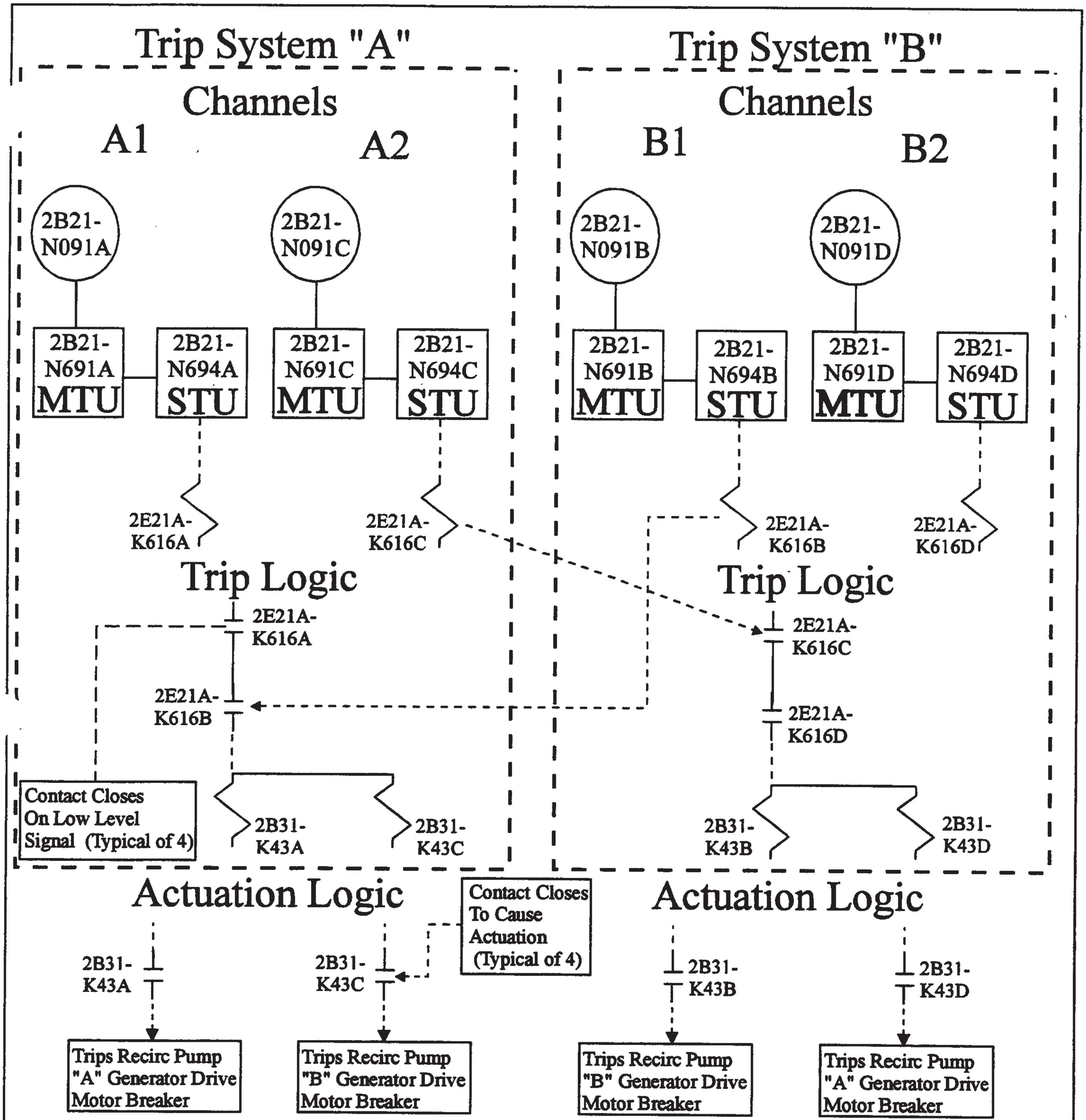
In order to maintain Recirc pump trip capability on a TCV Fast Closure signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

Elem. Ref.
H-21242
H-27610
H-27611
H-27850

Prepared By: S. C. Brun
Reviewed: [signature]

LFD-2-RPT-02
TS 3.3.4.1.a.2
EOC-RPT, TCV FAST CLOSURE.
Rev. 0 1/16/95



Minimum Channel Requirements for System Trip Capability:

In order to maintain ATWS-RPT trip capability of the Recirc Pumps on a Reactor Vessel Water Level - ATWS - RPT Level signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

Elem. Ref.	
H-24423	H-27481
H-24426	H-27482
H-24429	H-27490
H-24432	H-27491

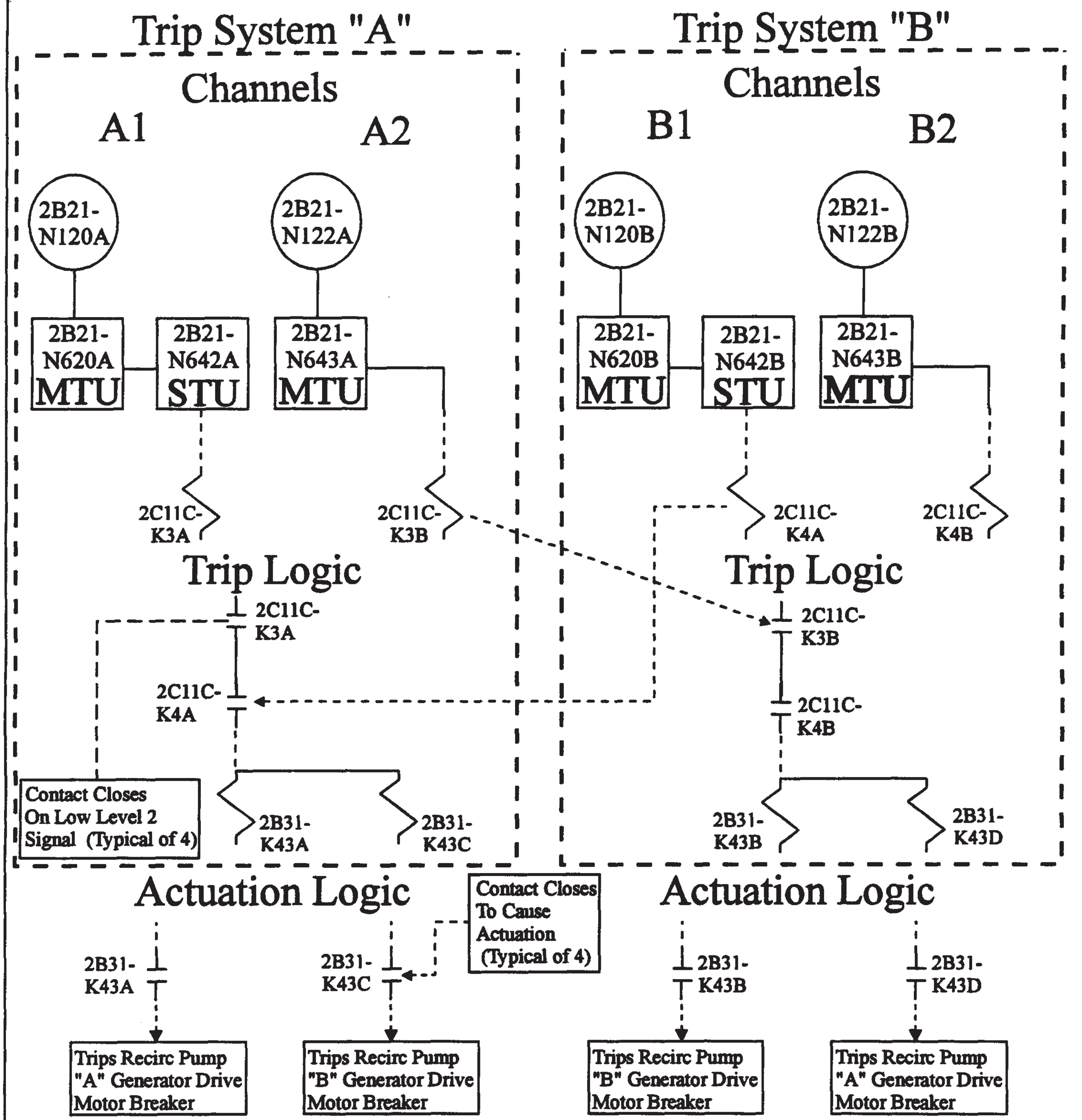
Prepared By: S. C. Brunson

Reviewed By: Kathryn Wilkins

LFD-2-RPT-03

TS 3.3.4.2.a, Reactor Vessel Water Level- ATWS-RPT Level

TRM Rev. 7



Minimum Channel Requirements for System Trip Capability:

In order to maintain ATWS-RPT trip capability of the Recirc Pumps on a Reactor Steam Dome Pressure - High signal, channels in one of the following combinations must be either operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

Elem. Ref.	
H-24422	H-27490
H-24425	H-27491
H-27481	H-50411
H-27482	

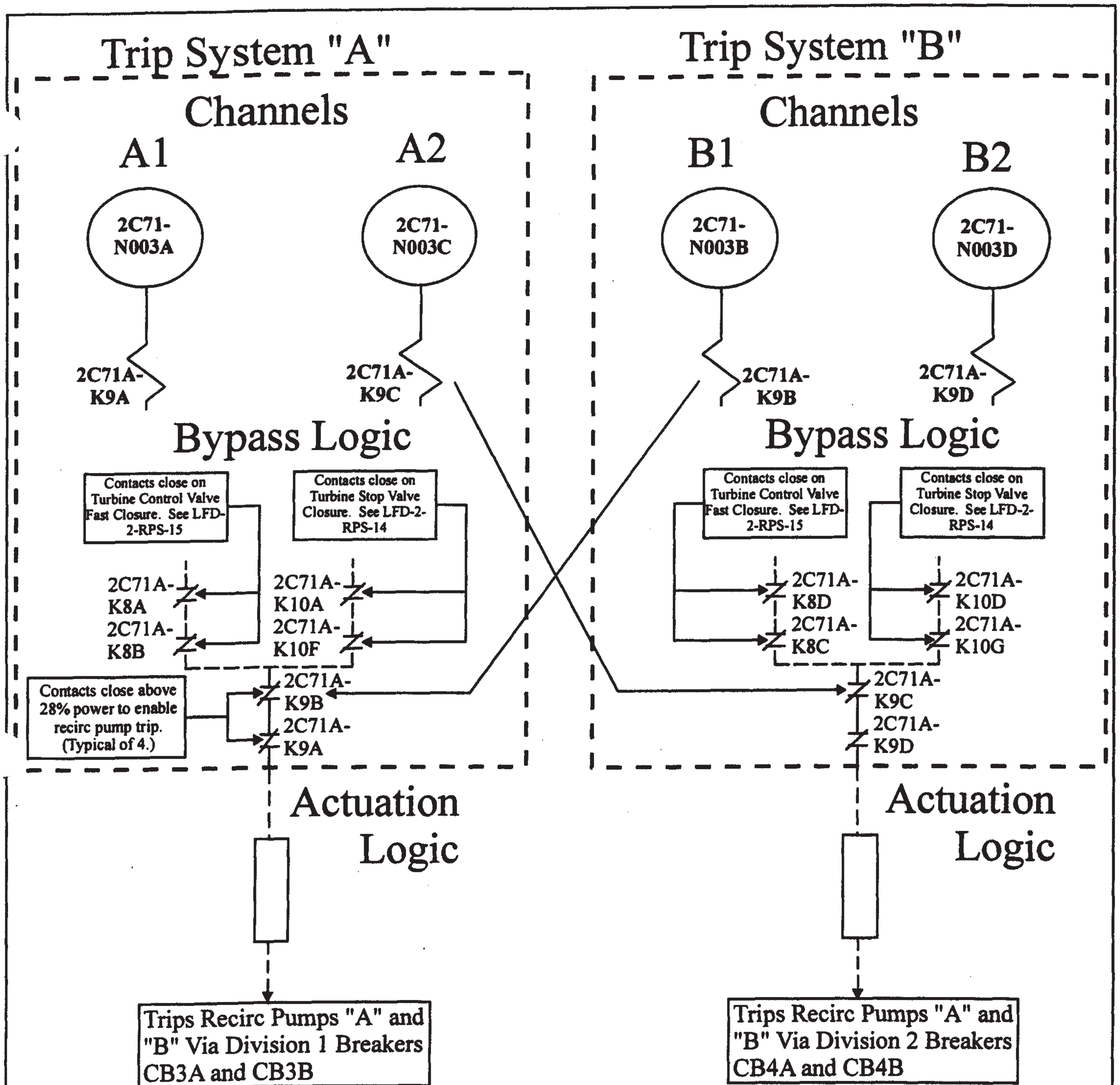
Prepared By: S. G. Brown

Reviewed: [signature]

LFD-2-RPT-04

TS 3.3.4.2.b, ATWS-RPT, Reactor Steam Dome Pressure - High

Rev. 0 1/16/95



Minimum Channel Requirements to Maintain Trip Capability:

In order to maintain the capability to trip the recirc pump breakers above 28 percent power on Turbine Stop Valve closure or Turbine Control Valve fast closure, channels in one of the following combinations must be either operable or circuit continuity otherwise maintained.

A1 and B1
OR
A2 and B2

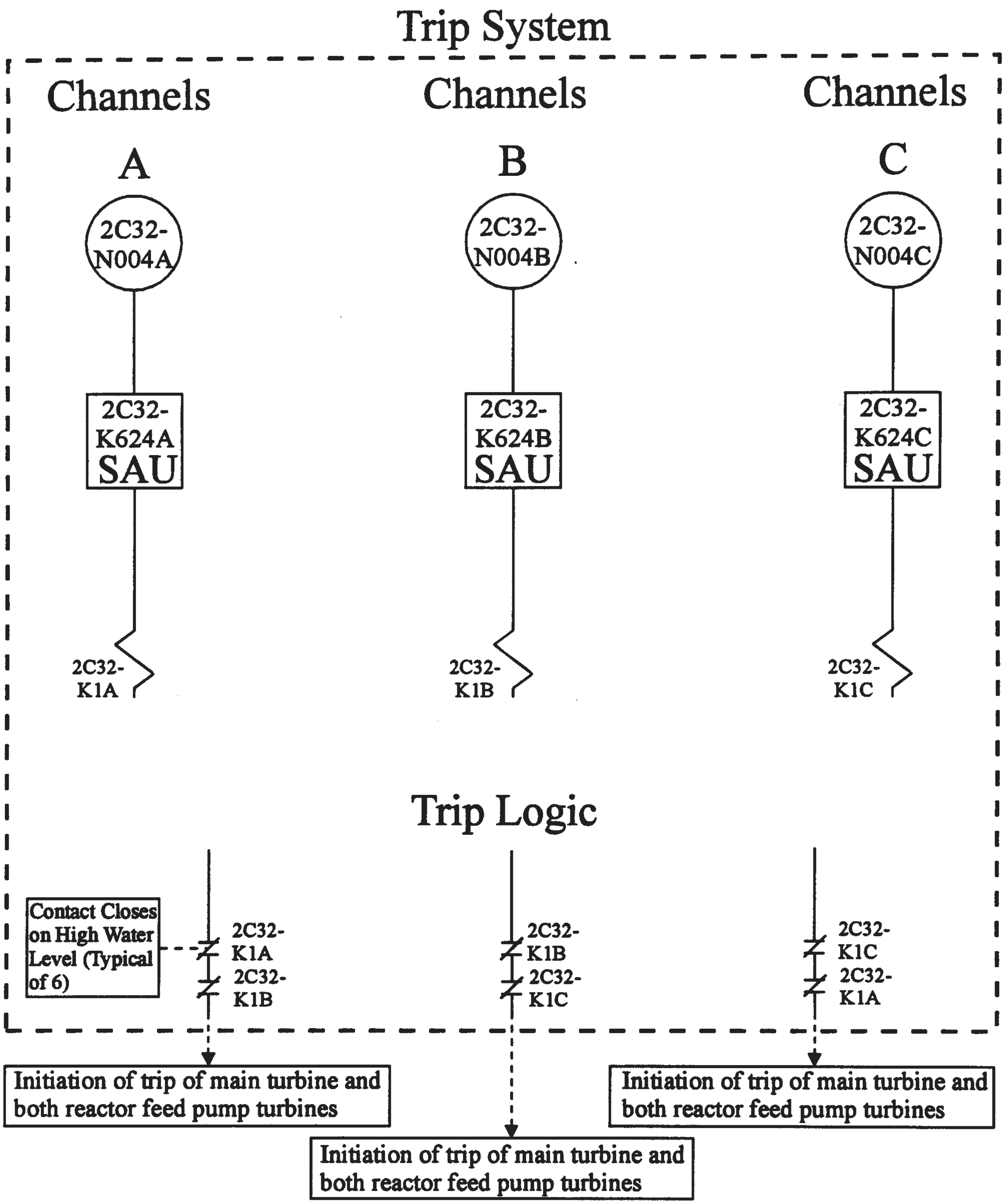
Elem. Ref.
H-21242 H-27610
H-27611 H-27850

Prepared By: [signature]
Reviewed By: [signature]

LFD-2-RPT-05

TS SR 3.3.4.1.2
EOC-RPT Instrumentation Bypass Below 28 Percent Power

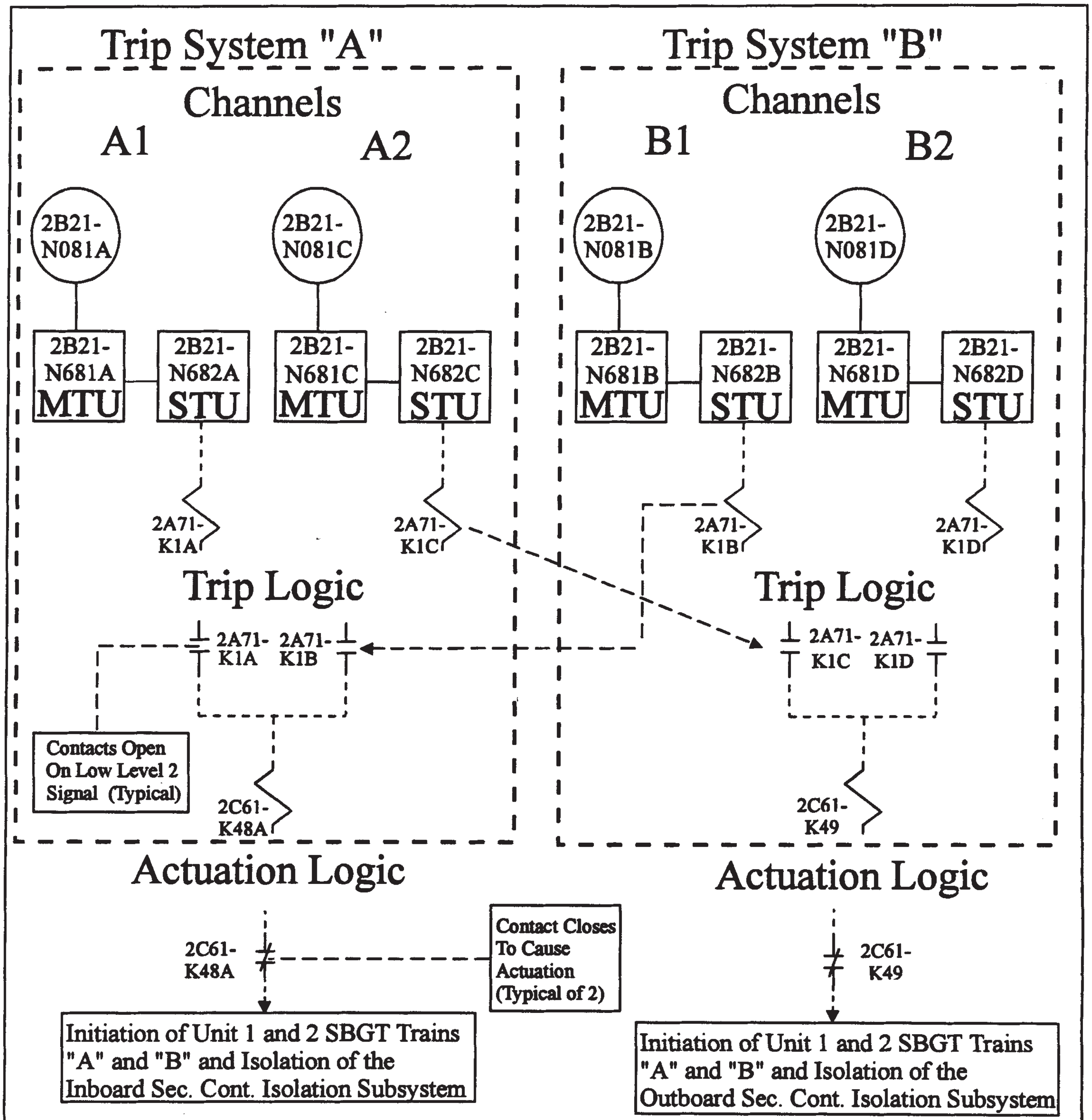
TRM Rev. 37



Minimum Channel Requirements for System Initiation Capability:

In order to maintain the capability to trip the main turbine and the reactor feed pump turbines on high reactor water level, channels in one of the following combinations must be either operable or maintained in the tripped condition.

Elem. Ref.			
H-23375 H-23661 H-27519 H-27523	A and B OR B and C OR A and C	Prepared By: [signature] Reviewed By: [signature]	LFD-2-RWLH-01 TS 3.3.2.2 Feedwater and Main Turbine Trip High Water Level Instrumentation Rev. 0 1/16/95



Minimum Channel Requirements for System Isolation/Initiation Capability:

In order to maintain Secondary Containment isolation capability and SBGT initiation capability on Reactor Vessel Water Level-Low Low, Lvl.2 signal, channels in one of the following combinations must be operable or maintained in the tripped condition.

A1 and B1
OR
A2 and B2

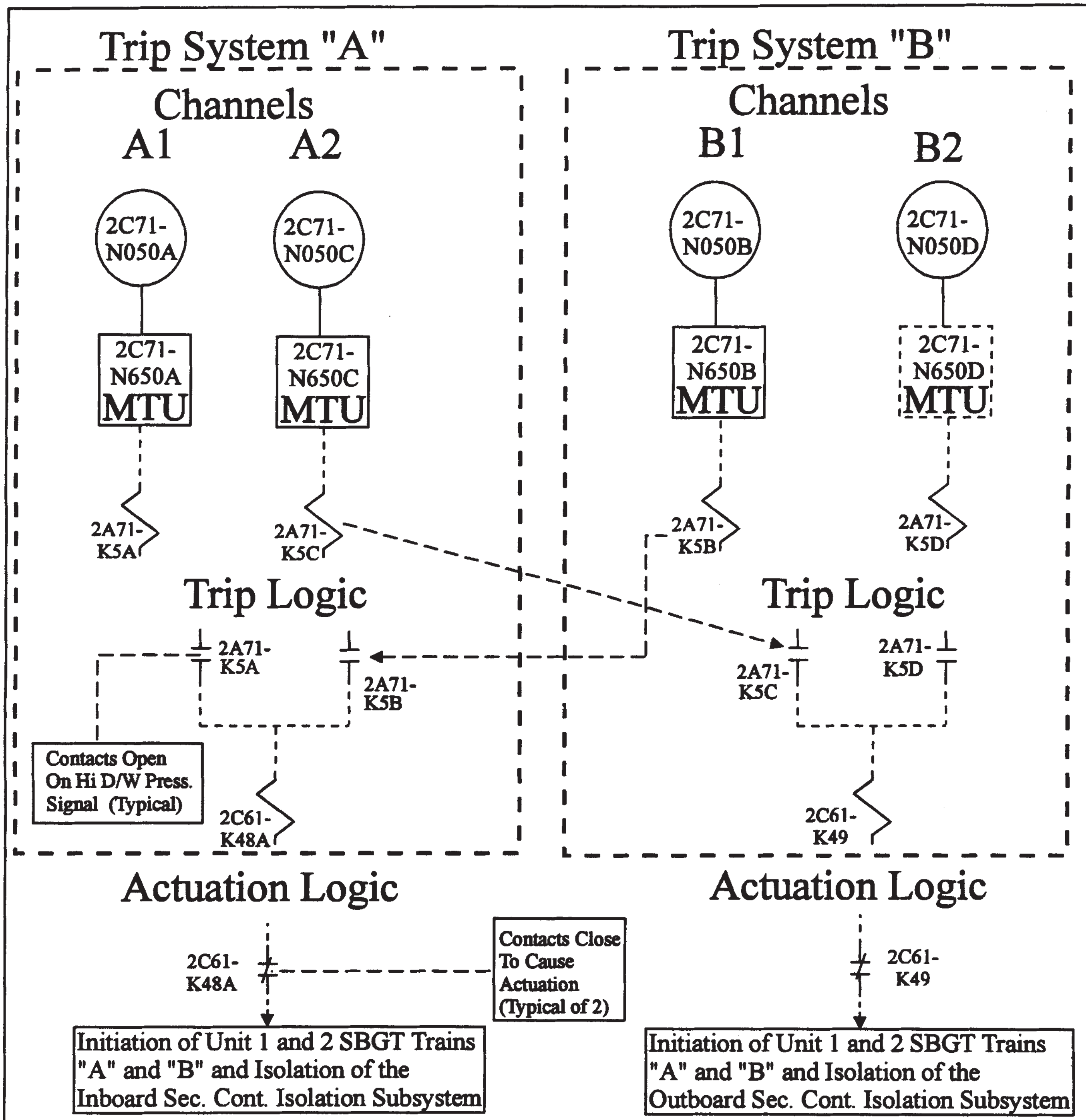
Elem. Ref.	
H-24409	H-27456
H-24412	H-27599
H-24415	H-27600
H-24418	H-27761
H-27455	H-27767

Prepared By:
Review

LFD-2-SCIS-01

TS 3.3.6.2-1, Item 1
Reactor Vessel Water
Level-Low Low, Lvl.2

Rev. 0 10/19/94



Minimum Channel Requirements for System Isolation/Initiation Capability:

In order to maintain Secondary Containment isolation capability and SBGT initiation capability on a Drywell Pressure - High signal, channels in one of the following combinations must be operable or maintained in the tripped condition.

Elem. Ref.

H-24409	H-27456	H-27761
H-24412	H-27599	H-27767
H-24415	H-27600	
H-24418	H-27610	
H-27455	H-27611	

A1 and B1
OR
A2 and B2

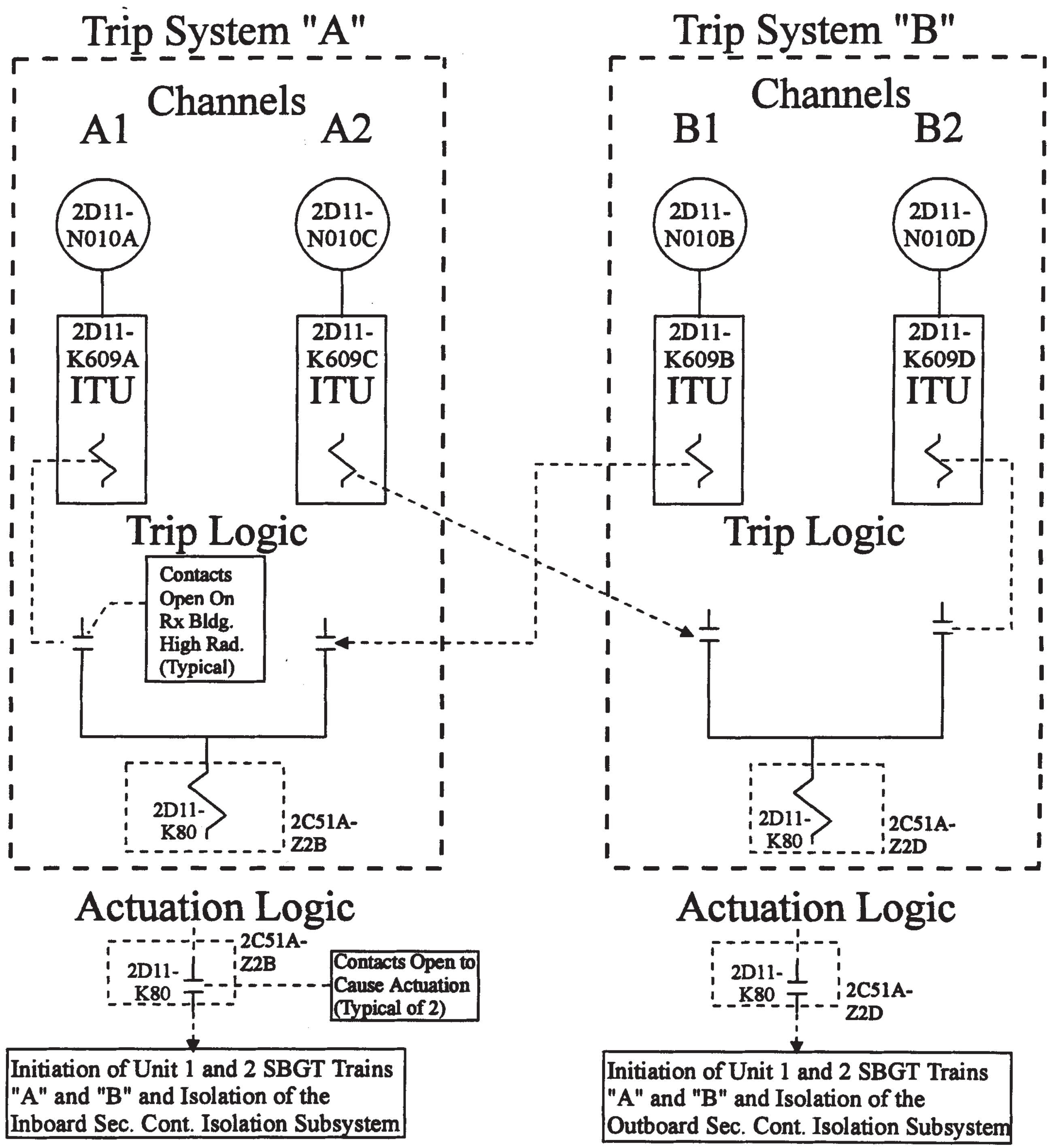
Prepared By:

Reviewed:

LFD-2-SCIS-02

TS 3.3.6.2-1, Item 2
Drywell Pressure-High

Rev. 0 10/20/94



Minimum Channel Requirements for System Isolation/Initiation Capability:

In order to maintain Secondary Containment isolation capability and SBGT initiation capability on a Reactor Building Exhaust Radiation - High signal, channels in one of the following combinations must be operable or maintained in the tripped condition.

Elem. Ref.

H-27596	H-27600	H-27634
H-27597	H-27629	H-27760
H-27598	H-27631	H-27761
H-27599	H-27632	H-27767

A1 and B1
OR
A2 and B2

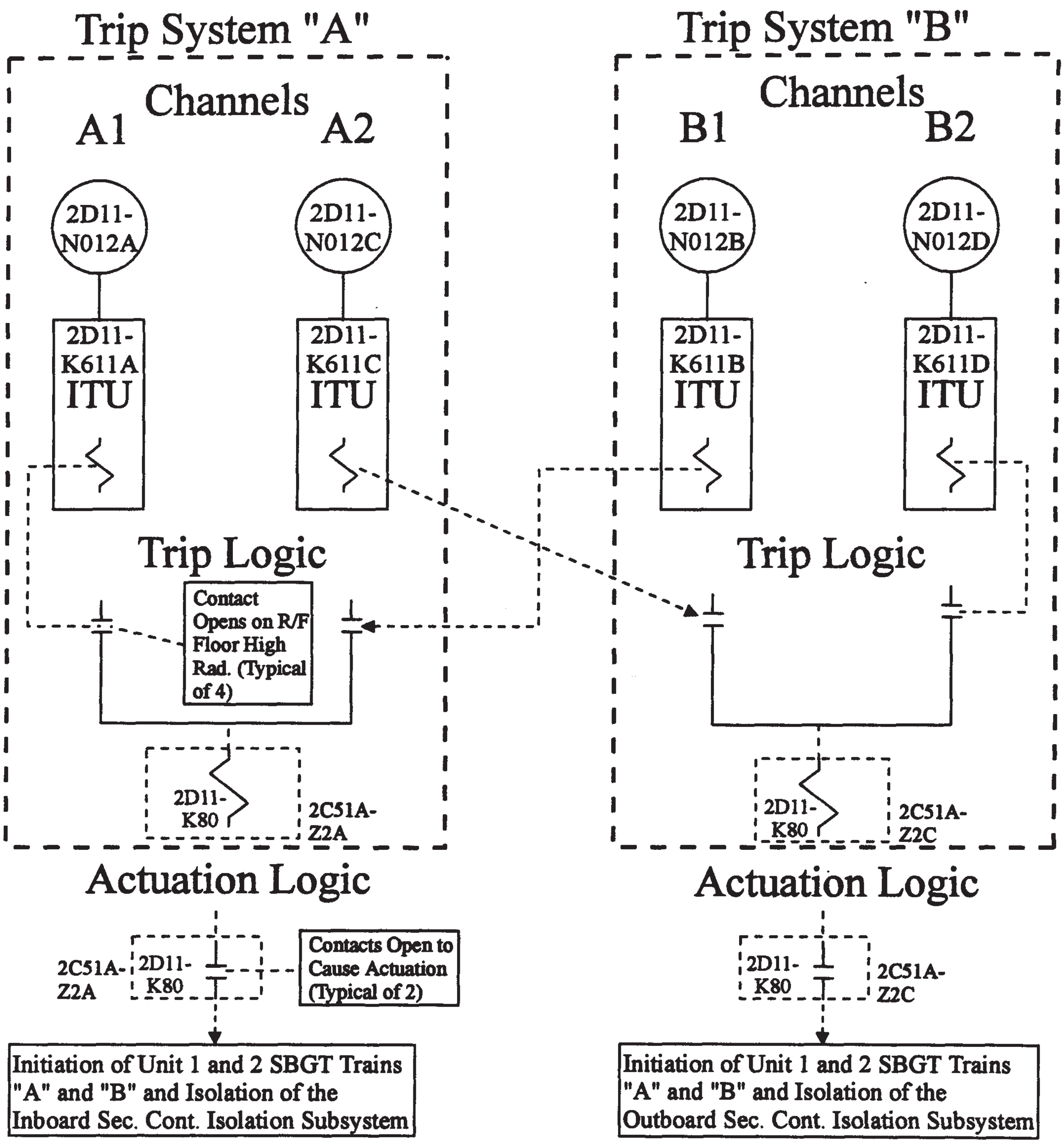
Prepared By: S. R. Bum

Reviewed By: Royce Clark

LFD-2-SCIS-03

TS 3.3.6.2-1, Item 3
Rx. Building Exhaust Radiation- High

Rev. 0 10/20/94



Minimum Channel Requirements for System Isolation/Initiation Capability:

In order to maintain Secondary Containment isolation capability and SBGT initiation capability on a Refueling Floor Exhaust Radiation - High signal, channels in one of the following combinations must be operable or maintained in the tripped condition.

Elem. Ref.

H-27597 H-27600 H-27734
H-27598 H-27629 H-27761
H-27599 H-27631 H-27767
H-27732

A1 and B1
OR
A2 and B2

Prepared By: T.R. Bruner

Reviewed By: Royce Clark

LFD-2-SCIS-04

TS 3.3.6.2-1, Item 4
R/F Floor Exhaust Radiation-High

Rev. 0 10/20/94

T 12.0 Safety Function Determination Program

1.0 Introduction

This document outlines the Plant Hatch Safety Function Determination Program (SFDP), provides guidance for evaluating the impact of failure to meet multiple Technical Specifications (TS) Limiting Conditions for Operation (LCOs), and gives appropriate actions for a loss of safety function. The SFDP is required by TS Section 5.5.10.

2.0 Loss of Safety Function

2.1 Background

LCO 3.0.2 directs that if an LCO is not met, its associated Required Actions shall be performed. LCO 3.0.6 provides exception to LCO 3.0.2 for a supported system, structure, or component (SSC) by allowing only the support SSC LCO Actions to be performed if the supported SSC is inoperable solely because its support SSC is inoperable.

If a support SSC is inoperable and a loss of safety function does not exist, the Required Actions for the support SSC address the condition, and the supported SSC Required Actions do not have to be performed. This recognizes that the plant may no longer satisfy single failure criteria and that all of the supported SSC may not meet the definition of OPERABILITY. Appropriate compensation is made by performance of the support system Required Actions.

2.2 Use of LCO 3.0.6

Upon determination that a TS required support SSC is inoperable, the decision may be made to use LCO 3.0.6 for the supported SSCs. A loss of safety function determination shall be performed using the flow chart shown in **Attachment 1** as a guide. **Attachment 2** provides examples of appropriate determinations. The allowances given by LCO 3.0.6 can be taken only if **no loss of safety function exists**.

2.3 Actions for a Loss of Safety Function

If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. These may be the Required Actions specified for the loss of safety function or LCO 3.0.3.

2.4 SSC OPERABILITY

OPERABILITY determinations precede entry into the SFDP and thus, are not a direct part of the SFDP. OPERABILITY of an SSC is determined using the definition given in TS 1.1, along with the guidance of SR 3.0.1. When equipment that is not addressed in TS is degraded or nonconforming, the impact on TS SSC OPERABILITY shall also be assessed.

3.0 <u>Guidance for Safety Function Determination</u>

TS 5.5.10 states that a loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analyses cannot be performed. For the purpose of this program a "**graduated**" **approach** may be taken for determining the "safety function" of the supported SSC. This approach, detailed below, is graduated from most to least conservative. Even if the least conservative method is used, the requirements of TS 5.5.10 will be met. In determining whether a loss of safety function has occurred, **at least one** of these methods **must be used.**

- Method 1: Redundant Train[a]

  For this method, the safety function is assumed to be the system function. Confirm the OPERABILITY of the corresponding redundant supported SSC(s).

  If one or more of the redundant SSCs are found to be inoperable, a loss of safety function may exist. The appropriate actions for a loss of function **may** be taken or alternatively, one of the following methods may be used.

- Method 2: LCO Function

  In certain cases, multiple systems with diverse individual functions are specified under one LCO statement; i.e., in one TS. For these, the safety function may be considered to be broader than the individual system function--it is the TS LCO function, not the system function.

  An example of this is the TS for "ECCS Operating," in which four different systems are included. In this case, the function as stated in the Bases, "... to cool the core during a LOCA," may be the safety function to be considered in the SFDP.

  If a loss of LCO function is determined to exist, the appropriate actions for a loss of safety function **may** be taken. Alternatively, the following method may be used.

---

[a] The term "train" may be interchanged with "subsystem" or "division."

- Method 3: Safety Analysis

  In this approach, the function of the SSC in the FSAR accident analyses is considered to be the safety function. If the SSC in question is not credited in the analyses, or if the accident function it performs is intact, then no loss of safety function exists. However, if the function is lost, then the actions for a loss of safety function **must** be taken.

4.0 Additional Requirements and Information

4.1 Non-TS SSCs

A situation may exist where a TS support SSC provides support to an SSC not addressed in TS, which may in turn support a supported SSC addressed in TS. The interrelationships between TS and non-TS support and supported SSCs shall be considered in the loss of safety function determination.

4.2 Subsequent Inoperabilities

While taking the Required Actions of the support SSC as allowed by LCO 3.0.6, the impact of subsequent additional SSC inoperabilities on previous SFDP evaluations shall be considered.

5.0 Extending Supported SCS Completion Times

5.1 Singular Support SSC Inoperability

When entering the supporting SSC Required Actions as allowed by LCO 3.0.6, the Completion Times for the supported SSCs might potentially be extended longer than their allowed Required Action Completion Times if they are shorter than those of the support SSC. If there is no loss of safety function, it is acceptable to extend the Completion Time of the supported SSC an amount equal to but not exceeding the Completion Time of its support SSC.

5.2 Multiple Support SSC Inoperabilities

Once a supported SSC LCO is not met solely based on a support SSC inoperability, subsequent support SSC inoperabilities have additional limitations. This is to ensure that the supported LCO will not be in a situation of not being met for an inappropriate amount of time.

Provided there is no loss of function, the Required Actions of the support SSC Condition(s) continue to apply to each additional failure, with Completion Times based on initial entry into the particular support SSC Condition. However, when a subsequent support SSC is discovered to be inoperable or not within limits, the overall time that the supported SSC LCO is not met shall be limited to the more restrictive of either:

a. The first support SSC Completion Time, plus an additional 24 hours; or

b. The subsequent support SSC Completion Time as measured from discovery of the subsequent inoperability.

To apply this Completion Time extension, two criteria must first be met. The subsequent support SSC inoperability.

a. Must exist concurrently with the first inoperability; and

b. Must remain inoperable or not within limits after the first inoperability is resolved.

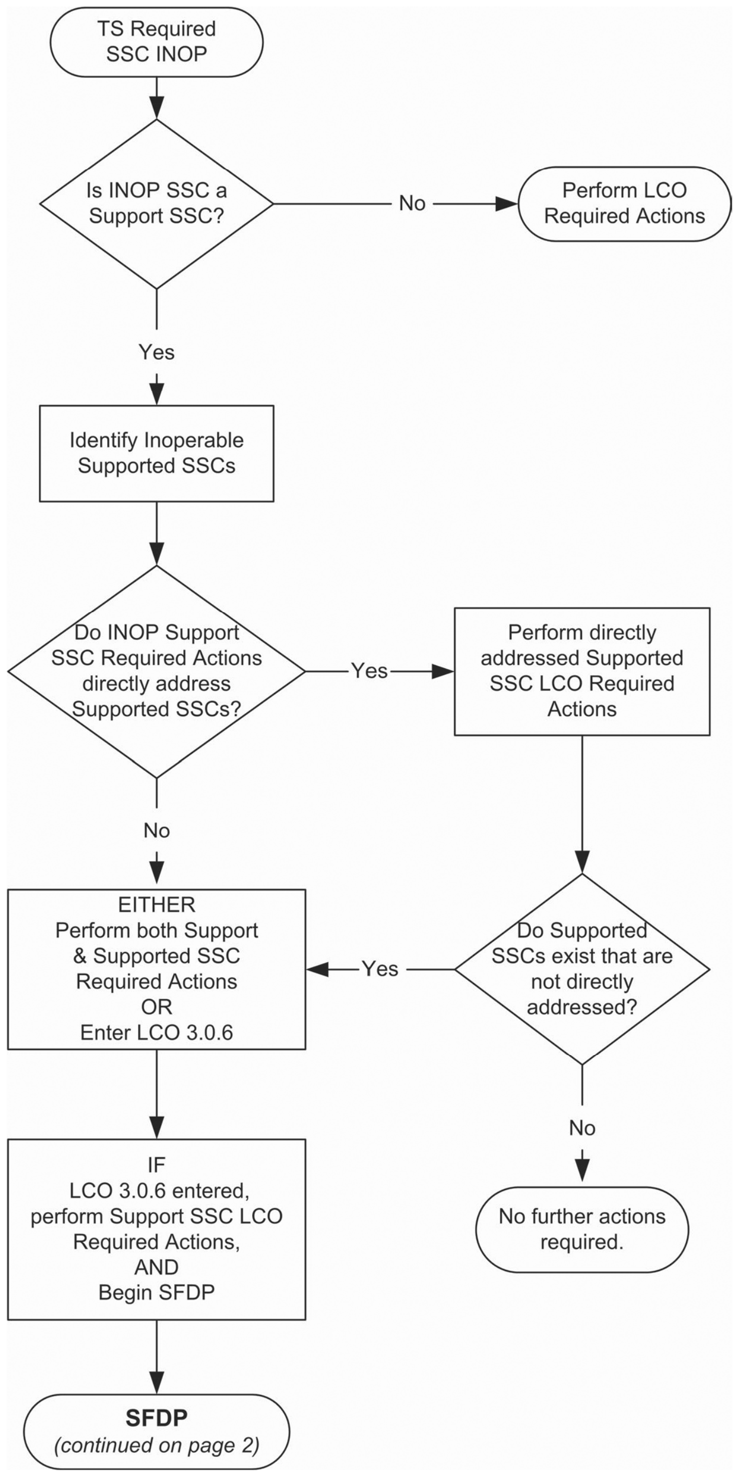
Should this extended Completion Time expire with the subsequent support SSC remaining inoperable or not within limits, the Completion Time for the subsequent support SSC inoperable Condition shall be considered expired. The Required Actions defined for that Condition shall be entered.

Examples regarding Completion Time tracking are included in **Attachment 2**.

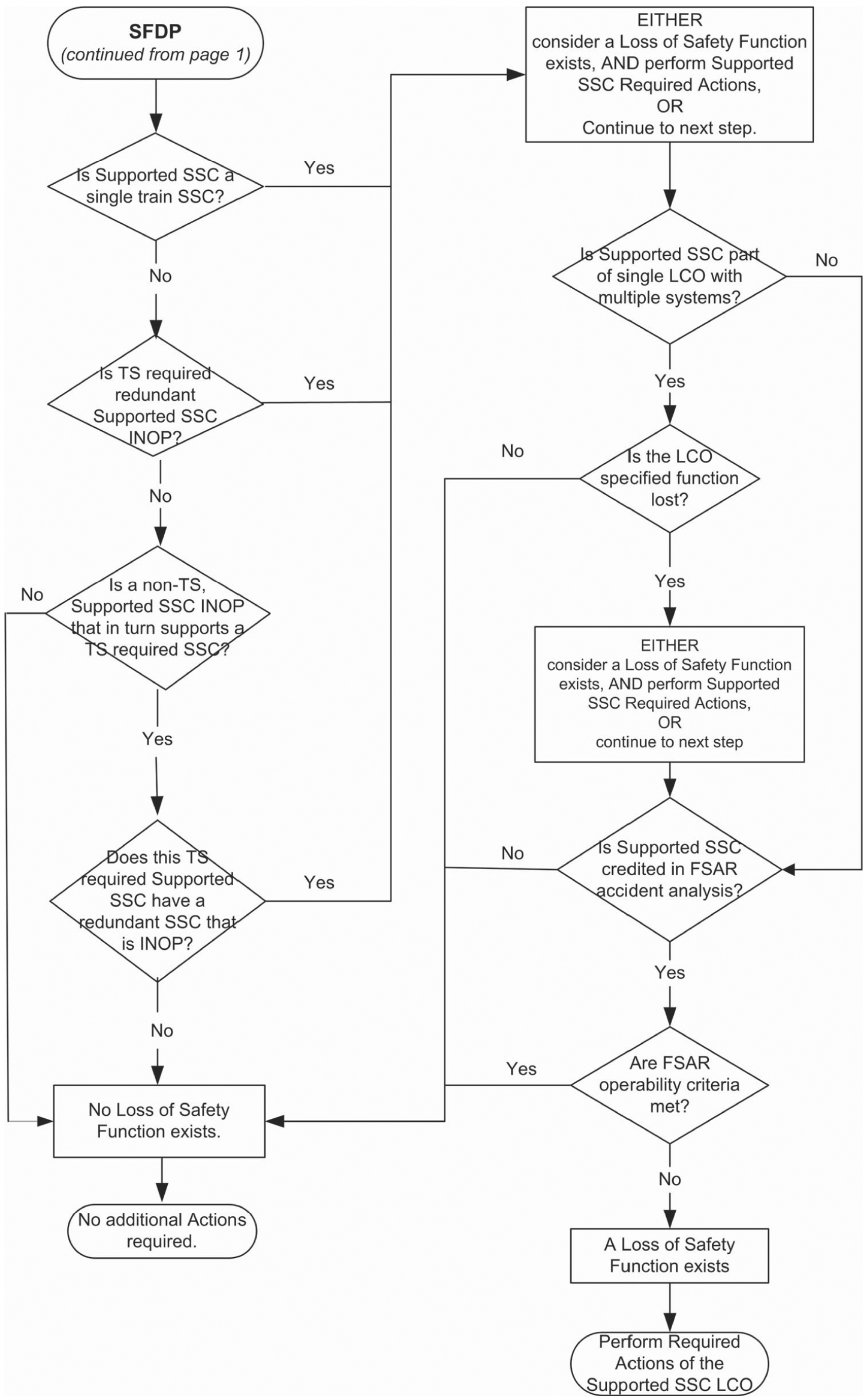
6.0 Conclusions Regarding the Use of LCO 3.0.6

The exception permitted by LCO 3.0.6 is justified as follows. The actions necessary to ensure safe operation of the plant are specified in the support SSC LCO Required Actions and the SFDP requires evaluation of loss of safety function. The SFDP directs that appropriate actions be taken if a loss of safety function exists. This approach eliminates the confusion and inconsistency associated with entry into multiple LCO Conditions and Required Actions.

ATTACHMENT 1 (Sheet 1 of 2)



ATTACHMENT 1 (Sheet 2 of 2)



ATTACHMENT 2

SCENARIO NO. 1: At 0100, with Unit 2 in RUN, the Unit 2 4160V “F” bus (a.k.a. swing bus) is determined to be inoperable. No other TS SSC inoperabilities exist.

The 4160V F bus is a support SSC, addressed by TS LCO 3.8.7. Required Action C requires restoring the bus to OPERABLE status within 8 hours.

The following is the loss of function determination for the supported systems:

- RHR Pumps 2C and 2D: For LCO 3.5.1, because Core Spray, ADS, and HPCI are OPERABLE, no loss of safety function exists.
- RHR Pumps 2C and 2D: For LCO 3.6.2.3, suppression pool cooling is not considered inoperable because only one pump per subsystem is required.
- RHR Pumps 2C and 2D: For LCO 3.6.2.4, suppression pool spray is not considered inoperable because only one pump per subsystem is required.
- RHR Pump 2C: For LCO 3.7.1, because the other subsystem is OPERABLE, no loss of safety function exists.
- PSW Pumps 2C and 2D: For LCO 3.7.2, because PSW can perform its safety function with one pump per subsystem, no loss of safety function exists.
- CRD Pump 2B: This is a non-TS SSC, but it supports control rods, TS LCO 3.1.3. With redundant CRD pumps OPERABLE, the safety function of the control rods is not affected.
- Diesel Bldg. MCC 1B (1R24S026): This is part of the 4160V F bus subsystem, addressed by TS 3.8.7. This supports distribution cabinet 1K (1R24S030) and ultimately the DG 1B. The DG 1B is inoperable, and LCO 3.8.1 Condition B required several different actions with Completion Times ranging from 1 hour to 7 days. With redundant DGs OPERABLE, no loss of safety function exists.

Conclusions: No loss of safety function exists. LCO 3.0.6 may be entered with a completion time of 8 hours to restore the inoperable bus to OPERABLE status, beginning at 0100.

SCENARIO NO. 2: At 0500, with Unit 2 in RUN, Reactor Vessel Water Level-Low Low Low (Level 1) channels A, B, and C are determined to be inoperable. This leaves only channel D operable.

This instrumentation supports ECCS by providing initiation for Core Spray, LPCI and ADS; and, also, supports initiation of the DGs and isolation of the PSW Turbine Building valves. Since all these supported functions require at least 2 channels, entry must be made into the Required Actions for LCO 3.3.5.1.

These Actions directly specify declaring supported features inoperable (due to loss of initiation capability in both Divisions). As stated in LCO 3.0.6, when the support SSC Required Actions provide direction for supported SSCs, the applicable supported SSC Conditions and Required Actions shall be entered. This effectively precludes the use of LCO 3.0.6 in determining the completion time for the supported SSCs.

<u>Conclusions</u>: The LCO 3.3.5.1 Required Actions should be performed, as well as those for all the inoperable supported systems. The SFDP will not be entered, because LCO 3.0.6 cannot be used.

SCENARIO NO. 4-A: At 0100, with Unit 2 in MODE 1, the Unit 2 RHRSW "A" pump becomes inoperable. The RHRSW crosstie valves are tagged for maintenance. No other TS SSC inoperabilities exist.

The RHRSW system is a support SSC, addressed by TS LCO 3.7.1. Required Action A for one inoperable RHRSW pump is to restore the pump to <u>OPERABLE</u> status within 30 days. The bases for this specification state that an RHRSW subsystem is considered OPERABLE when two pumps are OPERABLE with an OPERABLE flow path. With the "a" pump inoperable, the "A" subsystem of RHRSW is inoperable.

The following is the loss of function determination for the supported systems:

RHR Suppression Pool Cooling: LCO 3.6.2.3 requires two subsystems to be OPERABLE for suppression pool cooling. The Bases for this LCO state that an RHR suppression pool cooling subsystem is OPERABLE with one RHR pump, the heat exchanger, and associated piping. Therefore, the inoperability of RHRSW subsystem "A" causes suppression pool cooling subsystem "A" to be inoperable. This is Condition A, with a Required Action Completion Time of 7 days. However, because suppression pool cooling subsystem "B" is OPERABLE, no loss of safety function exists. The Completion Time for suppression pool cooling may be extended to 30 days (from the time of discovery of RHRSW pump "A" being inoperable, i.e., 0100).

RHR Supression Pool Spray: LCO 3.6.2.4 requires two subsystems to be OPERABLE for suppression pool spray. The Bases for this LCO state that an RHR suppression pool spray subsystem is OPERABLE with one RHR pump, the heat exchanger, and associated piping. Therefore, the inoperability of RHRSW subsystem "A" causes suppression pool spray subsystem "A" to be inoperable. This is Condition A, with a Required Action Completion Time of 7 days. However, because subsystem “B” is OPERABLE, no loss of safety function exists. The Completion Time for suppression pool spray may be extended to 30 days.

SCENARIO 4-B: At 29 days, 2 hours after the initial inoperability of RHRSW pump ”A,” with the pump remaining inoperable, RHRSW pump “C” is found to be inoperable. At 29 days 6 hours, RHRSW pump “A” is restored to OPERABLE status. RHRSW pump “C” remains inoperable.

With the second RHRSW pump inoperability, Condition C has been entered for LCO 3.7.1. Note that the Completion Time “clock” for Condition A is “still running.” Condition C requires that the RHRSW subsystem be restored to OPERABLE status within 7 days. The two SSCs supported by RHRSW continue to have their “B” subsystems OPERABLE, so no loss of safety function exists.

When the RHRSW pump “A” is restored to OPERABLE status, the LCO 3.7.1 Condition C is exited, but the Condition A clock is “still running” due to the inoperability of RHRSW pump “C”. Under the provisions of Section 1.3 of the TSs, the Completion Time for RHRSW pump “C” is 31 days from the initial inoperability, i.e., the inoperability of pump “A.” Therefore, the Completion Times for the supported SSCs may also be extended to 31 days measured from the same starting point.

SECTION 9.2

APPENDIX B

FIRE PROTECTION SURVEILLANCE REQUIREMENTS

Edwin I. Hatch Nuclear Plant Units 1 and 2
Fire Protection Program and Fire Hazards Analysis Appendix B

Active Page Listing

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9.2-B-4	(Rev 29)	9.2-B-45	(Rev 29)
9.2-B-5	(Rev 29)	9.2-B-46	(Rev 29)
9.2-B-6	(Rev 29)	9.2-B-47	(Rev 29)
9.2-B-7	(Rev 29)	9.2-B-48	(Rev 29)
9.2-B-8	(Rev 29)	9.2-B-49	(Rev 29)
9.2-B-9	(Rev 29)	9.2-B-50	(Rev 29)
9.2-B-10	(Rev 29)	9.2-B-51	(Rev 29)
9.2-B-11	(Rev 29)	9.2-B-52	(Rev 29)
9.2-B-12	(Rev 29)		
9.2-B-13	(Rev 29)		
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9.2-B-40	(Rev 29)		
9.2-B-41	(Rev 29)		

FIRE PROTECTION EQUIPMENT OPERATING AND SURVEILLANCE REQUIREMENTS

Fire protection systems are required to protect safety related or safe shutdown components from the effects of fire. Consistent with nuclear safety objectives, minimum operating requirements and surveillance requirements for these systems have been developed. These requirements, formerly embodied in the plant Technical Specifications, have been incorporated into this Appendix.

Definitions for the ACTION statement as used in this Appendix are provided below to ensure uniform and consistent interpretation of the Appendix is achieved. Regulatory separation required by 10 CFR 50 Appendix R protects at least one safe shutdown path to remain free of fire damage, thereby ensuring safe shutdown capability of the unit(s). The fire protection systems, equipment, and components ensuring safe shutdown capability are better refined and identified within respective tables as “CATEGORY I” (SSD) and “CATEGORY II” (Non-SSD), aligned with their corresponding compensatory action.

As required under the provisions of Criterion 3 of 10 CFR 50 Appendix A and BTP 9.5-1 Appendix A, the fire protection systems, equipment, and components necessary to respond to fires without safe shutdown concern are included under a compensatory category designated as CATEGORY II (Non-SSD). Fire protection systems and components are included in the following paragraphs and tables. These fire protection systems, equipment, and components, considered important to safety but not associated with safe shutdown function, provide compliance to 10 CFR 50 Appendix A, Criteria 3 and 5 and BTP 9.5-1 Appendix A. The defense in depth features are aligned to the CATEGORY II compensatory action during impairment periods.

This strategy is continued throughout FHA section 9.2 (Appendix B) to ensure the graded response is applied consistently for those systems and components during periods of planned or unplanned impairments or inoperable condition.

Alternative compensatory measures may be specified for degraded or inoperable fire protection features or post-fire safe shutdown capability by preparing an evaluation per NMP-ES-035-005, “Fire Protection Alternative Compensatory Measures.” The use of alternative compensatory measures should be considered for conditions affecting post-fire safe shutdown capability such as an identified lack of cable separation for safe shutdown components in lieu of fire watches since fire watches alone may not be the most effective measures. Other measures which improve operator ability to manage the potential loss of the safe shutdown component or components should be considered. Alternative compensatory measures such as temporary fire barriers, temporary detection systems, and temporary suppression systems may also be considered for degraded fire protection features. It is acceptable to implement the traditional compensatory measure (i.e., fire watch) until an alternate compensatory measure evaluation can be performed. Alternative compensatory measures may also be specified for pre-planned impairments of fire protection features or post-fire safe shutdown capability.

Each Surveillance Requirement shall be performed within the specified time interval with a maximum allowable extension of 25% of the surveillance interval; this 25% extension is known as the grace period.

FIRE-RATED ASSEMBLIES

OPERATING REQUIREMENTS

1.1.1 Fire-rated assemblies and sealing devices in fire-rated assembly penetrations separating fire areas or separating portions of redundant systems important to safe shutdown within a fire area shall be OPERABLE. Fire-rated assemblies are walls, floor/ceilings, cable tray enclosures and other fire barriers. Sealing devices in fire-rated assembly penetrations consist of fire doors; fire dampers; and cable, piping, and ventilation duct penetration seals. Tables 1.1-1 and 1.1-2 contain the Unit 1 and Unit 2 fire door listings to which this Specification applies.

APPLICABILITY: When fuel is in the reactor vessel for the affected unit.

ACTION:

With one or more of the above required fire-rated assemblies and/or sealing devices inoperable or with the required surveillance interval (including grace period) exceeded, within 1 hour:

CATEGORY I:

Establish a continuous fire watch on at least one side of the affected fire rated assembly and/or sealing device(s) or verify the OPERABILITY of fire detectors on at least one side of the inoperable assembly(s) and sealing device(s), and establish an hourly fire watch patrol and notify onshift fire brigade leader.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for the affected fire rated assembly and/or sealing device(s). If not returned to operable status within 45 days, establish an hourly fire watch patrol and notify onshift fire brigade leader.

SURVEILLANCE REQUIREMENTS

2.1.1 Each of the above required fire-rated assemblies and penetration sealing devices shall be verified OPERABLE at least once per 24 months by performing a visual inspection of:

a. The exposed surfaces of each fire-rated assembly.

b. Each fire damper and associated hardware.

SURVEILLANCE REQUIREMENTS (Continued)

c. At least 10 percent of each type of sealed penetration. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 10 percent of each type of sealed penetration shall be made. This inspection process shall continue until a 10-percent sample with no apparent changes in appearance or abnormal degradation is found. Samples shall be selected such that each penetration seal will be inspected at least once per 15 years.

2.1.2 Each of the required fire doors (i.e., the doors in Tables 1.1-1 and 1.1-2) shall be verified OPERABLE by:

a. Verifying that each locked-closed fire door is closed at least once per 7 days.

b. Verifying that doors with automatic hold-open and release mechanisms are free of obstructions at least once per 24 hours and by performing a functional test of these mechanisms at least once per 18 months.

c. Verifying that each unlocked fire door without electrical supervision is closed at least once per 24 hours.

d. Inspecting the automatic hold-open, release and closing mechanism and latches at least once per 6 months.

FIRE DOOR TABLES LEGEND

DOOR NUMBER:

1 C 38

- 38: UNIQUE DOOR NUMBER
- C: BLDG DESIGNATION:
  - C......CONTROL BLDG
  - D......DIESEL GEN BLDG
  - R......REACTOR BLDG
  - RW…RADWASTE BLDG
  - T......TURBINE BLDG
- 1: UNIT NUMBER:
  - 0...COMMON
  - 1...UNIT 1
  - 2...UNIT 2

COMPENSATORY ACTION:

- “Category I”: Safe Shutdown Capability Compensatory Action
- “Category II”: Non-Safe Shutdown Associated Compensatory Action

DOOR TYPE:

EX...EXCEPTION
RU...ROLL UP
SL....SLIDING
SW...SWINGING

DOOR STAT:

AHO......AUTOMATIC HOLD OPEN
LKCL....LOCKED-CLOSED
UNLK...UNLOCKED

DOOR OPER:

AIRL.....LOCKED BY AIRLOCK MECHANISM
CARD...REQUIRES BADGE CARD FOR ENTRY
FL..........HELD OPEN BY FUSIBLE LINK
KEY......REQUIRES KEY FOR ENTRY
MAG.....HELD OPEN BY MAGNETIC MECHANISM

AREA NO. 1 / AREA NO. 2: THE FIRE AREAS THAT THE DOOR SEPARATES
* Fire Areas designated “Dominant Fire Risk” by the IPEEE Risk Analysis

DETECTION ZONES: XL DETECTION ZONES FOR APPLICABLE FIRE AREAS

ELEV: FLOOR ELEVATION ON WHICH THE DOOR IS LOCATED

DWG: FHA DRAWING (FHA SECTION 8.0) ON WHICH THE DOOR CAN BE FOUND

LOCATION: BRIEF DESCRIPTION OF DOOR LOCATION

TABLE 1.1-1 (SHEET 1 OF 4)
UNIT 1 AND COMMON FIRE DOORS

FIRE DOOR	ACTION CATEGORY	DOOR TYPE	DOOR STATUS	DOOR OPER.	AREA NO. 1	DETECTION ZONE NO. 1	AREA NO. 2	DETECTION ZONE NO. 2	ELEV.	F H A DRAWING	LOCATION
1C01	I	SW	UNLK		0007A	1Z43112D14	1006	None	112	H-11811	U1 WATER ANALYSIS ROOM
1C03	II	SW	AHO	MAG	0007A	1Z43112D12	0001	2Z43112D12	112	H-11811	EAST CORRIDOR
1C06	I	EX	LKCL		1005	1Z43112D04	0001	2Z43112D12	112	H-11811	STATION BATTERY ROOM 1B
1C07	II	SW	UNLK		1010	1Z43112D06	0001	2Z43112D12	112	H-11811	RPS BATTERY N ROOM
1C08	II	SW	UNLK		1009	1Z43112D06	0001	2Z43112D12	112	H-11811	RPS BATTERY S ROOM
1C09	II	SW	UNLK		2009	2Z43112D09	0001	2Z43112D12	112	H-11811	RPS BATTERY N ROOM
1C10	II	SW	UNLK		2010	2Z43112D09	0001	2Z43112D12	112	H-11811	RPS BATTERY S ROOM
1C11	I	SW	UNLK		1008	1Z43112D05	0001	2Z43112D12	112	H-11811	UNIT 1 AC INVERTER ROOM
1C12	II	EX	LKCL		1004*	1Z43112D03	0001	1Z43112D01	112	H-11812	STATION BATTERY ROOM 1A
1C13	II	SL	AHO	FL	1003	1Z43112W02	0001	1Z43112D01	112	H-11812	OIL STORAGE TANK ROOM
1C13A	II	SL	AHO	FL	1003	1Z43112W02	0001	1Z43112D01	112	H-11812	OIL STORAGE TANK ROOM
1C14	II	SW	UNLK		0002A	NONE	0001	1Z43112D01	112	H-11812	CONTROL BLDG STAIRWELL
1C15	II	SW	UNLK		2101I	NONE	0001	1Z43112D01	112	H-11812	WEST CABLEWAY
1C17	II	SW	UNLK		2008	1Z43112D08	0001	2Z43112D12	112	H-11811	UNIT 2 AC INVERTER ROOM
1C21	I	SW	UNLK		2104*	2U43130D02	0014B	1Z43130D09	130	H-11814	UNIT 2 - EAST CABLEWAY
1C22	I	SW	AHO	MAG	1105*	1U43130D02	0014K	1Z43130D09	130	H-11814	EAST CABLEWAY
1C29	I	SL	AHO	FL	1020	1Z43130D08	0014K	1Z43130D02	130	H-11814	EAST DC SWGR ROOM 1B
1C31	I	SL	AHO	FL	1017	1Z43130D05	0014K	1Z43130D02	130	H-11814	EAST 600VOLT SWGR ROOM 1D
1C35	II	SL	AHO	FL	1016	1Z43130D04	0014K	1Z43130D02	130	H-11814	WEST 600VOLT SWGR ROOM 1C
1C38	II	SL	AHO	FL	1018	1Z43130D06	0014K	1Z43130D02	130	H-11814	WEST DC SWGR ROOM 1A
1C46	I	SL	AHO	FL	1015*	1Z43130D10	0014K	1Z43130D02	130	H-11815	UNIT 1 - ANNUNCIATOR ROOM
1C47	II	SL	AHO	FL	2015	2Z43130D15	0014K	2Z43130D17	130	H-11815	ANNUNCIATOR ROOM
1C48	I	SW	UNLK		1013	1Z43130D11	0014K	2Z43130D17	130	H-11815	RPS MG SET ROOM
1C49	I	SW	UNLK		2013	2Z43130D14	0014K	2Z43130D17	130	H-11815	RPS MG SET ROOM
1C50	II	SW	UNLK		0014K	1Z43130D02	0002A	NONE	130	H-11815	CB STAIRWELL / 130' ELEVATION
1C52	II	SW	AHO	MAG	SRVBG	NONE	0014K	1Z43130D02	130	H-11815	SERVICE BLDG/ CONTROL BLDG
1C53	II	SL	AHO	FL	1023	1Z43130W03	0014K	1Z43130D02	130	H-11815	OIL CONDITIONER ROOM
1C53A	II	SL	AHO	FL	1023	1Z43130W03	0014K	1Z43130D02	130	H-11815	OIL CONDITIONER ROOM
1C54	II	SL	AHO	FL	1019	1Z43130D07	0014K	1Z43130D02	130	H-11814	TRANSFORMER ROOM

TABLE 1.1-1
(SHEET 2 OF 4)

FIRE DOOR	ACTION CATEGORY	DOOR TYPE	DOOR STATUS	DOOR OPER.	AREA NO. 1	DETECTION ZONE NO. 1	AREA NO. 2	DETECTION ZONE NO. 2	ELEV.	F H A DRAWING	LOCATION
1C58	II	SW	UNLK		0014K	1Z43130D02	0002A	NONE	130	H-11815	CB STAIRWELL / 130' ELEVATION
1C60	I	SW	AHO	MAG	2104*	2U43130D02	1105*	1U43130D02	130	H-11814	UNIT 2 - EAST CABLEWAY
1C61	I	SW	LKCL	CARD	0025	NONE	0024A*	1Z43147D04	147	H-11816	CABLE SPREADING ROOM
1C62	I	SW	UNLK		0025	NONE	0024B	1Z43147D06	147	H-11816	COMPUTER ROOM
1C63	II	SW	UNLK		0025	NONE	0002A	NONE	147	H-11816	CB STAIRWELL / 147' ELEVATION
1C64	I	SW	LKCL	CARD	0028	1Z43147D08	0024A*	1Z43147D04	147	H-11816	LPCI INVERTER ROOM
1C66	I	RU	AHO	FL	0101G	1Z43164D02	0024C*	1Z43164D01	164	H-11817	CHART STORE RM & HALLWAY
1C71	II	SW	UNLK		0101A	NONE	0002A	NONE	164	H-11817	CB STAIRWELL / U1 TURBINE DECK
1C82	I	SW	UNLK		0101A	NONE	0024D	NONE	164	H-11817	MAIN CONTROL ROOM ENTRYWAY
1C83	II	SW	LKCL	KEY	0031	NONE	0002B	NONE	186	H-11818	MAIN CONTROL RM ROOF
1C84	II	SW	UNLK		0002A	NONE	0002B	NONE	186	H-11818	MAIN CONTROL RM ROOF
1C85	II	SW	UNLK		0031	NONE	0002A	NONE	180	H-11818	MAIN CONTROL RM ROOF
1C86	I	RU	AHO	FL	0101A	NONE	0024C*	1Z43130D01	164	H-11817	CONTROL ROOM / U1 TURBINE DECK
1C87	I	RU	AHO	FL	0101J	NONE	0024C*	1Z43164D01	164	H-11817	MAIN CONTROL / U2 TURBINE DECK
1C88	I	SW	UNLK		2013	2Z43130D14	0040*	1Z43130D13	130	H-11815	UNIT 2 - RPS MG SET ROOM
1C89	I	SW	UNLK		1013	1Z43130D11	0040*	1Z43130D13	130	H-11815	UNIT 1 - RPS MG SET ROOM
1C97	I	SW	LKCL	KEY	0101A	NONE	0024D	NONE	164	H-11817	MAIN CONTROL ROOM ENTRYWAY
1C160	I	SW	AHO	MAG	1104*	1U43130D02	1105*	1U43130D02	130	H-11814	EAST CABLEWAY
1D134	I	RU	AHO	FL	2403	2X43130C05	0401	NONE	130	H-11846	DIESEL GENERATOR RM 2A
1D135	I	SW	UNLK		2403	2X43130C05	0401	NONE	130	H-11846	DIESEL GENERATOR RM 2A
1D136	I	SW	UNLK		2401	2X43130C05	0401	NONE	130	H-11846	DG DAY TANK ROOM 2A
1D137	I	RU	AHO	FL	2407	2X43130C06	0401	NONE	130	H-11846	DIESEL GENERATOR RM 2C
1D138	I	SW	UNLK		2407	2X43130C06	0401	NONE	130	H-11846	DIESEL GENERATOR RM 2C
1D139	I	SW	UNLK		2405	2X43130C06	0401	NONE	130	H-11846	DG DAY TANK ROOM 2C
1D140	I	RU	AHO	FL	1411	1X43130C02	0401	NONE	130	H-11846	DIESEL GENERATOR RM 1A
1D141	I	SW	UNLK		1411	1X43130C02	0401	NONE	130	H-11846	DIESEL GENERATOR RM 1A
1D142	I	SW	UNLK		1409	1X43130C02	0401	NONE	130	H-11846	DG DAY TANK ROOM 1A
1D143	I	RU	AHO	FL	1407	1X43130C03	0401	NONE	130	H-11846	DIESEL GENERATOR RM 1B (SWING DG)
1D144	I	SW	UNLK		1407	1X43130C03	0401	NONE	130	H-11846	DIESEL GENERATOR RM 1B (SWING DG)
1D145	I	SW	UNLK		1405	1X43130C03	0401	NONE	130	H-11846	DG DAY TANK ROOM 1B (SWING DG)
1D146	I	RU	AHO	FL	1403	1X43130C04	0401	NONE	130	H-11846	DIESEL GENERATOR RM 1C
1D147	I	SW	UNLK		1403	1X43130C04	0401	NONE	130	H-11846	DIESEL GENERATOR RM 1C

TABLE 1.1-1
(SHEET 3 OF 4)

FIRE DOOR	ACTION CATEGORY	DOOR TYPE	DOOR STATUS	DOOR OPER.	AREA NO. 1	DETECTION ZONE NO. 1	AREA NO. 2	DETECTION ZONE NO. 2	ELEV.	F H A DRAWING	LOCATION
1D148	I	SW	UNLK		1401	1X43130C04	0401	NONE	130	H-11846	DG DAY TANK ROOM 1C
1D149	II	SW	UNLK		2404*	2X43130C10	2403	2X43130C05	130	H-11846	DG SWGR ROOM 2E
1D150	II	SW	LKCL		2408*	2X43130C11	2402	2X43130C11	130	H-11846	DG BATTERY ROOM 2F
1D151	I	SW	UNLK		2408*	2X43130C11	2407	2X43130C06	130	H-11846	DG SWGR ROOM 2F
1D152	II	SW	LKCL		2409*	2X43130C12	2406	2X43130C12	130	H-11846	DG BATTERY ROOM 2G
1D153	I	SW	UNLK		2409*	2X43130C12	1411	1X43130C02	130	H-11846	DG SWGR ROOM 2G
1D154	II	SW	UNLK		1412*	1X43130C07	1411	1X43130C02	130	H-11846	DG SWGR ROOM 1E
1D155	II	SW	LKCL		1412*	1X43130C07	1410	1X43130C07	130	H-11846	DG BATTERY ROOM 1E
1D156	II	SW	LKCL		1408*	1X43130C08	1407	1X43130C03	130	H-11846	DG BATTERY ROOM 1F
1D157	II	SW	UNLK		1408*	1X43130C08	1406	1X43130C08	130	H-11846	DG SWGR ROOM 1F
1D158	II	SW	UNLK		1404*	1X43130C09	1403	1X43130C04	130	H-11846	DG SWGR ROOM 1G
1D159	II	SW	LKCL		1404*	1X43130C09	1402	1X43130C09	130	H-11846	DG BATTERY ROOM 1G
1D214	II	RU	AHO	FL	0702B	1X43130W13	0703	1X43130W13	130	H-11848	FIRE PROTECTION PUMP HOUSE
1D215	II	RU	AHO	FL	0703	1X43130W13	0704	1X43130W13	130	H-11848	FIRE PROTECTION PUMP HOUSE
1R28	I	SW	LKCL	AIRL	1203C	1T43130D02	1105*	1U43130D02	130	H-11814	EAST CABLEWAY / U1 RB
1R40B	I	SW	UNLK		1205N	1T43164D02	1203I	NONE	164	H-11828	HVAC ROOM EL 164'
1R41	II	SW	LKCL	AIRL	1203I	NONE	0101A	NONE	164	H-11828	U1 RB STAIRWELL / U1 TB
1R42	I	SW	LKCL	AIRL	2203I	NONE	1203I	NONE	164	H-11828	UI RB STAIRWELL / U2 TB
1R51	I	SW	UNLK		1205U	1T43185W03	1203I	NONE	185	H-11829	UI RB STAIRWELL / SW CORNER
1R52A	I	SW	LKCL	AIRL	2203I	NONE	1203I	NONE	185	H-11829	UI RB STAIRWELL / U2 RB
1R61	I	SW	UNLK		1205X	NONE	1203I	NONE	203	H-11830	STACK MONITORING ROOM
1R64	I	SW	LKCL	AIRL	1203I	NONE	0201A	NONE	228	H-11831	UI RB STAIRWELL EL 228'
1RW01	II	SW	UNLK		1101H	NONE	1301G	NONE	112	H-11805	UNIT 1 RADWASTE EAST CORRIDOR ENTRY
1RW21	II	SW	UNLK		1301I	NONE	1104*	1U43130D02	132	H-11839	U1 RW BLDG / U1 TURBINE BLDG.
1RW30	I	SW	LKCL	AIRL	1301J	NONE	1205F*	1T43130D10	132	H-11839	U1 RW BLDG / U1 REACTOR BLDG.
1T07	II	SW	UNLK		1101C	NONE	1102	NONE	112	H-11804	UNIT 1 TURBINE BLDG EAST STAIRWELL
1T10	II	SW	UNLK		1101H	NONE	1103	NONE	112	H-11804	UNIT 1 TURBINE BLDG NORTH STAIRWELL
1T11	II	SW	UNLK		1101H	NONE	0007A	1Z43112D14	112	H-11804	CONTROL BLDG EAST CORRIDOR
1T17	II	SW	UNLK		1101J	1U43130D05	1102	NONE	130	H-11805	UNIT 1 TURBINE BLDG EAST STAIRWELL

TABLE 1.1-1
(SHEET 4 OF 4)

FIRE DOOR	ACTION CATEGORY	DOOR TYPE	DOOR STATUS	DOOR OPER.	AREA NO. 1	DETECTION ZONE NO. 1	AREA NO. 2	DETECTION ZONE NO. 2	ELEV.	F H A DRAWING	LOCATION
1T18	II	SW	UNLK		1101J	1U43130D05	1102	NONE	130	H-11805	UNIT 1 TURBINE BLDG NORTH STAIRWELL
1T19	II	SW	UNLK		1104*	1U43130D02	1103	NONE	130	H-11805	EAST CABLEWAY / NE STAIRWAY
1T23	II	SW	UNLK		1101M	1U43147D01	1103	NONE	147	H-11806	UNIT 1 TURBINE BLDG EAST STAIRWELL
1T24	II	SW	UNLK		1101N	1U43147D03	1102	NONE	147	H-11806	UNIT 1 TURBINE BLDG NORTH STAIRWELL
1T33	II	SW	UNLK		1103	NONE	0101A	NONE	164	H-11807	UNIT 1 TURBINE BLDG EAST STAIRWELL
1T34	II	SW	UNLK		1102	NONE	0101A	NONE	164	H11807	UNIT 1 TURBINE BLDG NORTH STAIRWELL

TABLE 1.1-2 (SHEET 1 OF 2)
UNIT 2 FIRE DOORS

FIRE DOOR	ACTION CATEGORY	DOOR TYPE	DOOR STATUS	DOOR OPER.	AREA NO. 1	DETECTION ZONE NO. 1	AREA NO. 2	DETECTION ZONE NO. 2	ELEV.	F H A DRAWING	LOCATION
2C01	I	SW	UNLK		2006	NONE	0007A	1Z43112D14	112	H-11811	U2 WATER ANALYSIS ROOM
2C02	I	EX	LKCL		2005	2Z43112D11	0001	2Z43112D12	112	H-11811	STATION BATTERY ROOM 2B
2C03	II	EX	LKCL		2004*	2Z43112D10	0001	2Z43112D12	112	H-11811	STATION BATTERY ROOM 2A
2C05	II	SL	AHO	FL	2003	2Z43112W13	0001	1Z43112D01	112	H-11812	OIL STORAGE TANK ROOM
2C05A	II	SL	AHO	FL	2003	2Z43112W13	0001	1Z43112D01	112	H-11812	OIL STORAGE TANK ROOM
2C06	II	SL	AHO	FL	2020	2Z43130D22	2014	2Z43130D17	130	H-11814	EAST DC SWGR ROOM 2B
2C07	II	SL	AHO	FL	2017	2Z43130D19	2014	2Z43130D17	130	H-11814	EAST 600V SWGR ROOM 2B
2C08	II	SL	AHO	FL	2019	2Z43130D21	2014	2Z43130D17	130	H-11814	TRANSFORMER ROOM
2C09	I	SL	AHO	FL	2016*	2Z43130D18	2014	2Z43130D17	130	H-11814	WEST 600V SWGR ROOM 2C
2C10	I	SL	AHO	FL	2018	2Z43130D20	2014	2Z43130D17	130	H-11814	WEST DC SWGR ROOM 2C
2C11	II	SW	UNLK		2023	2Z43130W23	0014K	2Z43130D17	130	H-11815	OIL CONDITIONER ROOM
2C33	I	SW	UNLK		2021	2Z43130D30	2014	2Z43130D17	130	H-11814	AC DISTRIBUTION ENCLOSURE
2C34	I	SW	UNLK		2021	2Z43130D30	2014	2Z43130D17	130	H-11814	AC DISTRIBUTION ENCLOSURE
2R23	I	SW	LKCL	AIRL	2203F*	2T43130D02	2104*	2U43130D02	130	H-11833	U2 RB/U2 EAST CABLEWAY
2R26	I	SW	LKCL	AIRL	2301J	NONE	2205F*	2T43130D04	130	H-11843	DRY WASTE STORAGE AREA
2R32	I	SW	UNLK		2205N	2T43164D02	2203I	NONE	164	H-11834	CHILLER ROOM
2R52	I	SW	UNLK		2205T	NONE	2203I	NONE	185	H-11835	RB EXHAUST FILTER ROOM
2R53	I	SW	UNLK		2205U	2T43185W05	2203I	NONE	185	H-11835	U2 RB STAIRWELL/ NW CORNER
2R61	I	SW	UNLK		2205V	NONE	2203I	NONE	203	H-11836	U2 RB STAIRWELL/ FLTR
2R63	I	SW	UNLK		2205X	NONE	2203I	NONE	203	H-11836	U2 RB STAIRWELL/ NW CORNER
2R71	I	SW	UNLK		2203I	NONE	0201B	NONE	228	H-11837	U2 RB STAIRWELL EL 228'
2RW02	II	SW	UNLK		2101H	NONE	2301A	NONE	112	H-11820	EAST CORRIDOR 112 EL RADWASTE
2RW53	II	SW	UNLK		0101J	NONE	2301	NONE	164	H-11823	U2 TB DECK / RADWASTE ENTRY 164' EL.
2RW57	II	SW	UNLK		0101J	NONE	2301	NONE	164	H-11823	U2 TB DECK / RADWASTE ENTRY 164' EL.
2T01	II	SW	UNLK		2101H	NONE	2103	NONE	112	H-11820	EAST CORRIDOR / U2 TURBINE EAST STAIR

TABLE 1.1-2
(SHEET 2 OF 2)

FIRE DOOR	ACTION CATEGORY	DOOR TYPE	DOOR STATUS	DOOR OPER.	AREA NO. 1	DETECTION ZONE NO. 1	AREA NO. 2	DETECTION ZONE NO. 2	ELEV.	F H A DRAWING	LOCATION
2T02	II	SW	UNLK		2101C	NONE	2102	NONE	112	H-11820	U2 TURBINE BLDG SOUTH STAIR
2T19	II	SW	UNLK		2104*	2U43130D02	2103	NONE	130	H-11821	EAST CABLEWAY / SE STAIR
2T23	II	SW	UNLK		2101J	2T43130D05	2102	NONE	130	H-11821	WORKING FLOOR / SOUTH STAIR
2T29	II	SW	UNLK		2101N	2U43147D01	2102	NONE	147	H-11822	U2 TB SOUTH STAIR / U2 TB SWGR 147' EL..
2T30	II	SW	UNLK		2101M	2U43147D03	2103	NONE	147	H-11822	U2 TB EAST STAIR / U2 TB SWGR 147' EL.
2T40	II	SW	UNLK		0101J	NONE	2102	NONE	164	H-11823	U2 TB SOUTH STAIR / U2 TB DECK 164' EL.
2T41	II	SW	UNLK		0101J	NONE	2103	NONE	164	H-11823	U2 TB EAST STAIR / U2 TB DECK 164' EL.

FIRE DETECTION INSTRUMENTATION

OPERATING REQUIREMENTS

1.2.1 As a minimum, the fire detection instrumentation for each fire detection zone shown in Tables 1.2-1 (Unit 1 and Common) and 1.2-2 (Unit 2) shall be OPERABLE.

APPLICABILITY: Whenever equipment in that area is required to be OPERABLE.

ACTION:

With the number of OPERABLE fire detection instruments less than the minimum number of OPERABLE detectors required by Tables 1.2-1 and 1.2-2 or with the required surveillance interval (including grace period) exceeded, within 1 hour:

CATEGORY I:

Establish an hourly fire watch patrol for the fire area with the inoperable fire detection instrument(s) at least once per hour and, and notify onshift fire brigade leader.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for the inoperable fire detection instrument(s). If not returned to OPERABLE status within 45 days, establish an hourly fire watch patrol.

SURVEILLANCE REQUIREMENTS

2.2.1 The circuit supervision associated with the detector alarms of each of the above required fire detection instruments shall be demonstrated OPERABLE at least once per 62 days.

2.2.2 Each of the above required fire detection instruments, which are accessible during plant operation, shall be demonstrated OPERABLE by performance of the following tests:

a. At least once per 6 months:

1. For restorable heat detectors, one or more detectors on each signal-initiating circuit shall be tested. Different detectors shall be selected for each test.

2. Nonrestorable, line-type, fixed-temperature detectors shall be tested for alarm function. The loop resistance shall be measured, recorded, and compared with a predetermined range. Significant changes in loop resistance deviating outside the predetermined range shall be investigated to determine impact on detector OPERABILITY.

SURVEILLANCE REQUIREMENTS (Continued)

3. All smoke detectors will be visually inspected in place to identify missing detectors, detectors with impeded smoke entry, abnormally dirty detectors, and detectors no longer suitably located because of occupancy or structural changes.

b. At least once per 12 months:

1. Smoke detector sensitivity shall be checked to assure that each detector is within its listed and marked sensitivity range.

2. A test shall be performed to assure that each smoke detector is operative and produces the intended response. Each detector shall be caused to initiate an alarm at its installed location with smoke or other aerosol acceptable to the manufacturer. This test must demonstrate that smoke can enter the chamber and initiate an alarm.

2.2.3 Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by performance of the test identified in subsection 2.2.2 during each MODE 4 exceeding 72 hours unless performed within the previous required surveillance interval.

TABLE 1.2-1 (SHEET 1 OF 3)
UNIT 1 AND COMMON DETECTION INSTRUMENTATION

CONTROL BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
WORKING FLOOR	0001	IS	20	10	1Z43112D01	I	
WEST STATION BATTERY RM 1A	1004	IS	2	1	1Z43112D03	I	
EAST STATION BATTERY RM 1B	1005	IS	2	1	1Z43112D04	I	
AC INVERTER RM UNIT 1	1008	IS	1	1	1Z43112D05	I	
RPS BATTERY RMS UNIT 1 N & S	1009/1010	IS	2	2	1Z43112D06	II	
ANNUNCIATOR LOGIC CABINET	0001	IS	1	1	1Z43112D07	II	
EAST CORRIDOR CONTROL BLDG	0007A	IS	6	3	1Z43112D14	I	
HEATH PHYSICS COLD LAB	0007C,D,E	IS/ST	4/2	2/1	1Z43112D15	II	
CB CORRIDOR UNIT 1	0014K	LT	2	1	1Z43130D02	I	
WEST SWITCHGEAR RM 1C	1016	IS	2	1	1Z43130D04	I	
EAST SWITCHGEAR RM 1D	1017	IS	2	1	1Z43130D05	I	
WEST DC SWITCHGEAR RM 1A	1018	IS	1	1	1Z43130D06	II	
TRANSFORMER RM 1	1019	IS	1	1	1Z43130D07	I	
EAST DC SWITCHGEAR RM 1B	1020	IS	1	1	1Z43130D08	I	
HEALTH PHYSICS LAB. 1 & 2	0014A – J	IS	22	11	1Z43130D09	I	
ANNUNCIATOR RM - UNIT 1	1015	IS	1	1	1Z43130D10	I	
RPS MG SET RM UNIT 1	1013	IS	1	1	1Z43130D11	I	
RPS VERTICAL CABLE RM	0040	LT	1	1	1Z43130D13	I	
CABLE SPREAD RM UNITS 1 & 2	0024A	LT	1	1	1Z43147D04	I	
COMPUTER RM UNITS 1 & 2	0024B	IS	12	8	1Z43147D06	I	
LPCI INVERTER RM	0028	IS	9	4	1Z43147D08	I	
CO2 TANK RM	0025	IS	7	4	1Z43147D09	II	
CONTROL RMS UNITS 1 & 2	0024C	IS/ST	58/2	30/0	1Z43164D01	I	
CR ANCILLARY RMS	0101F,G,H	ST	4	4	1Z43164D02	I	

DIESEL GENERATOR BUILDING AND OTHER STRUCTURES

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
SUB-STATION SWITCH HOUSE	0801	IS	9	5	1X43127D01	II	
PRODUCTION WAREHOUSE	N/A	IS	42	21	1X43129D07	II	
DIESEL- SWGR / BATTERY RM 1F	1408/1406	PE/ST	4/1	2/1	1X43130C08	I	NOTE 1
DIESEL- SWGR / BATTERY RM 1G	1404/1402	PE/ST	4/1	2/1	1X43130C09	I	NOTE 1
DIESEL- SWGR / BATTERY RM 1E	1412/1410	PE/ST	4/1	2/1	1X43130C07	I	NOTE 1
START-UP BOILER SWGR HSE	N/A	IS	1	1	1X43130D16	II	
OFF-GAS RECOMBINER BLDG	1608A	IS	7	4	1X43130D14	II	

* Refer to FHA Section 7.0 legend for detection system type.

TABLE 1.2-1
(SHEET 2 OF 3)

INTAKE STRUCTURE

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
INTAKE STRUCTURE	0501	ST	8	4	1Y43111D02	II	

REACTOR BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
E-TORUS WTR CURTAIN	1203/1205	LT	1	1	1T43087D02	I	
W-TORUS WTR CURTAIN	1203/1205	LT	1	1	1T43087D04	I	
SE PUMP ROOM	1203B	LT	1	1	1T43087D08	II	
NE RHR PUMP ROOM	1205B	LT	1	1	1T43087D09	II	
SW WTR CURTAIN 130' EL.	1203F	IS	8	4	1T43130D02	I	
S REACTOR BLDG CRD AREA	1203F	LT	2	1	1T43130D04	I	
SE CORNER 130' EL.	1203F	IS	3	1	1T43130D05	I	
E-WTR CURTAIN 130' EL.	1203F/1205F	LT	2	1	1T43130D07	I	
NE CORNER 130' EL.	1205F	IS	3	1	1T43130D08	II	
N REACTOR BLDG CRD AREA	1205F	LT	2	1	1T43130D09	I	
NW CORNER 130' EL.	1205F	IS	4	2	1T43130D10	I	
E-WTR CURTAIN 158' EL.	1203K/1205I	IS	8	4	1T43158D04	I	
HVAC ROOM ZONE	1205N	LT	1	1	1T43164D02	I	

TURBINE BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
EAST CABLEWAY	1104	IS	12	6	1U43130D02	I	
NW SWITCHGEAR AREA	1101J	IS	12	6	1U43130D05	II	
NE CORRIDOR MCC AREA	1101M	IS	7	4	1U43147D01	II	
NW CORNER SWGR AREA	1101N	IS	18	9	1U43147D03	II	
TURBINE BEARING # 1	0101B	ST	1	1	1U43164D02	II	
TURBINE BEARING # 2	0101B	ST	1	1	1U43164D04	II	
TURBINE BEARING # 3	0101B	ST	1	1	1U43164D06	II	
TURBINE BEARING # 4	0101B	ST	1	1	1U43164D08	II	
TURBINE BEARING # 5	0101B	ST	1	1	1U43164D10	II	
TURBINE BEARING # 6	0101B	ST	1	1	1U43164D12	II	
GENERATOR BEARING # 7	0101B	ST	1	1	1U43164D14	II	
GENERATOR BEARING # 8	0101B	ST	1	1	1U43164D16	II	

* Refer to FHA Section 7.0 legend for detection system type.

TABLE 1.2-1
(SHEET 3 OF 3)

RADWASTE BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
RADWASTE CONTROL ROOM	1301H	IS	2	1	1V43132D01	I	
DRUM FILL AND CAP AREA	1301J	IS	2	1	1V43132D03	I	

COOLING TOWERS

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
CT 1A SWITCH HOUSE	1801	IS	2	1	1W43118D05	II	
CT 1B SWITCH HOUSE	1802	IS	2	1	1W43118D10	II	
CT 1C SWITCH HOUSE	1803	IS	2	1	1W43118D15	II	

* Refer to FHA Section 7.0 legend for detection system type

NOTES:

1. The detector in the adjacent battery room is required to be OPERABLE.

TABLE 1.2-2 (SHEET 1 OF 2)
UNIT 2 FIRE DETECTION INSTRUMENTATION

CONTROL BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
AC INVERTER ROOM	2008	IS	1	1	2Z43112D08	I	
RPS BATTERY RMS – N & S	2009/2010	IS	2	2	2Z43112D09	II	
WEST STA BATTERY RM 2A	2004	IS	4	2	2Z43112D10	I	
EAST STA BATTERY RM 2B	2005	IS	4	2	2Z43112D11	I	
CORRIDORS/GEN WORK AREA	0001	LT	2	1	2Z43112D12	I	
RPS RM UNIT 2	2013	IS	1	1	2Z43130D14	I	
ANNUNCIATOR RM UNIT 2	2015	IS	1	1	2Z43130D15	I	
SOUTH CORRIDOR	2014	LT	2	1	2Z43130D17	I	
WEST 600V SWGR RM 2C	2016	IS	2	1	2Z43130D18	I	
EAST 600V SWGR RM 2D	2017	IS	2	1	2Z43130D19	I	
WEST DC SWGR RM 2A	2018	IS	1	1	2Z43130D20	I	
TRANSFORMER RM 2CD	2019	IS	1	1	2Z43130D21	I	
EAST DC SWGR RM 2B	2020	IS	1	1	2Z43130D22	I	
AC DISTRIBUTION ENCLOSURE	2021	IS	1	1	2Z43130D30	I	

REACTOR BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
W TORUS WATER CURTAIN	2203A/2205A	LT	1	1	2T43087D02	I	
E TORUS WATER CURTAIN	2203A/2205A	LT	1	1	2T43087D04	I	
NE RHR PUMP ROOM	2203B	LT	1	1	2T43087D07	II	
SE RHR PUMP ROOM	2205B	LT	1	1	2T43087D08	II	
N REACTOR BLDG CRD AREA	2203F	LT	2	1	2T43130D02	I	
S REACTOR BLDG CRD AREA	2205F	LT	2	1	2T43130D04	II	
WTR CURTAIN AREA 130' EL.	2203/2205	IS/LT	14/1	7/1	2T43130D05	I	
SS PANEL 2C82-P001	2203F	PE	2	2	2T43130D06	I	
CHILLER BUILDING	N/A	IS	2	1	2T43130D08	II	
E WATER CURTAIN 158' EL.	2203/2205	IS	4	2	2T43158D04	I	
HVAC CHILLER RM	2205N	IS	13	6	2T43164D02	I	
REACTOR BLDG SUPPLY FAN	2205R	IS	1	1	2T43185D08	II	
REFUELING FLR SUPPLY FAN	2205Y	IS	1	1	2T43203D06	II	

* Refer to FHA Section 7.0 legend for detection system type.

TABLE 1.2-2
(SHEET 2 OF 2)

TURBINE BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
EAST CABLEWAY	2104	IS	11	6	2U43130D02	I	
SW CORNER SWGR AREA	2101J	IS	19	9	2U43130D05	II	
SW CORNER SWGR AREA	2101N	IS	19	9	2U43147D01	II	
SE CORNER SWGR AREA	2101M	IS	9	4	2U43147D03	II	
TURBINE BEARING # 1	0101I	ST	1	1	2U43164D02	II	
TURBINE BEARING # 2	0101I	ST	1	1	2U43164D04	II	
TURBINE BEARING # 3	0101I	ST	1	1	2U43164D06	II	
TURBINE BEARING # 4	0101I	ST	1	1	2U43164D08	II	
TURBINE BEARING # 5	0101I	ST	1	1	2U43164D10	II	
TURBINE BEARING # 6	0101I	ST	1	1	2U43164D12	II	
GENERATOR BEARING # 7	0101I	ST	1	1	2U43164D14	II	
GENERATOR BEARING # 8	0101I	ST	1	1	2U43164D16	II	

RADWASTE BUILDING

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
UNIT 2 RADWASTE CTRL RM	2301V	IS	6	3	2V43164D01	I	

COOLING TOWERS

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
CT 4 SWGR HOUSE	2801	IS	3	2	2W43118D16	II	
CT 5 SWGR HOUSE	2802	IS	3	2	2W43118D17	II	
CT 6 SWGR HOUSE	2803	IS	3	2	2W43118D18	II	

DIESEL GENERATOR BUILDING AND OTHER STRUCTURES

FIRE AREA DESCRIPTION	FIRE AREA/ZONE	TYPE*	NO. OF DEVICES	MINIMUM OPERATING DETECTORS	SYSTEM NUMBER	ACTION CATEGORY	NOTES
DIESEL - SWGR / BATT RM 2E	2404	PE	4	2	2X43130C10	II	
DIESEL - SWGR / BATT RM 2F	2402/2408	PE/ST	4/1	2/1	2X43130C11	I	
DIESEL - SWGR / BATT RM 2G	2406/2409	PE/ST	4/1	2/1	2X43130C12	I	
HOT MACHINE SHOP	2604	IS	10	5	2X43130D19	II	

* Refer to FHA Section 7.0 legend for detection system type.

NOTES:

1. The detector in the adjacent battery room is required to be OPERABLE.

FIRE SUPPRESSION WATER SYSTEM

OPERATING REQUIREMENTS

1.3.1 The fire suppression water system shall be OPERABLE with:

a. At least two OPERABLE high pressure pumps, each with a capacity of 2500 gpm, with their discharge aligned to the fire suppression header, and

b. At least two separate water supplies, each with a minimum contained volume of 270,000 gallons, except during normal fire pump testing, fire main flushing, or other periodic fire system surveillances. While periodic fire system surveillance is being performed, the total combined capacity of the two storage tanks shall not be less than 450,000 gallons and shall be restored to greater than 270,000 gallons per tank within 8 hours, and

c. An OPERABLE flow path capable of taking suction from each of the water supplies and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrants and the first valve ahead of the water flow alarm device on each sprinkler or spray system riser required to be OPERABLE per Operating Requirement 1.4.1, and

d. Automatic initiation logic for each pump.

APPLICABILITY: At all times.

ACTION:

a. With one pump and/or one water supply inoperable or with the required surveillance interval (including grace period) exceeded, restore the inoperable equipment to OPERABLE status within 14 days, or perform an engineering evaluation of the effects of one pump and/or one water supply remaining inoperable and submit to the Plant Review Board within the next 30 days.

b. With the fire suppression water system otherwise inoperable establish a backup fire suppression water system within 24 hours, or perform an engineering evaluation of the effects of the fire suppression water system remaining inoperable and submit to the Plant Review Board within the next 30 days.

SURVEILLANCE REQUIREMENTS

2.3.1 The fire water main system shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying the contained water supply volume is at least the minimum specified.

b. At least once per 31 days by starting each pump from ambient conditions, via the auto-start signal, and operating it for at least 30 minutes on recirculation flow.

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once per 12 months by:

   1. Verifying that each pump develops at least 2500 gpm at a system head of 120 psig.

   2. Verifying that each high pressure pump starts sequentially to maintain the fire suppression water system pressure greater than or equal to 85 psig.

d. At least once per 18 months by performance of a system flush.

e. At least once per 3 years by performing a flow test of the system in accordance with guidance provided by the National Fire Protection Association.

2.3.2 Each fire pump diesel engine shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying the fuel storage tank contains at least 275 gallons of fuel.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is obtained in accordance with and is within the acceptance limits given in Technical Specification 5.5.9.

c. At least once per 24 months, during shutdown, by verifying the diesel starts from ambient conditions, via the auto-start signal, and operates for greater than or equal to 60 minutes while loaded with the fire pump.

d. Subjecting the diesels, to inspections, at the intervals recommended by the vendor for the class of service.

2.3.3 The fire pump diesel starting 24-V battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

   1. The electrolyte level of each pilot cell is above the plates.

   2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level, is greater than or equal to 1.205.

   3. The pilot cell voltage is greater than or equal to 2.0 V.

   4. The overall battery voltage is greater than or equal to 24 V.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 92 days by verifying that:

1. The voltage of each connected cell is greater than or equal to 2.0 V under float charge and has not decreased more than 0.17 V from the value observed during the original acceptance test.

2. The specific gravity, corrected to 77°F and full electrolyte level, of each connected cell is greater than or equal to 1.205 and has not decreased more than 0.02 from the value observed during the previous test.

3. The electrolyte level of each connected cell is above the plates.

c. At least once per 18 months by verifying that:

1. The batteries and battery racks show no visual indication of physical damage or abnormal deterioration.

2. Cell-to-cell and terminal connections are clean, tight, free of corrosion, and coated with anti-corrosion material.

SPRAY AND/OR SPRINKLER SYSTEMS

OPERATING REQUIREMENTS

1.4.1 The spray and/or sprinkler systems in Tables 1.4-1 and 1.4-2 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the spray and/or sprinkler systems is required to be OPERABLE.

ACTION: With one or more of the above required spray and/or sprinkler systems inoperable or with the required surveillance interval (including grace period) exceeded, within 1 hour :

CATEGORY I:

Establish a continuous fire watch with backup fire suppression equipment, provided radiation levels permit personnel access, and notify the onshift fire brigade leader.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for inoperable spray and/or sprinkler system(s). If not returned to OPERABLE status within 45 days, establish an hourly fire watch patrol.

SURVEILLANCE REQUIREMENTS

2.4.1 Each of the above required spray and/or sprinkler systems shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each isolation valve in the flow path, not monitored through an electrically supervised circuit signaling to a constantly manned location, is in its correct position.

b. At least once per 12 months by cycling each testable isolation valve in the flow path through at least one complete cycle of full travel, and verifying proper operation of electrical supervision of monitored valves.

c. At least once per 24 months:

1. By performing a system functional test which includes simulated automatic actuation of the system.

SURVEILLANCE REQUIREMENTS (Continued)

2. By performing a visual inspection of the dry pipe spray and/or sprinkler headers to verify their integrity.

3. By performing a visual inspection of each nozzle's spray pattern.

4. By cycling each isolation valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

d. At least once per 3 years by performing an air flow test through each open head spray and sprinkler header and verifying each open head spray and sprinkler nozzle is unobstructed.

TABLE 1.4-1
UNIT 1 AND COMMON SUPPRESSION SYSTEM

CONTROL BUILDING

Elev	Fire Area/Zone	Fire Area Description	Type*	System Number	ACTION Category
112	1003	Turbine Lube Oil Storage Tanks	DL	1Z43112W02	II
130	0014K	North Corridor Unit 1	WP	1Z43130W01	I
130	1023	Turbine Lube Oil Conditioner & Reservoir	WP	1Z43130W03	II
130	0040	RPS Vertical Cableway	WP	1Z43130W12	I
147	0024A	Cable Spreading Room	PA	1Z43147W02	I

Reactor Building

Elev	Fire Area/Zone	Fire Area Description	Type*	System Number	ACTION Category
087	1203a/1205a	West Torus Water Curtain	WP	1T43087W03	I
087	1203a/1205a	East Torus Water Curtain	WP	1T43087W01	I
087	1203C	RCIC Room Suppression System	WP	1T43087W05	I
087	1205Z	HPCI Room Ceiling Suppression System	WP	1T43087W07	I
130	1203F	Working Floor SW Corner	WP	1T43130W01	I
130	1203F/1205F	East Suppression System	WP	1T43130W03	I
130	1205F	Working Floor North West Corner	WP	1T43130W06	I
158	1203K	Recirculation Pump ASD “B” Area	WP	1T43158W01	I
158	1203K	Recirculation Pump ASD “A” Area	WP	1T43158W02	I
158	1203k/1205I	East Suppression System	WP	1T43158W03	I
164	1205N	HVAC Room South	PA	1T43164W01	I
164	1205N	HVAC Room North	PA	1T43164W03	I
187	1205U	South West Corridor	WP	1T43185W03	I
185	1205S	East Working Floor	WP	1T43185W04	I

Turbine Building

Elev	Fire Area/Zone	Fire Area Description	Type*	System Number	ACTION Category
112	1101I	West Cable way	WP	1U43112W01	II
112	1101A	West End Condenser A & B	PA	1U43112W02	II
130	1104	East Cableway	WP	1U43130W01	I
130	1101J	Gen Hydrogen Seal Oil Unit	WS	1U43130W03	II
130	1101K	West End Condenser Bay A & B	PA	1U43130W04	II
164	0101D	Reactor Feed Pump B	WS	1U43164W18	II
164	0101C	Reactor Feed Pump A	WS	1U43164W19	II
164	0101A	RFP Oil Conditioner	WS	1U43164W17	II
164	0101B	Turbine Bearing Systems (Multiple Systems) 1U43164W1, W3, W5, W7, W9, W11, W13, W15	WS	1U43164W1- W15	II

Intake Structure

Elev	Fire Area/Zone	Fire Area Description	Type*	System Number	ACTION Category
111	0501	Intake Structure Pump Water Spray System	WS	1Y43111W01	II

* Refer to FHA Section 7.0 legend for suppression system type.

TABLE 1.4-2
UNIT 2 SUPPRESSION SYSTEM

Control Building

Elev	Fire Area/Zone	Fire Area Description	Type*	System Number	ACTION Category
112	2003	Turbine Lube Oil Storage Tanks	DL	2Z43112W13	II
130	2023	Turbine Lube Oil Conditioner & Reservoir	DL	2Z43130W23	II
130	0014G	South Corridor Unit 2	WS	2Z43130W16	I
147	0024A*	Cable Spreading Room	PA	2Z43147W03	I

Reactor Building

Elev	Fire Area/Zone	Fire Area Description	Type*	System Number	ACTION Category
087	2203A/2205A	East Torus Water Curtain	WP	2T43087W03	I
087	2203A/2205A	West Torus Water Curtain	WP	2T43087W01	I
087	2205Z	HPCI Room Ceiling Suppression System	WP	2T43087W06	I
087	2203C	RCIC Room Suppression System	WP	2T43087W05	I
130	2203F	NW Water Curtain (North of Steam Chase)	WP	2T43130W01	I
130	2203F/2205F	East 130 Water Curtain Suppression System	WP	2T43130W03	I
158	2211	Recirculation Pump ASD Room B	WP	2T43158W01	I
158	2210	Recirculation Pump ASD Room A	WP	2T43158W02	I
158	2203K/2205I	East 158 Water Curtain Suppression System	WP	2T43158W03	I
164	2205N	HVAC Chiller Room	PA	2T43164W01	I
185	2205S	NE 185 Water Curtain Suppression System	WP	2T43185W06	I
185	2205U	West 185 Water Curtain Suppression System	WP	2T43185W05	I
185	2205S	East 185 Water Curtain Suppression System	WP	2T43185W04	II

Turbine Building

Elev	Fire Area/Zone	Fire Area Description	Type*	System Number	ACTION Category
112	2101I	West Cableway	WP	2U43112W01	II
112	2101A	West End Condenser A & B	PA	2U43112W02	II
130	2104	East Cableway	WP	2U43130W01	I
130	2104	RFP Oil Conditioner	WS	2U43130W06	II
130	2101K	West End Condenser A & B	WP	2U43130W04	II
130	2101J	Gen Hydrogen Seal Oil Unit	WS	2U43130W03	II
164	0101K	Reactor Feed Pump A	WS	2U43164W17	II
164	0101L	Reactor Feed Pump B	WS	2U43164W18	II
164	0101I	Turbine Bearing Systems (Multiple Systems)	WS	2U43164W01-W15	II

* Refer to FHA Section 7.0 legend for suppression system type.

LOW PRESSURE CO_2 SYSTEMS

OPERATING REQUIREMENTS

1.5.1 The low pressure CO_2 storage systems listed in Table 1.5-1 shall be OPERABLE with a minimum level of 60 percent and a minimum pressure of 275 psig in the associated storage tank.

APPLICABILITY: At all times when the equipment in the CO_2 protected area is required to be OPERABLE.

ACTION: With a CO_2 system inoperable or with the required surveillance interval (including grace period) exceeded, within 1 hour:

CATEGORY I:

Establish a continuous fire watch for the unprotected area(s).

OR

Establish alternative compensatory measures per NMP-ES-035-005.

CATEGORY II:

Assign a tracking Fire Action Statement (FAS) for the inoperable carbon dioxide system(s). If not returned to OPERABLE status within 45 days, establish an hourly fire watch patrol.

SURVEILLANCE REQUIREMENTS

2.5.1 Each of the above required low pressure CO_2 systems shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying each CO_2 storage tank level and pressure.
2. Performing a visual inspection of each CO_2 storage tank's ancillary equipment.

b. At least once per 62 days by verifying that each valve in the flow path is in its correct position.

c. At least once per 12 months by verifying:

1. The system valves and associated ventilation dampers actuate automatically and manually upon receipt of an actuation signal.
2. Flow from each nozzle.

TABLE 1.5-1
UNIT 1 AND COMMON CARBON DIOXIDE SUPPRESSION SYSTEM

DIESEL GENERATOR BUILDING

ELEV	FIRE AREA/ZONE	FIRE AREA DESCRIPTION	TYPE*	SYSTEM NUMBER	ACTION CATEGORY
130	D/G BLDG.	DIESEL GENERATOR BUILDING CO2 STORAGE TANK	CO2	1X43130C01	I

CONTROL BUILDING

ELEV	FIRE AREA/ZONE	FIRE AREA DESCRIPTION	TYPE*	SYSTEM NUMBER	ACTION CATEGORY
147	0024B	COMPUTER ROOM CO2 TANK SYSTEM	CO2	1Z43147C07	I

FIRE HOSE STATIONS

OPERATING REQUIREMENTS

1.6.1 Hose stations listed in Tables 1.6-1 and 1.6-2 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by fire hose stations is required to be OPERABLE.

ACTION:

a. With one or more of the applicable fire hose stations inoperable or with the required surveillance interval (including grace period) exceeded, provide additional fire hose for the unprotected area(s) at an OPERABLE hose station within 1 hour and verify the access/egress path to the inoperable hose station is free from obstruction.

OR

Establish alternative compensatory measures per NMP-ES-035-005.

SURVEILLANCE REQUIREMENTS

2.6.1 Each of the applicable fire hose stations shall be demonstrated OPERABLE:

a. At least once per 31 days by performing a visual inspection of the station to assure all required equipment is at the station.

b. At least once per 12 months by:

   1. Removing the hose for inspection and re-racking.

   2. Replacing all degraded gaskets in couplings.

c. At least once per 2 years by:

   1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.

   2. Conducting a hose hydrostatic test at a pressure at least 50 psig greater than the maximum fire main operating pressure.

TABLE 1.6-1

UNIT 1 AND COMMON
FIRE HOSE STATIONS
(SHEET 1 OF 2)

	LOCATION	FLOOR ELEVATION	HOSE RACK NUMBER
A.	Control Building		
	1. East Corridor	112'-0"	HS-C01
	2. Working Floor	112'-0"	HS-C02
	3. Working Floor	112'-0"	HS-C03
	4. East Cableway	130'-0"	HS-C10
	5. South Corridor	130'-0"	HS-C11
	6. North Corridor	130'-0"	HS-C12
	7. Deleted		
	8. CO_2 Tank Room	147'-0"	HS-C21
	9. Outside Control Room	164'-0"	HS-C30
	10. Control Room	164'-0"	HS-C31
	11. Outside Control Room	164'-0"	HS-C32
	12. Control Room Roof	180'-0"	HS-C40
B.	Reactor Building		
	1. NW Corner Room	97'-0"	HS-R01
	2. HPCI Pump Room	87'-0"	HS-R02
	3. NE Corner Room	87'-0"	HS-R03
	4. SE Corner Room	87'-0"	HS-R04
	5. SW Corner Room	87'-0"	HS-R05
	6. Torus Room	87'-0"	HS-R06
	7. Torus Room	87'-0"	HS-R07
	8. Torus Room	87'-0"	HS-R08
	9. Torus Room	87'-0"	HS-R09
	10. NW Corner	130'-0"	HS-R10
	11. NE Corner	130'-0"	HS-R11
	12. SE Corner	130'-0"	HS-R12
	13. SW Corner	130'-0"	HS-R13
	14. Working Floor - North	158'-0"	HS-R20
	15. Working Floor - East	158'-0"	HS-R21
	16. Working Floor - South	158'-0"	HS-R22
	17. Working Floor - North	185'-0"	HS-R30
	18. Working Floor - East	185'-0"	HS-R31
	19. Working Floor - South	185'-0"	HS-R32
	20. SW Corridor	185'-0"	HS-R33
	21. Working Floor	203'-0"	HS-R40
	22. Working Floor	203'-0"	HS-R41
	23. Refueling Floor	228'-0"	HS-R50
	24. Refueling Floor	228'-0"	HS-R51
	25. Refueling Floor	228'-0"	HS-R53
	26. SBGT Filters	164'-0"	HR-R01

TABLE 1.6-1
(SHEET 2 OF 2)

	LOCATION	FLOOR ELEVATION	HOSE RACK NUMBER
C.	Turbine Building		
	1. Condensate Pump Area	112'-0"	HS-T01
	2. East Corridor	112'-0"	HS-T02
	3. NW Corner Swgr. Area	130'-0"	HS-T10
	4. East Cableway	130'-0"	HS-T11
	5. East Cableway	130'-0"	HS-T12
D.	Intake Structure		
	1. MCC Area	111'-0"	HS-D01
	2. PSW Pump Area	111'-0"	HS-D02
	3. PSW Pump Area	111'-0"	HS-D03

TABLE 1.6-2

UNIT 2
FIRE HOSE STATIONS
(SHEET 1 OF 2)

LOCATION	FLOOR ELEVATION	HOSE RACK NUMBER
A. Reactor Building		
1. NE Corner Room	87'-0"	2HS-R01
2. SE Corner Room	87'-0"	2HS-R02
3. HPCI Pump Room	87'-0"	2HS-R03
4. SW Corner Room	87'-0"	2HS-R04A
5. NW Corner Room	87'-0"	2HS-R05A
6. SW Corner Room	108'-8"	2HS-R04
7. NW Corner Room	110'-7 1/2"	2HS-R05
8. Torus Room	87'-0"	2HS-R06
9. Torus Room	87'-0"	2HS-R07
10. Torus Room	87'-0"	2HS-R08
11. Torus Room	87'-0"	2HS-R09
12. N CRD Area	130'-0"	2HS-R10
13. N CRD Area	130'-0"	2HS-R11
14. S CRD Area	130'-0"	2HS-R12
15. S CRD Area	130'-0"	2HS-R13
16. Working Floor - North	158'-0"	2HS-R20
17. Working Floor - South	158'-0"	2HS-R21
18. Working Floor - South	158'-0"	2HS-R22
19. Chiller Room	164'-0"	2HS-R23
20. Working Floor - North	185'-0"	2HS-R30
21. Working Floor - South	185'-0"	2HS-R31
22. Working Floor - South	185'-0"	2HS-R32
23. Stairwell	185'-0"	2HS-R33
24. Working Floor	203'-0"	2HS-R40
25. Working Floor	203'-0"	2HS-R41
26. Exh. Filter & Demin Room	203'-0"	2HS-R42
27. Stack Monitor Room	203'-0"	2HS-R43
28. Refueling Floor	228'-0"	2HS-R50
29. Refueling Floor	228'-0"	2HS-R51
30. Refueling Floor	228'-0"	2HS-R52
31. Refueling Floor	228'-0"	2HS-R53
32. SBGT Filter	185'-0"	2HR-R01
B. Turbine Building		
1. East Corridor	112'-0"	2HS-T01
2. Condensate Pump Area	112'-0"	2HS-T04
3. East Cableway	130'-0"	2HS-T11
4. East Cableway	130'-0"	2HS-T12
5. SW Corner Swgr. Area	130'-0"	2HS-T13
6. Outside LPCI Inv. Room	164'-0"	2HS-T30

TABLE 1.6-2

UNIT 2
(SHEET 2 OF 2)

	LOCATION	FLOOR ELEVATION	HOSE RACK NUMBER
C.	Hot Machine Shop		
	1. East Wall	130'-0"	2HS-HMS01
	2. South Wall	130'-0"	2HS-HMS02

YARD FIRE HYDRANTS

OPERATING REQUIREMENTS

1.7.1 The yard fire hydrants listed in Table 1.7-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the yard fire hydrants is required to be OPERABLE.

ACTION:

With one or more of the yard fire hydrants given in Table 1.7-1 inoperable or with the required surveillance interval (including grace period) exceeded, within 1 hour ensure sufficient lengths of 2 1/2-inch-diameter hose are available and ensure one of the hydrants listed in Table 1.7-1 remains OPERABLE to provide service to the unprotected area(s).

OR

Establish alternative compensatory measures per NMP-ES-035-005.

SURVEILLANCE REQUIREMENTS

2.7.1 Each of the yard fire hydrants given in Table 1.7-1 and associated hydrant hose shall be demonstrated OPERABLE:

a. At least once per 31 days by performing a visual inspection of the hydrant hose to assure all required equipment is OPERABLE.

b. At least once per 6 months (once during March, April, or May and once during September, October, or November) by visually inspecting each yard fire hydrant and verifying that the hydrant barrel is dry and that the hydrant is not damaged:

c. At least once per 12 months by:

    1. Conducting a hose hydrostatic test at a pressure of at least 50 psig above maximum fire main operating pressure.

    2. Inspecting all the gaskets and replacing any degraded gaskets in the coupling.

    3. Performing a flow check of each hydrant to verify its OPERABILITY.

TABLE 1.7-1

YARD FIRE HYDRANTS

LOCATION	HYDRANT NUMBER
East Side of the Diesel Generator Building	1Y43-F314A
In Front of the Intake Structure	1Y43-F318D
Southwest of the Diesel Generator Building	1Y43-F314B

1.8.1 Deleted

2.8.1 Deleted

EMERGENCY LIGHTING UNITS

OPERATING REQUIREMENTS

1.9.1 All self-contained, battery-powered emergency lighting units listed in Tables 1.9-1 and 1.9-2 (required to support unit shutdown in the event of a fire and coincident loss of offsite power) shall be OPERABLE.

APPLICABILITY: When fuel is in the reactor vessel for the affected unit.

ACTION:

With one or more of the required emergency lighting units inoperable or with the required surveillance interval (including grace period) exceeded, restore the inoperable unit(s) to OPERABLE status within 14 days or perform an engineering evaluation of the effects on the Fire Protection Program of the unit(s) remaining inoperable and submit to the Plant Review Board within the next 30 days.

SURVEILLANCE REQUIREMENTS

2.9.1 Each of the required emergency lighting units shall be demonstrated OPERABLE:

a. At least once per 3 months by checking each unit's power supply, battery condition, lamp head illumination and position.

b. Perform one of the following:

1. At least once per 12 months by performing an 8-h discharge test.

OR

2. At least once per 6 months by performing ohmic testing on Teledyne Big Beam battery.

TABLE 1.9-1 (SHEET 1 OF 9)

UNIT 1 EMERGENCY LIGHTING

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E001	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	1R42-E001R1	LAMP #1	STAIRWAY
	1R42-E001R1	LAMP #2	STAIRWAY
1R42-E002	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E002R1	LAMP #1	ACCESS
	1R42-E002R1	LAMP #2	ACCESS
	1R42-E002R2	LAMP #1	ACCESS
	1R42-E002R2	LAMP #2	ACCESS
1R42-E003	(BASE UNIT)	NO LAMPS	N/A
	1R42-E003R2	LAMP #1	2C71-P001
	1R42-E003R2	LAMP #2	2C71-P001
	1R42-E003R3	LAMP #1	2R25-S065
	1R42-E003R3	LAMP #2	2R25-S065
1R42-E005	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E006	(BASE UNIT)	NO LAMPS	N/A
	1R42-E006R2	LAMP #1	ACCESS
	1R42-E006R2	LAMP #2	ACCESS
1R42-E007	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E010	(BASE UNIT)	LAMP #1	ACCESS
	1R42-E010R1	LAMP #1	ACCESS
1R42-E011	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E012	(BASE UNIT)	NO LAMPS	N/A
	1R42-E012R1	LAMP #1	ACCESS
	1R42-E012R1	LAMP #2	ACCESS
1R42-E015	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E016	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY

TABLE 1.9-1 (SHEET 2 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E017	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E017R1	LAMP #1	ACCESS
	1R42-E017R1	LAMP #2	ACCESS
1R42-E018	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	1R42-E018R1	LAMP #1	1E11-F006D
	1R42-E018R1	LAMP #2	1E11-F006D
1R42-E019	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E019R1	LAMP #1	ACCESS
	1R42-E019R1	LAMP #2	ACCESS
1R42-E020	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E021	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	1R42-E021R1	LAMP #1	ACCESS
1R42-E022	(BASE UNIT)	LAMP #1	1T48-F111
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E025	(BASE UNIT)	LAMP #1	1P70-A002A,B,C
			1P70-F084
			1P70-F138A,B,C
			1P70-F141
		LAMP#2	1P70-A002A,B,C
			1P70-F084
			1P70-F138A,B,C
			1P70-F141
		LAMP #3	1P70-A002A,B,C
			1P70-F084
			1P70-F138A,B,C
			1P70-F141
1R42-E026	(BASE UNIT)	LAMP #1	1R26-M119
	(BASE UNIT)	LAMP #2	1H21-R120
1R42-E027	(BASE UNIT)	LAMP #1	ACCESS
	1R42-E027R1	LAMP #2	1H21-P122,1R26-M121
1R42-E030	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
1R42-E031	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY

TABLE 1.9-1 (SHEET 3 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E035	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E035R1	LAMP #1	ACCESS
	1R42-E035R1	LAMP #2	ACCESS
1R42-E037	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E039	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E040	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E041	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E042	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E042R1	LAMP #1	1R43-P001C
	1R42-E042R1	LAMP #2	1R43-P001C
1R42-E043	(BASE UNIT)	LAMP #1	1R22-S005
	(BASE UNIT)	LAMP #2	1R22-S005
1R42-E044	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E047	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E047R1	LAMP #1	1R43-P001A
	1R42-E047R1	LAMP #2	1R43-P001A
1R42-E048	(BASE UNIT)	LAMP #1	1R22-S007
	(BASE UNIT)	LAMP #2	1R22-S007
1R42-E050	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E051	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
1R42-E052	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E052R1	LAMP #1	1E11-F073B
	1R42-E052R1	LAMP #2	1E11-F119B

TABLE 1.9-1 (SHEET 4 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E053	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E053R1	LAMP #1	1E11-F049
	1R42-E053R1	LAMP #2	1E11-F049
1R42-E054	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
1R42-E055	(BASE UNIT)	LAMP #1	1R24-S012
	(BASE UNIT)	LAMP #2	1R24-S012
1R42-E056	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E057	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E058	(BASE UNIT)	LAMP #1	DG1C R&T BOX
	(BASE UNIT)	LAMP #2	DG1C R&T BOX
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E059	(BASE UNIT)	LAMP #1	1H21-P175
	(BASE UNIT)	LAMP #2	1H21-P175
	1R42-E059R1	LAMP #1	1R22-S007
	1R42-E059R1	LAMP #2	1R22-S007
1R42-E060	(BASE UNIT)	LAMP #1	1R22-S007
	(BASE UNIT)	LAMP #2	1R22-S007
	(BASE UNIT)	LAMP #3	1R22-S007
1R42-E066	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E067	(BASE UNIT)	LAMP #1	DG1A R&T BOX
	(BASE UNIT)	LAMP #2	DG1A R&T BOX
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E069	(BASE UNIT)	LAMP #1	1R22-S005
	(BASE UNIT)	LAMP #2	1R22-S005
	(BASE UNIT)	LAMP #3	1R22-S005
1R42-E070	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY

TABLE 1.9-1 (SHEET 5 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E071	(BASE UNIT)	LAMP #1	1H21-P173
	(BASE UNIT)	LAMP #2	1H21-P173
	(BASE UNIT)	LAMP #3	1H21-P173
1R42-E073	(BASE UNIT)	LAMP #1	1R24-S011
	(BASE UNIT)	LAMP #2	1R24-S011
	(BASE UNIT)	LAMP #3	1R24-S011
1R42-E074	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E075	(BASE UNIT)	LAMP #1	1R25-S116
	(BASE UNIT)	LAMP #2	1R24-S012
	(BASE UNIT)	LAMP #3	1R24-S012
1R42-E076	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	1C82-P001
	(BASE UNIT)	LAMP #3	1C82-P001
1R42-E077	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E078	(BASE UNIT)	LAMP #1	1C82-P002
	(BASE UNIT)	LAMP #2	1C82-P002
	(BASE UNIT)	LAMP #3	1C82-P002
1R42-E079	(BASE UNIT)	LAMP #1	1H21-P246
	(BASE UNIT)	LAMP #2	1R23-S004
	(BASE UNIT)	LAMP #3	1R23-S004
1R42-E082	(BASE UNIT)	LAMP #1	1R23-S003
	(BASE UNIT)	LAMP #2	1R23-S003
	(BASE UNIT)	LAMP #3	1H21-P245
1R42-E083	(BASE UNIT)	LAMP #1	1C71-P001
	(BASE UNIT)	LAMP #2	1C71-P001
	1R42-E083R1	LAMP #1	1R25-S065
	1R42-E083R1	LAMP #2	1R25-S065
1R42-E086	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	(BASE UNIT)	LAMP #3	STAIRWAY

TABLE 1.9-1 (SHEET 6 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E087	(BASE UNIT)	NO LAMPS	N/A
	1R42-E087R1	LAMP #1	1E11-F006C
	1R42-E087R1	LAMP #2	1E11-F006C
	1R42-E087R3	LAMP #1	1E11-F006A
	1R42-E087R3	LAMP #2	1E11-F006A
1R42-E088	(BASE UNIT)	NO LAMPS	N/A
	1R42-E088R1	LAMP #1	1E11-F047B
	1R42-E088R1	LAMP #2	1E11-F068B
	1R42-E088R3	LAMP #1	1E11-F003B
	1R42-E088R3	LAMP #2	1E11-F003B
1R42-E089	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
1R42-E090	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
1R42-E091	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
1R42-E096	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E097	(BASE UNIT)	LAMP #1	1R24-S022
	(BASE UNIT)	LAMP #2	1R24-S022
	(BASE UNIT)	LAMP #3	1R24-S022
1R42-E098	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	1E11-F017B
	(BASE UNIT)	LAMP #3	1E11-F017B
1R42-E099	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E100	(BASE UNIT)	LAMP #1	1R24-S011
	(BASE UNIT)	LAMP #2	1R24-S011
	(BASE UNIT)	LAMP #3	1R24-S011

TABLE 1.9-1 (SHEET 7 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E107	(BASE UNIT)	LAMP #1	ACCESS
	1R42-E107R1	LAMP #1	ACCESS
	1R42-E107R1	LAMP #2	ACCESS
	1R42-E107R2	LAMP #1	1E11-F018B
	1R42-E107R2	LAMP #2	1E11-F018B
1R42-E108	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E108R1	LAMP #1	1E11-F018A
	1R42-E108R1	LAMP #2	1E11-F018A
1R42-E109	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E111	(BASE UNIT)	LAMP #1	1E51-F104; 1E51-F105
	(BASE UNIT)	LAMP #2	1E51-F104; 1E51-F105
	(BASE UNIT)	LAMP #3	1E51-F104; 1E51-F105
1R42-E112	(BASE UNIT)	LAMP #1	1E51-F019
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E113	(BASE UNIT)	LAMP #1	1E51-F012
	(BASE UNIT)	LAMP #2	1E51-F012
	(BASE UNIT)	LAMP #3	1E51-F022
1R42-E115	(BASE UNIT)	NO LAMPS	N/A
	1R42-E115R1	LAMP #1	1E11-F011B
	1R42-E115R1	LAMP #2	1E11-F011B
	1R42-E115R2	LAMP #1	1E11-F104B
	1R42-E115R2	LAMP #2	1E11-F003B

TABLE 1.9-1 (SHEET 8 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E117	(BASE UNIT)	LAMP #1	1E51-F010
	(BASE UNIT)	LAMP #2	1E51-F029
	(BASE UNIT)	LAMP #3	1E51-F031
1R42-E118	(BASE UNIT)	NO LAMPS	N/A
	1R42-E118R1	LAMP #1	1R24-S021
	1R42-E118R1	LAMP #2	1R24-S021
1R42-E120	(BASE UNIT)	LAMP #1	1E11-F016B
	(BASE UNIT)	LAMP #2	1E11-F016B
	(BASE UNIT)	LAMP #3	1E11-F016B
1R42-E122	(BASE UNIT)	LAMP #1	LAMP HEADS NOT REQUIRED
	(BASE UNIT)	LAMP #2	LAMP HEADS NOT REQUIRED
	1R42-E122R1	LAMP #1	1R25-S002
	1R42-E122R1	LAMP #2	ACCESS
1R42-E123	(BASE UNIT)	NO LAMPS	N/A
	1R42-E123R1	LAMP #1	1R25-S001
	1R42-E123R1	LAMP #2	ACCESS
	1R42-E123R2	LAMP #1	ACCESS
	1R42-E123R2	LAMP #2	ACCESS
1R42-E124	(BASE UNIT)	LAMP #1	1R25-S064
	(BASE UNIT)	LAMP #2	1R25-S064
	(BASE UNIT)	LAMP #3	1R25-S064
1R42-E125	(BASE UNIT)	LAMP #1	1R24-S025
	(BASE UNIT)	LAMP #2	ACCESS
	1R42-E125R1	LAMP #1	1R25-S004
	1R42-E125R1	LAMP #2	1R25-S004
1R42-E126	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	1R24-S027
	(BASE UNIT)	LAMP #3	1R25-S006
1R42-E127	(BASE UNIT)	LAMP #1	1R24-S009
	(BASE UNIT)	LAMP #2	1R24-S009
	1R42-E127R1	LAMP #1	2R24-S009

TABLE 1.9-1 (SHEET 9 OF 9)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
1R42-E130	(BASE UNIT)	LAMP #1	2P41-F316A
	(BASE UNIT)	LAMP #2	2P41-F316A
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E131	(BASE UNIT)	LAMP #1	2P41-F316B
	(BASE UNIT)	LAMP #2	2P41-F316B
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E132	(BASE UNIT)	LAMP #1	1P41-F310A
	(BASE UNIT)	LAMP #2	1P41-F310A
	(BASE UNIT)	LAMP #3	ACCESS
1R42-E133	(BASE UNIT)	LAMP #1	1P41-F310B
	(BASE UNIT)	LAMP #2	1P41-F310B
	(BASE UNIT)	LAMP #3	ACCESS

TABLE 1.9-2 (SHEET 1 OF 7)

UNIT 2 EMERGENCY LIGHTING

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
2R42-E001	(BASE UNIT)	NO LAMPS	N/A
	2R42-E001R3	LAMP #1	ACCESS
	2R42-E001R3	LAMP #2	ACCESS
2R42-E017	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
2R42-E018	(BASE UNIT)	NO LAMPS	N/A
	2R42-E018R1	LAMP #1	2C82-P001
	2R42-E018R1	LAMP #2	2H21-P173
	2R42-E018R2	LAMP #1	2C82-P001
	2R42-E018R2	LAMP #2	2C82-P001
	2R42-E018R3	LAMP #1	2T48-F111
	2R42-E018R3	LAMP #2	2T48-F111
2R42-E020	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
2R42-E021	(BASE UNIT)	LAMP #1	2R24-S011
	(BASE UNIT)	LAMP #2	2R24-S011
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E022	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E023	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E024	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
2R42-E025	(BASE UNIT)	LAMP #1	ACCESS
2R42-E026	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E033	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E034	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS

TABLE 1.9-2 (SHEET 2 OF 7)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
2R42-E036	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
2R42-E037	(BASE UNIT)	LAMP #1	2R24-S025
	(BASE UNIT)	LAMP #2	2R24-S025
	2R42-E037R1	LAMP #1	2R22-S005
	2R42-E037R1	LAMP #2	2R22-S005
2R42-E038	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
2R42-E039	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E040	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E041	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
2R42-E043	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	2R24-S027
	(BASE UNIT)	LAMP #3	2R24-S027
2R42-E045	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	2R43-P001A
	(BASE UNIT)	LAMP #3	2R43-P001A
2R42-E048	(BASE UNIT)	LAMP #1	2R22-S005
	(BASE UNIT)	LAMP #2	2R22-S005
	(BASE UNIT)	LAMP #3	2R22-S005
2R42-E049	(BASE UNIT)	LAMP #1	DG2C R&T BOX
	2R42-E049R1	LAMP #1	ACCESS
	2R42-E049R2	LAMP #1	ACCESS
2R42-E050	(BASE UNIT)	LAMP #1	ACCESS
2R42-E051	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	2R43-P001C
	(BASE UNIT)	LAMP #3	2R43-P001C

TABLE 1.9-2 (SHEET 3 OF 7)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
2R42-E054	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	2R25-S006
	(BASE UNIT)	LAMP #3	2R25-S006
2R42-E055	(BASE UNIT)	LAMP #1	2R22-S007
	(BASE UNIT)	LAMP #2	2R22-S007
	(BASE UNIT)	LAMP #3	2R22-S007
2R42-E057	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
2R42-E060	(BASE UNIT)	NO LAMPS	N/A
	2R42-E060R3	LAMP #1	2R24-S011
	2R42-E060R3	LAMP #2	2R24-S011
2R42-E061	(BASE UNIT)	NO LAMPS	N/A
	2R42-E061R1	LAMP #1	2R24-S011
	2R42-E061R1	LAMP #2	2R24-S011
	2R42-E061R2	LAMP #1	2R24-S011
	2R42-E061R2	LAMP #2	2R24-S011
2R42-E064	(BASE UNIT)	NO LAMPS	N/A
	2R42-E064R1	LAMP #1	2R26-M121
	2R42-E064R1	LAMP #2	2H21-P122
	2R42-E064R2	LAMP #1	ACCESS
	2R42-E064R2	LAMP #2	ACCESS
2R42-E068	(BASE UNIT)	NO LAMPS	N/A
	2R42-E068R1	LAMP #1	2P70-A002A,B,C
	2R42-E068R1	LAMP #2	2P70-A002A,B,C
	2R42-E068R2	LAMP #1	2P70-F084
	2R42-E068R2	LAMP #2	2P70-F084
	2R42-E068R3	LAMP #1	2P70-A002A,B,C
	2R42-E068R3	LAMP #2	2P70-A002A,B,C
2R42-E075	(BASE UNIT)	NO LAMPS	N/A
	2R42-E075R1	LAMP #1	2H21-P246
	2R42-E075R1	LAMP #2	2R23-S004
	2R42-E075R2	LAMP #1	2R23-S004
	2R42-E075R2	LAMP #2	2R23-S004
2R42-E076	(BASE UNIT)	LAMP #1	2R25-S001
	2R42-E076R1	LAMP #1	2H21-P245
	2R42-E076R1	LAMP #2	2R23-S003
	2R42-E076R2	LAMP #1	2R23-S003
	2R42-E076R2	LAMP #2	2R23-S003

TABLE 1.9-2 (SHEET 4 OF 7)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
2R42-E077	(BASE UNIT)	NO LAMPS	N/A
	2R42-E077R2	LAMP #1	ACCESS
	2R42-E077R2	LAMP #2	ACCESS
	2R42-E077R3	LAMP #1	ACCESS
	2R42-E077R3	LAMP #2	ACCESS
2R42-E079	(BASE UNIT)	LAMP #1	DG2A R&T BOX
	(BASE UNIT)	LAMP #2	DG2A R&T BOX
	(BASE UNIT)	LAMP #3	DG2A R&T BOX
2R42-E082	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E083	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E084	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
2R42-E085	(BASE UNIT)	NO LAMPS	N/A
	2R42-E085R1	LAMP #1	ACCESS
	2R42-E085R1	LAMP #2	ACCESS
2R42-E086	(BASE UNIT)	NO LAMPS	N/A
	2R42-E086R1	LAMP #1	ACCESS
	2R42-E086R1	LAMP #2	ACCESS
	2R42-E086R3	LAMP #1	ACCESS
	2R42-E086R3	LAMP #2	ACCESS
2R42-E087	(BASE UNIT)	NO LAMPS	N/A
	2R42-E087R1	LAMP #1	2E11-F049
2R42-E088	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	ACCESS
	2R42-E088R1	LAMP #1	2E11-F104B
	2R42-E088R1	LAMP #2	2E11-F104B
2R42-E089	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	2R42-E089R1	LAMP #1	2E11-F047B/F048B
	2R42-E089R1	LAMP #2	2E11-F047B/F048B

TABLE 1.9-2 (SHEET 5 OF 7)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
2R42-E090	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	2R42-E090R1	LAMP #1	ACCESS
	2R42-E090R1	LAMP #2	STAIRWAY
2R42-E091	(BASE UNIT)	NO LAMPS	N/A
	2R42-E091R1	LAMP #1	2E11-F068B
	2R42-E091R2	LAMP #1	2E11-F068B
	2R42-E091R3	LAMP #1	2E11-F011B/F004B
	2R42-E091R3	LAMP #2	2E11-F011B/F004B
2R42-E092	(BASE UNIT)	LAMP #1	ACCESS
	2R42-E092R1	LAMP #1	ACCESS
	2R42-E092R2	LAMP #2	2E11-F018B
2R42-E098	(BASE UNIT)	LAMP #1	2C82-P001
	(BASE UNIT)	LAMP #2	2H21-P173
	(BASE UNIT)	LAMP #3	ACCESS
2R42-E099	(BASE UNIT)	NO LAMPS	N/A
	2R42-E099R1	LAMP #1	ACCESS
	2R42-E099R1	LAMP #2	ACCESS
	2R42-E099R3	LAMP #1	2E11-F006B/F003B
	2R42-E099R3	LAMP #2	2E11-F006B/F003B
2R42-E100	(BASE UNIT)	NO LAMPS	N/A
	2R42-E100R1	LAMP #1	2H21-P120
	2R42-E100R1	LAMP #2	2R26-M119
	2R42-E100R2	LAMP #1	ACCESS
	2R42-E100R2	LAMP #2	ACCESS

TABLE 1.9-2 (SHEET 6 OF 7)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
2R42-E104	(BASE UNIT)	NO LAMPS	N/A
	2R42-E104R1	LAMP #1	2R24-S022
	2R42-E104R1	LAMP #2	2R24-S022
	2R42-E104R2	LAMP #1	2R24-S022
	2R42-E104R2	LAMP #2	2R24-S022
	2R42-E104R3	LAMP #1	2R24-S012
	2R42-E104R3	LAMP #2	2R24-S022
2R42-E105	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	2R42-E105R1	LAMP #1	2R25-S002
	2R42-E105R1	LAMP #2	2R25-S037
2R42-E106	(BASE UNIT)	LAMP #1	ACCESS
	(BASE UNIT)	LAMP #2	ACCESS
	2R42-E106R1	LAMP #1	2R25-S064
	2R42-E106R1	LAMP #2	2R25-S064
2R42-E107	(BASE UNIT)	LAMP #1	STAIRWAY
	(BASE UNIT)	LAMP #2	STAIRWAY
	(BASE UNIT)	LAMP #3	STAIRWAY
2R42-E110	(BASE UNIT)	NO LAMPS	N/A
	2R42-E110R1	LAMP #1	ACCESS
	2R42-E110R1	LAMP #2	ACCESS
	2R42-E110R3	LAMP #1	2E11-F119B
	2R42-E110R3	LAMP #2	2E11-F119B
2R42-E111	(BASE UNIT)	NO LAMPS	N/A
	2R42-E111R1	LAMP #1	2R24-S012
	2R42-E111R1	LAMP #2	2R24-S012
	2R42-E111R2	LAMP #1	2R24-S012
	2R42-E111R2	LAMP #2	2R24-S012
	2R42-E111R3	LAMP #1	2R24-S012
	2R42-E111R3	LAMP #2	2R24-S012
2R42-E112	(BASE UNIT)	LAMP #1	ACCESS

TABLE 1.9-2 (SHEET 7 OF 7)

Base Unit MPL Number	Remote Number	Lighting Lamp	Lighting Function
2R42-E113	(BASE UNIT)	LAMP #1	ACCESS
	2R42-E113R1	LAMP #1	2E51-F104
	2R42-E113R1	LAMP #2	2E51-F104
	2R42-E113R2	LAMP #1	2E51-F105
	2R42-E113R2	LAMP #2	2E51-F105
2R42-E114	(BASE UNIT)	NO LAMPS	N/A
	2R42-E114R1	LAMP #1	ACCESS
	2R42-E114R1	LAMP #2	2R25-S004
	2R42-E114R2	LAMP #1	ACCESS
	2R42-E114R2	LAMP #2	ACCESS
2R42-E115	(BASE UNIT)	NO LAMPS	N/A
	2R42-E115R2	LAMP #1	ACCESS
	2R42-E115R2	LAMP #2	ACCESS
2R42-E116	(BASE UNIT)	LAMP #1	ACCESS
	2R42-E116R1	LAMP #1	2P41-R306B
	2R42-E116R1	LAMP #2	2P41-R306B
	2R42-E116R2	LAMP #1	ACCESS
	2R42-E116R2	LAMP #2	ACCESS
2R42-E117	(BASE UNIT)	LAMP #1	1R24-S010
	(BASE UNIT)	LAMP #2	1R24-S010
	2R42-E117R1	LAMP #1	ACCESS
	2R42-E117R1	LAMP #2	ACCESS
2R42-E118	(BASE UNIT)	LAMP #1	ACCESS
	2R42-E118R1	LAMP #1	ACCESS
	2R42-E118R1	LAMP #2	ACCESS
2R42-E126	(BASE UNIT)	LAMP #1	2E11-F018A
	(BASE UNIT)	LAMP #2	2E11-F018A

WASTE SEPARATION AND TEMPORARY STORAGE FACILITY (WSTSF) SPRINKLER SYSTEM

OPERATING REQUIREMENTS

1.10.1 The WSTSF (also called Low Level Radwaste or LLRW) Sprinkler System shall be OPERABLE.

APPLICABILITY: At all times.

ACTIONS:

a. With the WSTSF Sprinkler System inoperable and radiation levels permitting personnel access, within 2 hours establish a continuous fire watch with backup fire suppression equipment.

b. With the WSTSF Sprinkler System inoperable and radiation levels not permitting personnel access, within 2 hours establish an hourly fire watch patrol with backup fire suppression equipment.

SURVEILLANCE REQUIREMENTS

There are no surveillance requirements associated with this item.

TECHNICAL REQUIREMENTS MANUAL
APPENDIX C
HNP UNITS 1 AND 2
OFFSITE DOSE CALCULATION MANUAL SPECIFICATIONS

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CHAPTER 2

LIQUID EFFLUENTS

2.1 LIMITS OF OPERATION

The following Liquid Effluent Controls implement requirements established by Technical Specifications Section 5.0. Terms printed in all capital letters are defined in Chapter 10.

2.1.1 Liquid Effluent Monitoring Instrumentation Control

In accordance with Technical Specification 5.5.4.a, the radioactive liquid effluent monitoring instrumentation channels shown in Table 2-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits specified in Section 2.1.2 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with Section 2.3.

2.1.1.1 Applicability

As shown in Table 2-1.

2.1.1.2 Actions

With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above control, immediately suspend the release of radioactive liquid effluents monitored by the affected channel, declare the channel inoperable, or change the setpoint to a conservative value.

With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 2-1. NOTE: One instrument channel may be inoperable for up to 6 hours to perform required surveillances prior to entering other applicable ACTIONS. Otherwise, restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Radioactive Effluent Release Report, per Technical Specification 5.6.3, why this inoperability was not corrected in a timely manner.

Entry into an Operational Mode or other specified CONDITION shall be made if, as a minimum, the requirements of Technical Specifications LCO 3.0.4 are met.

2.1.1.3 Surveillance Requirements

Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 2-2.

2.1.1.4 Basis

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The Alarm/Trip Setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in Section 2.3 to ensure that the alarm/trip will occur prior to exceeding the limits of Section 2.1.2. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

Table 2-1 Radioactive Liquid Effluent Monitoring Instrumentation

Instrument	OPERABILITY Requirements[a] Minimum Channels OPERABLE	Applicability[b]	ACTION
1. Gross Radioactivity Monitors Providing Automatic Termination of Release			
Liquid Radwaste Effluent Line	1	(1)	100
2. Gross Radioactivity Monitors not Providing Automatic Termination of Release			
Service Water System Effluent Line	1	(2)	101
3. Flowrate Measurement Devices[c]			
a. Liquid Radwaste Effluent Line	1	(1)	102
b. Discharge Canal	1	(1), (2)	102
4. Differential Pressure Measurement Devices			
Service Water System to Closed Cooling Water System	1	At all times	103
5. Groundwater Outfall Instrumentation			
a. Auto Sampler at			
Y22N008A	1	At all times	104
b. Flow Totalizer at Y22N008A	1	At all times	105

a. All requirements in this Table apply to each unit.

b. Applicability of requirements is as follows:
(1) Whenever the radwaste discharge valves are not locked closed.
(2) Whenever the Service Water System pressure is below the Closed Cooling Water System pressure, or ΔP indication is not available.

c. Pump curves may be used to estimate flow; in such cases, ACTION statement 102 is not required.

Table 2-1 (contd) Notation for Table 2-1 - ACTION Statements

ACTION 100 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may continue provided that prior to initiating a release:

a. At least two independent samples are analyzed in accordance with Section 2.1.2.3, and

b. At least two technically qualified individuals independently verify the discharge line valving and verify the release rate calculations.

Otherwise, suspend release of radioactive effluents via this pathway. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

ACTION 101 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided that once per shift grab samples are collected and analyzed for gross radioactivity at a MINIMUM DETECTABLE CONCENTRATION no higher than 1×10^{-7} μCi/mL. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

ACTION 102 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided that the flowrate is estimated at least once per 4 hours during actual releases. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

ACTION 103 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, assure that the Service Water System effluent monitor is OPERABLE.

ACTION 104 – With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, obtain daily grab samples and composite for weekly tritium, monthly gamma, and quarterly Sr 89/90 analyses.

ACTION 105 – With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, estimate outfall flow rate daily. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

Table 2-2 Radioactive Liquid Effluent Monitoring Instrumentation Surveillance Requirements

INSTRUMENT	Surveillance Requirements[a]			
	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Gross Radioactivity Monitors Providing Automatic Termination of Release				
Liquid Radwaste Effluent Line	D[b]	P[e]	R	Q[c]
2. Gross Radioactivity Monitors not Providing Automatic Termination of Release				
Service Water System Effluent Line	D[b]	M	R	Q[f]
3. Flowrate Measurement Devices				
a. Liquid Radwaste Effluent Line	D[b,d]	NA	18 M	Q
b. Discharge Canal	D[b,d]	NA	18 M	Q
4. Differential Pressure Measurement Devices				
Service Water System to Closed Cooling Water System	D	NA	R	NA
5. Groundwater Outfall Instrumentation				
a. Auto Samplers at				
(1) Y22N008A	W[g]	NA	NA	NA
b. Flow Totalizer at Y22N008A	W[g]	NA	NA	NA

a. All requirements in this Table apply to each unit.

b. During releases via this pathway.

c. In addition to the basic functions of a CHANNEL FUNCTIONAL TEST (Section 10.2), the CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exists:

(1) Instrument indicates measured levels above the alarm/trip setpoint;
(2) Instrument indicates an isolation on high alarm; or
(3) Instrument controls are not set in operate mode.

d. CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once daily on any day on which CONTINUOUS, periodic, or BATCH releases are made.

e. The SOURCE CHECK shall consist of verifying that the instrument is reading on scale.

Table 2-2 (contd) Notation for Table 2-2 - Surveillance Requirements

f. In addition to the basic functions of a CHANNEL FUNCTIONAL TEST (Section 10.2), the CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

(1) Instrument indicates measured levels above the alarm setpoint;
(2) Instrument indicates a downscale failure; or
(3) Instrument controls are not set in operate mode.

g. CHANNEL CHECK shall consist of verifying indication of operability at least once weekly during sample collection.

CHAPTER 3

GASEOUS EFFLUENTS

3.1 LIMITS OF OPERATION

The following Limits of Operation implement requirements established by Technical Specifications Section 5.0. Terms printed in all capital letters are defined in Chapter 10.

3.1.1 Gaseous Effluent Monitoring Instrumentation Control

In accordance with Technical Specification 5.5.4., the radioactive gaseous effluent monitoring instrumentation channels shown in Table 3-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Section 3.1.2.a are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with Section 3.3.

3.1.1.1 Applicability

These limits apply as shown in Table 3-1.

3.1.1.2 Actions

With a radioactive gaseous effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above control, immediately suspend the release of radioactive gaseous effluents monitored by the affected channel, declare the channel inoperable, or restore the setpoint to a value that will ensure that the limits of Section 3.1.2.a are met.

With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3-1. NOTE: One instrument channel may be inoperable for up to 6 hours to perform required surveillances prior to entering other applicable ACTIONS. Otherwise, restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Radioactive Effluent Release Report, per Technical Specification 5.6.3, why this inoperability was not corrected in a timely manner.

Entry into an Operational Mode or other specified CONDITION shall be made if, as a minimum, the requirements of Technical Specifications LCO 3.0.4 are met.

3.1.1.3 Surveillance Requirements

Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 3-2.

3.1.1.4 Basis

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The Alarm/Trip Setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in Section 3.3 to ensure that the alarm/trip will occur prior to exceeding the limits of Section 3.1.2.a. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

Table 3-1 Radioactive Gaseous Effluent Monitoring Instrumentation

Instrument	Minimum Channels OPERABLE	Applicability	ACTION
1. Reactor Building Vent Stack Monitoring System (Each Unit)			
a. Noble Gas Activity Monitor[c]	1	(a)	105
b. Iodine Sampler Cartridge	1	(a)	107
c. Particulate Sampler Filter	1	(a)	107
d. Effluent System Flowrate Measurement Device	1	(a)	104
e. Sampler Flowrate Measurement Device	1	(a)	104
2. Recombiner Building Ventilation Monitoring System			
a. Noble Gas Activity Monitor[c]	1	(a)	105
b. Iodine Sampler Cartridge	1	(a)	107
c. Particulate Sampler Filter	1	(a)	107
d. Effluent System Flowrate Measurement Device	1	(a)	104
e. Sampler Flowrate Monitor	1	(a)	104
3. Main Stack Monitoring System			
a. Noble Gas Activity Monitor[c]	1	(a)	105
b. Iodine Sampler Cartridge	1	(a)	107
c. Particulate Sampler Filter	1	(a)	107
d. Effluent System Flowrate Measurement Device	1	(a)	104
e. Sampler Flowrate Measurement Device	1	(a)	104
4. Condenser Offgas Pretreatment Monitor (Each Unit)			
a. Noble Gas Activity Monitor	1	(b)	108

a. During radioactive releases via this pathway.

b. During operation of the main condenser air ejector.

c. Monitor must be capable of responding to a MINIMUM DETECTABLE CONCENTRATION of 1×10^{-4} μCi/mL.

Table 3-1 (contd) Notation for Table 3-1.

ACTION 104 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flowrate is estimated at least once per 4 hours. If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

ACTION 105 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are taken daily and these samples are analyzed for gross activity within 24 hours. With the number of main stack monitoring system channels OPERABLE less than required by the minimum channels OPERABLE requirement, immediately suspend drywell purge. If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

ACTION 107 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided samples are continuously collected with auxiliary equipment for periods on the order of 7 days and analyzed within 48 hours after the end of the sampling period. If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

ACTION 108 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided:

a. The offgas treatment system is not bypassed; and

b. The offgas post-treatment monitor (D11-K615) or the main stack monitor (D11-K600) is OPERABLE; and

c. Perform Technical Specification SR 3.7.6.1 every 4 hours.

Otherwise, enter Condition "A" of Technical Specification LCO 3.7.6.

If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

Table 3-2 Radioactive Gaseous Effluent Monitoring Instrumentation Surveillance Requirements

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Reactor Building Vent Stack Monitoring System (Each Unit)				
a. Noble Gas Activity Monitor	D[a]	M	R	Q[c]
b. Iodine Sampler Cartridge	W[a,d]	NA	NA	NA
c. Particulate Sampler Filter	W[a,d]	NA	NA	NA
d. Effluent System Flowrate Measuring Device	D[a]	NA	R	Q
e. Sampler Flowrate Measuring Device	D[a]	NA	R	Q
2. Recombiner Building Ventilation Monitoring System				
a. Noble Gas Activity Monitor	D[a]	M	R	Q[c]
b. Iodine Sampler Cartridge	W[a,d]	NA	NA	NA
c. Particulate Sampler Filter	W[a,d]	NA	NA	NA
d. Effluent System Flowrate Measuring Device	D[a]	NA	R	Q
e. Sampler Flowrate Measuring Device	D[a]	NA	R	Q
3. Main Stack Monitoring System				
a. Noble Gas Activity Monitor	D[a]	M	R	Q[c]
b. Iodine Sampler Cartridge	W[a,d]	NA	NA	NA
c. Particulate Sampler Filter	W[a,d]	NA	NA	NA
d. Effluent Flowrate Monitor	D[a]	NA	R	Q
e. Sampler Flowrate Monitor	D[a]	NA	R	Q
4. Condenser Offgas Pretreatment Monitor (Each Unit)				
a. Noble Gas Activity Monitor	D[b]	M	R	Q[c]

a. Requirement applies during releases via this pathway.

b. Requirement applies during operation of the main condenser air ejector.

c. In addition to the basic functions of a CHANNEL FUNCTIONAL TEST (Section 10.2), the CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
(1) Instrument indicates measured levels above the alarm/trip setpoint.
(2) Circuit failure occurs.
(3) Instrument indicates a downscale failure.

d. The CHANNEL CHECK shall consist of verifying sampler flow and the presence of the collection device (i.e., particulate filter or charcoal cartridge, etc.) at the weekly changeout.

3.1.2 Gaseous Effluent Dose Rate Control

In accordance with Technical Specifications 5.5.4.c and 5.5.4.g, the licensee shall conduct operations so that the dose rates due to radioactive materials released in gaseous effluents from the site to areas at and beyond the SITE BOUNDARY (see Figure 10-1) are limited as follows:

a. For noble gases: Less than or equal to a dose rate of 500 mrem/y to the total body and less than or equal to a dose rate of 3000 mrem/y to the skin, and

b. For Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/y to any organ.

3.1.2.1 Applicability

This limit applies at all times.

3.1.2.2 Actions

With a dose rate due to radioactive material released in gaseous effluents exceeding the limit stated in Section 3.1.2, immediately decrease the release rate to within the stated limit.

Entry into an Operational Mode or other specified CONDITION shall be made if, as a minimum, the requirements of Technical Specifications LCO 3.0.4 are met.

3.1.2.3 Surveillance Requirements

The dose rates due to radioactive materials in areas at or beyond the SITE BOUNDARY due to releases of gaseous effluents shall be determined to be within the above limits, in accordance with the methods and procedures in Section 3.4.1, by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 3-3.

3.1.2.4 Basis

This control is provided to ensure that gaseous effluent dose rates will be maintained within the limits that historically have provided reasonable assurance that radioactive material discharged in gaseous effluents will not result in a dose to a MEMBER OF THE PUBLIC in an UNRESTRICTED AREA, either within or outside the SITE BOUNDARY, exceeding the limits specified in Appendix I of 10 CFR Part 50, while allowing operational flexibility for effluent releases. For MEMBERS OF THE PUBLIC who may at times be within the SITE BOUNDARY, the occupancy of the MEMBER OF THE PUBLIC will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the SITE BOUNDARY.

The dose rate limit for Iodine-131, Iodine-133, tritium, and radionuclides in particulate form with half-lives greater than 8 days specifically applies to dose rates to a child via the inhalation pathway.

This control applies to the release of gaseous effluents from all reactors at the site.

Table 3-3 Radioactive Gaseous Waste Sampling and Analysis Program

Gaseous Release Type	Sampling and Analysis Requirements[a]			
	Sampling FREQUENCY	Minimum Analysis FREQUENCY	Type of Activity Analysis	MINIMUM DETECTABLE CONCENTRATION (MDC) (μCi/mL)
Environmental Release Points 1. Main Stack 2. Reactor Building Vent (Each Unit) 3. Recombiner Building Vent[b]	M[c] Grab Sample	M[c]	PRINCIPAL GAMMA EMITTERS H-3	1 E-4 1 E-6
	CONTINUOUS[e]	W[d] Charcoal or Silver Zeolite Sample	I-131 I-133	1 E-12 1 E-10
	CONTINUOUS[e]	W[d] Particulate Sample	PRINCIPAL GAMMA EMITTERS	1 E-11
	CONTINUOUS[e]	M COMPOSITE Particulate Sample	Gross Alpha	1 E-11
	CONTINUOUS[e]	Q COMPOSITE Particulate Sample	Sr-89, Sr-90	1 E-11

a. Terms printed in all capital letters are defined in Chapter 10. When unusual circumstances result in a MINIMUM DETECTABLE CONCENTRATION higher than required, the reasons shall be documented in the next Radioactive Effluent Release Report.

b. The Recombiner Building Vent serves Unit 1. Sample analysis results and associated source terms must be assigned to Unit 1 for the purpose of release accountability and dose calculations.

c. Sampling and analyses for PRINCIPAL GAMMA EMITTERS shall also be performed following shutdown, startup, or a THERMAL POWER change exceeding 15% of the RATED THERMAL POWER within a one-hour period. The more frequent sampling and analysis requirement applies only if analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant and the Main Stack Noble Gas Activity Monitor reading have both increased by a factor of 3.

Table 3-3 (contd) Notation for Table 3-3

d. Sampling shall be performed weekly, and analyses completed within 48 hours of changing (or after removal from sampler). Sampling shall also be performed once per 24 hours for 7 days following each shutdown, startup, or a THERMAL POWER change exceeding 15% of the RATED THERMAL POWER within a one-hour period, with analyses completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding MINIMUM DETECTABLE CONCENTRATIONs may be increased by a factor of 10. The more frequent sampling and analysis requirement applies only if analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant and the Main Stack Noble Gas Activity Monitor reading have both increased by a factor of 3.

e. The ratio of the sample flowrate to the sampled stream flowrate shall be known for the time period covered by each dose or dose rate calculation made in accordance with controls specified in Sections 3.1.2, 3.1.3, and 3.1.4.

CHAPTER 10

DEFINITIONS OF EFFLUENT CONTROL TERMS

The terms defined in this chapter are used in the presentation of the above chapters. These terms are shown in all capital letters to indicate that they are specifically defined.

10.1 TERMS SPECIFIC TO THE ODCM

The following terms are used in the ODCM, but are not found in the Technical Specifications:

BATCH RELEASE

A BATCH RELEASE is the discharge of wastes of a discrete volume. Prior to sampling for analyses, each liquid batch shall be isolated and then thoroughly mixed by a method described in the ODCM to assure representative sampling.

COMPOSITE SAMPLE

A COMPOSITE SAMPLE is one which contains material from multiple waste releases, in which the quantity of sample is proportional to the quantity of waste discharged, and in which the method of sampling employed results in a specimen that is representative of the wastes released. Prior to analyses, all liquid samples that are to be aliquotted for a COMPOSITE SAMPLE shall be mixed thoroughly, in order for the COMPOSITE SAMPLE to be representative of the effluent release.

When assessing the consequences of a waste release at the pre-release or post-release stage, the most recent available COMPOSITE SAMPLE results for the applicable release pathway may be used.

CONTINUOUS RELEASE

A CONTINUOUS RELEASE is the discharge of wastes of a non-discrete volume, e.g., from a volume within a system that has an input flow during the continuous release.

FREQUENCY NOTATION

The FREQUENCY NOTATION specified for the performance of surveillance requirements shall correspond to the intervals defined below, with a maximum allowable extension not to exceed 25% of the surveillance interval.

NOTATION	FREQUENCY
S (Once per shift)	At least once per 12 hours.
D (Daily)	At least once per 24 hours.
W (Weekly)	At least once per 7 days.
M (Monthly)	At least once per 31 days.
Q (Quarterly)	At least once per 92 days.
SA (Semi-annually)	At least once per 184 days.
18M	At least once per 18 months.
R (Refueling)	At least once per 24 months.
S/U (Startup)	Prior to each reactor startup.
NA	Not Applicable.
P (Prior)	Completed prior to each release.

GASEOUS RADWASTE TREATMENT SYSTEM

The GASEOUS RADWASTE TREATMENT SYSTEM is the offgas holdup system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

LIQUID RADWASTE TREATMENT SYSTEM

A LIQUID RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive materials in liquid effluents by systematic collection, retention, and processing through filtration, evaporation, separation and/or ion exchange treatment. This system consists of at least one collection tank, one evaporator or demineralizer system, one post-treatment tank and associated components providing for treatment flow and functional control.

MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS

For the purposes of the ODCM, MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS include the following changes to such systems:

(1) Major changes in process equipment, components, structures, or effluent monitoring instrumentation as described in the Final Safety Analysis Report (FSAR) or as evaluated in the Nuclear Regulatory Commission staff's Safety Evaluation Report (SER) (e.g., deletion of evaporators and installation of demineralizer);

(2) Changes in the design of radwaste treatment systems that could significantly increase quantities of effluents released from those previously considered in the FSAR and SER;

(3) Changes in system design which may invalidate the accident analysis as described in the SER (e.g., changes in tank capacity that would alter the curies released); or

(4) Changes in system design that could potentially result in a significant increase in occupational exposure of operating personnel (e.g., use of temporary equipment without adequate shielding provisions).

MEMBER(S) OF THE PUBLIC[1]

A MEMBER OF THE PUBLIC shall be an individual in a *controlled* area or an UNRESTRICTED AREA. However, an individual is not a MEMBER OF THE PUBLIC during any period in which the individual receives an *occupational dose*. This category may include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

MILK ANIMAL

A MILK ANIMAL is a cow or goat that is producing milk for human consumption.

[1] The italicized terms in this definition, which are not otherwise used in this ODCM, shall have the definitions assigned to them by 10 CFR 20.1003.

MINIMUM DETECTABLE CONCENTRATION

The MINIMUM DETECTABLE CONCENTRATION (MDC) is defined, for purposes of the controls in this ODCM, as the smallest concentration of radioactive material in a sample that will yield a net count above system background and that will be detected with 95-percent probability, with only 5-percent probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system, which may include radiochemical separation, the MDC for a given radionuclide is determined as follows (Reference 17):

$$MDC = \frac{\frac{2.71}{t_s} + 3.29\sqrt{R_b\left(\frac{1}{t_s} + \frac{1}{t_b}\right)}}{E \cdot V \cdot 2.22\,x\,10^6 \cdot Y \cdot e^{-\lambda \Delta t}} \qquad \textbf{(10.1)}$$

where:

MDC	=	the a priori MINIMUM DETECTABLE CONCENTRATION (µCi per unit mass or volume).
R_b	=	the background counting rate, or the counting rate of a blank sample, as appropriate (counts per minute).
t_s	=	the length of the sample counting period (minutes).
t_b	=	the length of the background counting period (minutes).
E	=	the counting efficiency (counts per disintegration)
V	=	the sample size (units of mass or volume).
2.22×10^6	=	the number of disintegrations per minute per µCi.
Y	=	the fractional radiochemical yield, when applicable.
λ	=	the radioactive decay constant for the given radionuclide (h^{-1}). Values of λ used in effluent calculations should be based on decay data from a recognized and current source, such as Reference 26.
Δt	=	for effluent samples, the elapsed time between the midpoint of sample collection and the time of counting (h); for environmental samples, the elapsed time between the end of sample collection and the time of counting (h).

Typical values of E, V, Y, and Δt should be used in the calculation. It should be recognized that the MDC is defined as an *a priori* (before the fact) limit representing the capability of a measurement system, and not as an *a posteriori* (after the fact) limit for a particular measurement.

PRINCIPAL GAMMA EMITTERS

The PRINCIPAL GAMMA EMITTERS for which the MINIMUM DETECTABLE CONCENTRATION (MDC) limit applies include exclusively the following radionuclides:

For liquid radioactive effluents: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, and Ce-141. Ce-144 shall also be measured, but with an MDC of 5×10^{-6} μCi/mL.

For gaseous radioactive effluents: In noble gas releases, Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, Xe-138; and in particulate releases, Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144.

For environmental media: The gamma emitters specifically listed in Table 4-3.

These lists do not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Radioactive Effluent Release Report, the Annual Radiological Environmental Operating Report, or other applicable report(s).

OPERATIONAL CONDITION

An OPERATIONAL CONDITION shall be any one inclusive combination of Mode Switch position and average reactor coolant temperature, as defined in Table 1.1-1 of the Technical Specifications.

REACTOR MODE

The REACTOR MODE is established by the Mode Switch position. The four Mode Switch positions are REFUEL, SHUTDOWN, START & HOT STANDBY, and RUN. (See Technical Specifications Table 1.1-1 for definitions of these MODES.)

SITE BOUNDARY

The SITE BOUNDARY shall be that line beyond which the land is not owned, leased or otherwise controlled by Georia Power Company as shown in Figure 10-1.

SOURCE CHECK

A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of increased radioactivity.

UNRESTRICTED AREA

The UNRESTRICTED AREA shall be any area access to which is neither limited nor controlled by the licensee, or any area within the SITE BOUNDARY used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes.

10.2 TERMS DEFINED IN THE TECHNICAL SPECIFICATIONS

The following terms are defined in the Technical Specifications, Section 1.1. Because they are used throughout the Limits of Operation sections of the ODCM, they are presented here for convenience. In the event of discrepancies between the definitions below and those in the Technical Specifications, the Technical Specification definitions shall take precedence.

ACTIONS

ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.

CHANNEL CALIBRATION

A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output, such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by any means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.

CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm, interlock, display, and trip functions, and channel failure trips. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites;" Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977; or ICRP 30, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."

OPERABLE (or OPERABILITY)

A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, division, component or device to perform its specified safety function(s) are also capable of performing their related support function(s).

RATED THERMAL POWER

RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 2804 MWt.

THERMAL POWER

THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

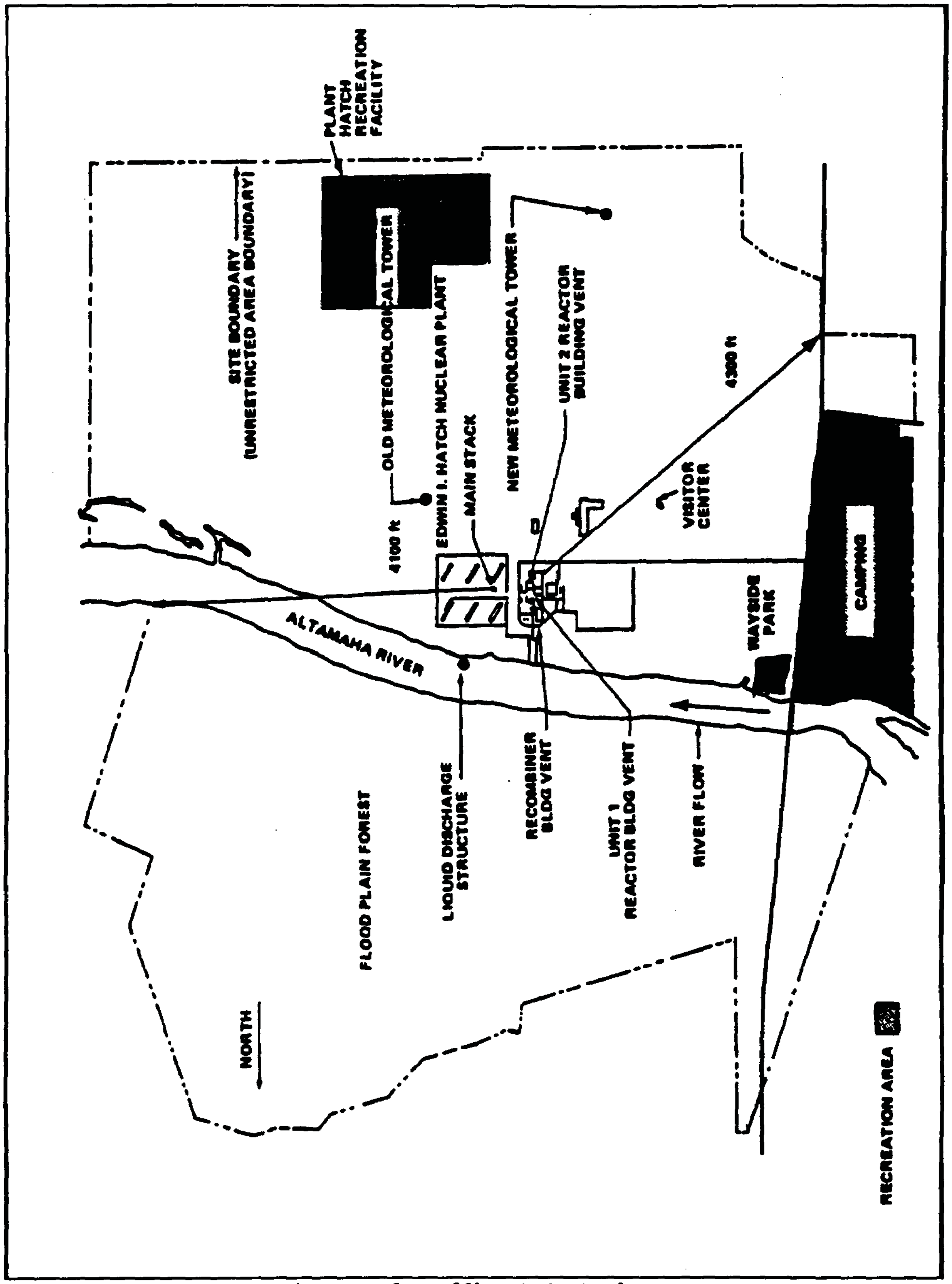

Figure 10-1 Site Map for Effluent Controls

TECHNICAL REQUIREMENTS MANUAL
APPENDIX C
HNP UNITS 1 AND 2
OFFSITE DOSE CALCULATION MANUAL SPECIFICATIONS

ACTIVE PAGE LIST

CHAPTER 2

LIQUID EFFLUENTS

2.1 LIMITS OF OPERATION

The following Liquid Effluent Controls implement requirements established by Technical Specifications Section 5.0. Terms printed in all capital letters are defined in Chapter 10.

2.1.1 Liquid Effluent Monitoring Instrumentation Control

In accordance with Technical Specification 5.5.4.a, the radioactive liquid effluent monitoring instrumentation channels shown in Table 2-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits specified in Section 2.1.2 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with Section 2.3.

2.1.1.1 Applicability

As shown in Table 2-1.

2.1.1.2 Actions

With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above control, immediately suspend the release of radioactive liquid effluents monitored by the affected channel, declare the channel inoperable, or change the setpoint to a conservative value.

With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 2-1. NOTE: One instrument channel may be inoperable for up to 6 hours to perform required surveillances prior to entering other applicable ACTIONS. Otherwise, restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Radioactive Effluent Release Report, per Technical Specification 5.6.3, why this inoperability was not corrected in a timely manner.

Entry into an Operational Mode or other specified CONDITION shall be made if, as a minimum, the requirements of Technical Specifications LCO 3.0.4 are met.

2.1.1.3 Surveillance Requirements

Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 2-2.

2.1.1.4 Basis

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The Alarm/Trip Setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in Section 2.3 to ensure that the alarm/trip will occur prior to exceeding the limits of Section 2.1.2. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

Table 2-1 Radioactive Liquid Effluent Monitoring Instrumentation

Instrument	OPERABILITY Requirements[a] Minimum Channels OPERABLE	Applicability[b]	ACTION
1. Gross Radioactivity Monitors Providing Automatic Termination of Release			
Liquid Radwaste Effluent Line	1	(1)	100
2. Gross Radioactivity Monitors not Providing Automatic Termination of Release			
Service Water System Effluent Line	1	(2)	101
3. Flowrate Measurement Devices[c]			
a. Liquid Radwaste Effluent Line	1	(1)	102
b. Discharge Canal	1	(1), (2)	102
4. Differential Pressure Measurement Devices			
Service Water System to Closed Cooling Water System	1	At all times	103
5. Groundwater Outfall Instrumentation			
a. Auto Sampler at			
Y22N008A	1	At all times	104
b. Flow Totalizer at Y22N008A	1	At all times	105

a. All requirements in this Table apply to each unit.

b. Applicability of requirements is as follows:
(1) Whenever the radwaste discharge valves are not locked closed.
(2) Whenever the Service Water System pressure is below the Closed Cooling Water System pressure, or ΔP indication is not available.

c. Pump curves may be used to estimate flow; in such cases, ACTION statement 102 is not required.

Table 2-1 (contd) Notation for Table 2-1 - ACTION Statements

ACTION 100 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may continue provided that prior to initiating a release:

a. At least two independent samples are analyzed in accordance with Section 2.1.2.3, and

b. At least two technically qualified individuals independently verify the discharge line valving and verify the release rate calculations.

Otherwise, suspend release of radioactive effluents via this pathway. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

ACTION 101 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided that once per shift grab samples are collected and analyzed for gross radioactivity at a MINIMUM DETECTABLE CONCENTRATION no higher than 1×10^{-7} μCi/mL. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

ACTION 102 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided that the flowrate is estimated at least once per 4 hours during actual releases. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

ACTION 103 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, assure that the Service Water System effluent monitor is OPERABLE.

ACTION 104 – With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, obtain daily grab samples and composite for weekly tritium, monthly gamma, and quarterly Sr 89/90 analyses.

ACTION 105 – With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, estimate outfall flow rate daily. If the channel remains inoperable for over 30 days, an explanation of the circumstances must be included in the next Radioactive Effluent Release Report.

Table 2-2 Radioactive Liquid Effluent Monitoring Instrumentation Surveillance Requirements

INSTRUMENT	Surveillance Requirements[a] CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Gross Radioactivity Monitors Providing Automatic Termination of Release				
Liquid Radwaste Effluent Line	D[b]	P[e]	R	Q[c]
2. Gross Radioactivity Monitors not Providing Automatic Termination of Release				
Service Water System Effluent Line	D[b]	M	R	Q[f]
3. Flowrate Measurement Devices				
a. Liquid Radwaste Effluent Line	D[b,d]	NA	18 M	Q
b. Discharge Canal	D[b,d]	NA	18 M	Q
4. Differential Pressure Measurement Devices				
Service Water System to Closed Cooling Water System	D	NA	R	NA
5. Groundwater Outfall Instrumentation				
a. Auto Samplers at				
(1) Y22N008A	W[g]	NA	NA	NA
b. Flow Totalizer at Y22N008A	W[g]	NA	NA	NA

a. All requirements in this Table apply to each unit.

b. During releases via this pathway.

c. In addition to the basic functions of a CHANNEL FUNCTIONAL TEST (Section 10.2), the CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exists:
   (1) Instrument indicates measured levels above the alarm/trip setpoint;
   (2) Instrument indicates an isolation on high alarm; or
   (3) Instrument controls are not set in operate mode.

d. CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once daily on any day on which CONTINUOUS, periodic, or BATCH releases are made.

e. The SOURCE CHECK shall consist of verifying that the instrument is reading on scale.

Table 2-2 (contd) Notation for Table 2-2 - Surveillance Requirements

f. In addition to the basic functions of a CHANNEL FUNCTIONAL TEST (Section 10.2), the CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

(1) Instrument indicates measured levels above the alarm setpoint;
(2) Instrument indicates a downscale failure; or
(3) Instrument controls are not set in operate mode.

g. CHANNEL CHECK shall consist of verifying indication of operability at least once weekly during sample collection.

CHAPTER 3

GASEOUS EFFLUENTS

3.1 LIMITS OF OPERATION

The following Limits of Operation implement requirements established by Technical Specifications Section 5.0. Terms printed in all capital letters are defined in Chapter 10.

3.1.1 Gaseous Effluent Monitoring Instrumentation Control

In accordance with Technical Specification 5.5.4., the radioactive gaseous effluent monitoring instrumentation channels shown in Table 3-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Section 3.1.2.a are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with Section 3.3.

3.1.1.1 Applicability

These limits apply as shown in Table 3-1.

3.1.1.2 Actions

With a radioactive gaseous effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above control, immediately suspend the release of radioactive gaseous effluents monitored by the affected channel, declare the channel inoperable, or restore the setpoint to a value that will ensure that the limits of Section 3.1.2.a are met.

With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3-1. NOTE: One instrument channel may be inoperable for up to 6 hours to perform required surveillances prior to entering other applicable ACTIONS. Otherwise, restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Radioactive Effluent Release Report, per Technical Specification 5.6.3, why this inoperability was not corrected in a timely manner.

Entry into an Operational Mode or other specified CONDITION shall be made if, as a minimum, the requirements of Technical Specifications LCO 3.0.4 are met.

3.1.1.3 Surveillance Requirements

Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 3-2.

3.1.1.4 Basis

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The Alarm/Trip Setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in Section 3.3 to ensure that the alarm/trip will occur prior to exceeding the limits of Section 3.1.2.a. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

Table 3-1 Radioactive Gaseous Effluent Monitoring Instrumentation

Instrument	Minimum Channels OPERABLE	Applicability	ACTION
1. Reactor Building Vent Stack Monitoring System (Each Unit)			
a. Noble Gas Activity Monitor[c]	1	(a)	105
b. Iodine Sampler Cartridge	1	(a)	107
c. Particulate Sampler Filter	1	(a)	107
d. Effluent System Flowrate Measurement Device	1	(a)	104
e. Sampler Flowrate Measurement Device	1	(a)	104
2. Recombiner Building Ventilation Monitoring System			
a. Noble Gas Activity Monitor[c]	1	(a)	105
b. Iodine Sampler Cartridge	1	(a)	107
c. Particulate Sampler Filter	1	(a)	107
d. Effluent System Flowrate Measurement Device	1	(a)	104
e. Sampler Flowrate Monitor	1	(a)	104
3. Main Stack Monitoring System			
a. Noble Gas Activity Monitor[c]	1	(a)	105
b. Iodine Sampler Cartridge	1	(a)	107
c. Particulate Sampler Filter	1	(a)	107
d. Effluent System Flowrate Measurement Device	1	(a)	104
e. Sampler Flowrate Measurement Device	1	(a)	104
4. Condenser Offgas Pretreatment Monitor (Each Unit)			
a. Noble Gas Activity Monitor	1	(b)	108

a. During radioactive releases via this pathway.

b. During operation of the main condenser air ejector.

c. Monitor must be capable of responding to a MINIMUM DETECTABLE CONCENTRATION of 1×10^{-4} μCi/mL.

Table 3-1 (contd) Notation for Table 3-1.

ACTION 104 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flowrate is estimated at least once per 4 hours. If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

ACTION 105 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are taken daily and these samples are analyzed for gross activity within 24 hours. With the number of main stack monitoring system channels OPERABLE less than required by the minimum channels OPERABLE requirement, immediately suspend drywell purge. If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

ACTION 107 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided samples are continuously collected with auxiliary equipment for periods on the order of 7 days and analyzed within 48 hours after the end of the sampling period. If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

ACTION 108 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided:

a. The offgas treatment system is not bypassed; and

b. The offgas post-treatment monitor (D11-K615) or the main stack monitor (D11-K600) is OPERABLE; and

c. Perform Technical Specification SR 3.7.6.1 every 4 hours.

Otherwise, enter Condition "A" of Technical Specification LCO 3.7.6.

If the number of channels OPERABLE remains less than required by the minimum channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next Radioactive Effluent Release Report.

Table 3-2 Radioactive Gaseous Effluent Monitoring Instrumentation Surveillance Requirements

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Reactor Building Vent Stack Monitoring System (Each Unit)				
a. Noble Gas Activity Monitor	D[a]	M	R	Q[c]
b. Iodine Sampler Cartridge	W[a,d]	NA	NA	NA
c. Particulate Sampler Filter	W[a,d]	NA	NA	NA
d. Effluent System Flowrate Measuring Device	D[a]	NA	R	Q
e. Sampler Flowrate Measuring Device	D[a]	NA	R	Q
2. Recombiner Building Ventilation Monitoring System				
a. Noble Gas Activity Monitor	D[a]	M	R	Q[c]
b. Iodine Sampler Cartridge	W[a,d]	NA	NA	NA
c. Particulate Sampler Filter	W[a,d]	NA	NA	NA
d. Effluent System Flowrate Measuring Device	D[a]	NA	R	Q
e. Sampler Flowrate Measuring Device	D[a]	NA	R	Q
3. Main Stack Monitoring System				
a. Noble Gas Activity Monitor	D[a]	M	R	Q[c]
b. Iodine Sampler Cartridge	W[a,d]	NA	NA	NA
c. Particulate Sampler Filter	W[a,d]	NA	NA	NA
d. Effluent Flowrate Monitor	D[a]	NA	R	Q
e. Sampler Flowrate Monitor	D[a]	NA	R	Q
4. Condenser Offgas Pretreatment Monitor (Each Unit)				
a. Noble Gas Activity Monitor	D[b]	M	R	Q[c]

a. Requirement applies during releases via this pathway.

b. Requirement applies during operation of the main condenser air ejector.

c. In addition to the basic functions of a CHANNEL FUNCTIONAL TEST (Section 10.2), the CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
(1) Instrument indicates measured levels above the alarm/trip setpoint.
(2) Circuit failure occurs.
(3) Instrument indicates a downscale failure.

d. The CHANNEL CHECK shall consist of verifying sampler flow and the presence of the collection device (i.e., particulate filter or charcoal cartridge, etc.) at the weekly changeout.

3.1.2 Gaseous Effluent Dose Rate Control

In accordance with Technical Specifications 5.5.4.c and 5.5.4.g, the licensee shall conduct operations so that the dose rates due to radioactive materials released in gaseous effluents from the site to areas at and beyond the SITE BOUNDARY (see Figure 10-1) are limited as follows:

a. For noble gases: Less than or equal to a dose rate of 500 mrem/y to the total body and less than or equal to a dose rate of 3000 mrem/y to the skin, and

b. For Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/y to any organ.

3.1.2.1 Applicability

This limit applies at all times.

3.1.2.2 Actions

With a dose rate due to radioactive material released in gaseous effluents exceeding the limit stated in Section 3.1.2, immediately decrease the release rate to within the stated limit.

Entry into an Operational Mode or other specified CONDITION shall be made if, as a minimum, the requirements of Technical Specifications LCO 3.0.4 are met.

3.1.2.3 Surveillance Requirements

The dose rates due to radioactive materials in areas at or beyond the SITE BOUNDARY due to releases of gaseous effluents shall be determined to be within the above limits, in accordance with the methods and procedures in Section 3.4.1, by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 3-3.

3.1.2.4 Basis

This control is provided to ensure that gaseous effluent dose rates will be maintained within the limits that historically have provided reasonable assurance that radioactive material discharged in gaseous effluents will not result in a dose to a MEMBER OF THE PUBLIC in an UNRESTRICTED AREA, either within or outside the SITE BOUNDARY, exceeding the limits specified in Appendix I of 10 CFR Part 50, while allowing operational flexibility for effluent releases. For MEMBERS OF THE PUBLIC who may at times be within the SITE BOUNDARY, the occupancy of the MEMBER OF THE PUBLIC will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the SITE BOUNDARY.

The dose rate limit for Iodine-131, Iodine-133, tritium, and radionuclides in particulate form with half-lives greater than 8 days specifically applies to dose rates to a child via the inhalation pathway.

This control applies to the release of gaseous effluents from all reactors at the site.

Table 3-3 Radioactive Gaseous Waste Sampling and Analysis Program

Gaseous Release Type	Sampling and Analysis Requirements[a]			
	Sampling FREQUENCY	Minimum Analysis FREQUENCY	Type of Activity Analysis	MINIMUM DETECTABLE CONCENTRATION (MDC) (μCi/mL)
Environmental Release Points 1. Main Stack 2. Reactor Building Vent (Each Unit) 3. Recombiner Building Vent[b]	M[c] Grab Sample	M[c]	PRINCIPAL GAMMA EMITTERS H-3	1 E-4 1 E-6
	CONTINUOUS[e]	W[d] Charcoal or Silver Zeolite Sample	I-131 I-133	1 E-12 1 E-10
	CONTINUOUS[e]	W[d] Particulate Sample	PRINCIPAL GAMMA EMITTERS	1 E-11
	CONTINUOUS[e]	M COMPOSITE Particulate Sample	Gross Alpha	1 E-11
	CONTINUOUS[e]	Q COMPOSITE Particulate Sample	Sr-89, Sr-90	1 E-11

a. Terms printed in all capital letters are defined in Chapter 10. When unusual circumstances result in a MINIMUM DETECTABLE CONCENTRATION higher than required, the reasons shall be documented in the next Radioactive Effluent Release Report.

b. The Recombiner Building Vent serves Unit 1. Sample analysis results and associated source terms must be assigned to Unit 1 for the purpose of release accountability and dose calculations.

c. Sampling and analyses for PRINCIPAL GAMMA EMITTERS shall also be performed following shutdown, startup, or a THERMAL POWER change exceeding 15% of the RATED THERMAL POWER within a one-hour period. The more frequent sampling and analysis requirement applies only if analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant and the Main Stack Noble Gas Activity Monitor reading have both increased by a factor of 3.

Table 3-3 (contd) Notation for Table 3-3

d. Sampling shall be performed weekly, and analyses completed within 48 hours of changing (or after removal from sampler). Sampling shall also be performed once per 24 hours for 7 days following each shutdown, startup, or a THERMAL POWER change exceeding 15% of the RATED THERMAL POWER within a one-hour period, with analyses completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding MINIMUM DETECTABLE CONCENTRATIONs may be increased by a factor of 10. The more frequent sampling and analysis requirement applies only if analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant and the Main Stack Noble Gas Activity Monitor reading have both increased by a factor of 3.

e. The ratio of the sample flowrate to the sampled stream flowrate shall be known for the time period covered by each dose or dose rate calculation made in accordance with controls specified in Sections 3.1.2, 3.1.3, and 3.1.4.

CHAPTER 10

DEFINITIONS OF EFFLUENT CONTROL TERMS

The terms defined in this chapter are used in the presentation of the above chapters. These terms are shown in all capital letters to indicate that they are specifically defined.

10.1 TERMS SPECIFIC TO THE ODCM

The following terms are used in the ODCM, but are not found in the Technical Specifications:

BATCH RELEASE

A BATCH RELEASE is the discharge of wastes of a discrete volume. Prior to sampling for analyses, each liquid batch shall be isolated and then thoroughly mixed by a method described in the ODCM to assure representative sampling.

COMPOSITE SAMPLE

A COMPOSITE SAMPLE is one which contains material from multiple waste releases, in which the quantity of sample is proportional to the quantity of waste discharged, and in which the method of sampling employed results in a specimen that is representative of the wastes released. Prior to analyses, all liquid samples that are to be aliquotted for a COMPOSITE SAMPLE shall be mixed thoroughly, in order for the COMPOSITE SAMPLE to be representative of the effluent release.

When assessing the consequences of a waste release at the pre-release or post-release stage, the most recent available COMPOSITE SAMPLE results for the applicable release pathway may be used.

CONTINUOUS RELEASE

A CONTINUOUS RELEASE is the discharge of wastes of a non-discrete volume, e.g., from a volume within a system that has an input flow during the continuous release.

FREQUENCY NOTATION

The FREQUENCY NOTATION specified for the performance of surveillance requirements shall correspond to the intervals defined below, with a maximum allowable extension not to exceed 25% of the surveillance interval.

NOTATION	FREQUENCY
S (Once per shift)	At least once per 12 hours.
D (Daily)	At least once per 24 hours.
W (Weekly)	At least once per 7 days.
M (Monthly)	At least once per 31 days.
Q (Quarterly)	At least once per 92 days.
SA (Semi-annually)	At least once per 184 days.
18M	At least once per 18 months.
R (Refueling)	At least once per 24 months.
S/U (Startup)	Prior to each reactor startup.
NA	Not Applicable.
P (Prior)	Completed prior to each release.

GASEOUS RADWASTE TREATMENT SYSTEM

The GASEOUS RADWASTE TREATMENT SYSTEM is the offgas holdup system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

LIQUID RADWASTE TREATMENT SYSTEM

A LIQUID RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive materials in liquid effluents by systematic collection, retention, and processing through filtration, evaporation, separation and/or ion exchange treatment. This system consists of at least one collection tank, one evaporator or demineralizer system, one post-treatment tank and associated components providing for treatment flow and functional control.

MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS

For the purposes of the ODCM, MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS include the following changes to such systems:

(1) Major changes in process equipment, components, structures, or effluent monitoring instrumentation as described in the Final Safety Analysis Report (FSAR) or as evaluated in the Nuclear Regulatory Commission staff's Safety Evaluation Report (SER) (e.g., deletion of evaporators and installation of demineralizer);

(2) Changes in the design of radwaste treatment systems that could significantly increase quantities of effluents released from those previously considered in the FSAR and SER;

(3) Changes in system design which may invalidate the accident analysis as described in the SER (e.g., changes in tank capacity that would alter the curies released); or

(4) Changes in system design that could potentially result in a significant increase in occupational exposure of operating personnel (e.g., use of temporary equipment without adequate shielding provisions).

MEMBER(S) OF THE PUBLIC[1]

A MEMBER OF THE PUBLIC shall be an individual in a *controlled* area or an UNRESTRICTED AREA. However, an individual is not a MEMBER OF THE PUBLIC during any period in which the individual receives an *occupational dose*. This category may include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

MILK ANIMAL

A MILK ANIMAL is a cow or goat that is producing milk for human consumption.

[1] The italicized terms in this definition, which are not otherwise used in this ODCM, shall have the definitions assigned to them by 10 CFR 20.1003.

MINIMUM DETECTABLE CONCENTRATION

The MINIMUM DETECTABLE CONCENTRATION (MDC) is defined, for purposes of the controls in this ODCM, as the smallest concentration of radioactive material in a sample that will yield a net count above system background and that will be detected with 95-percent probability, with only 5-percent probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system, which may include radiochemical separation, the MDC for a given radionuclide is determined as follows (Reference 17):

$$MDC = \frac{\frac{2.71}{t_s} + 3.29\sqrt{R_b\left(\frac{1}{t_s}+\frac{1}{t_b}\right)}}{E \cdot V \cdot 2.22\,x\,10^6 \cdot Y \cdot e^{-\lambda \Delta t}} \tag{10.1}$$

where:

MDC	=	the a priori MINIMUM DETECTABLE CONCENTRATION (µCi per unit mass or volume).
R_b	=	the background counting rate, or the counting rate of a blank sample, as appropriate (counts per minute).
t_s	=	the length of the sample counting period (minutes).
t_b	=	the length of the background counting period (minutes).
E	=	the counting efficiency (counts per disintegration)
V	=	the sample size (units of mass or volume).
2.22×10^6	=	the number of disintegrations per minute per μCi.
Y	=	the fractional radiochemical yield, when applicable.
λ	=	the radioactive decay constant for the given radionuclide (h^{-1}). Values of λ used in effluent calculations should be based on decay data from a recognized and current source, such as Reference 26.
Δt	=	for effluent samples, the elapsed time between the midpoint of sample collection and the time of counting (h); for environmental samples, the elapsed time between the end of sample collection and the time of counting (h).

Typical values of E, V, Y, and Δt should be used in the calculation. It should be recognized that the MDC is defined as an *a priori* (before the fact) limit representing the capability of a measurement system, and not as an *a posteriori* (after the fact) limit for a particular measurement.

PRINCIPAL GAMMA EMITTERS

The PRINCIPAL GAMMA EMITTERS for which the MINIMUM DETECTABLE CONCENTRATION (MDC) limit applies include exclusively the following radionuclides:

For liquid radioactive effluents: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, and Ce-141. Ce-144 shall also be measured, but with an MDC of 5×10^{-6} μCi/mL.

For gaseous radioactive effluents: In noble gas releases, Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, Xe-138; and in particulate releases, Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144.

For environmental media: The gamma emitters specifically listed in Table 4-3.

These lists do not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Radioactive Effluent Release Report, the Annual Radiological Environmental Operating Report, or other applicable report(s).

OPERATIONAL CONDITION

An OPERATIONAL CONDITION shall be any one inclusive combination of Mode Switch position and average reactor coolant temperature, as defined in Table 1.1-1 of the Technical Specifications.

REACTOR MODE

The REACTOR MODE is established by the Mode Switch position. The four Mode Switch positions are REFUEL, SHUTDOWN, START & HOT STANDBY, and RUN. (See Technical Specifications Table 1.1-1 for definitions of these MODES.)

SITE BOUNDARY

The SITE BOUNDARY shall be that line beyond which the land is not owned, leased or otherwise controlled by Georia Power Company as shown in Figure 10-1.

SOURCE CHECK

A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of increased radioactivity.

UNRESTRICTED AREA

The UNRESTRICTED AREA shall be any area access to which is neither limited nor controlled by the licensee, or any area within the SITE BOUNDARY used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes.

10.2 TERMS DEFINED IN THE TECHNICAL SPECIFICATIONS

The following terms are defined in the Technical Specifications, Section 1.1. Because they are used throughout the Limits of Operation sections of the ODCM, they are presented here for convenience. In the event of discrepancies between the definitions below and those in the Technical Specifications, the Technical Specification definitions shall take precedence.

ACTIONS

ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.

CHANNEL CALIBRATION

A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output, such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, display, and trip functions, and shall include the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by any means of any series of sequential, overlapping, or total channel steps so that the entire channel is calibrated.

CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY, including required alarm, interlock, display, and trip functions, and channel failure trips. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites;" Table E-7 of Regulatory Guide 1.109, Rev. 1, NRC, 1977; or ICRP 30, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity."

OPERABLE (or OPERABILITY)

A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, division, component or device to perform its specified safety function(s) are also capable of performing their related support function(s).

RATED THERMAL POWER

RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 2804 MWt.

THERMAL POWER

THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

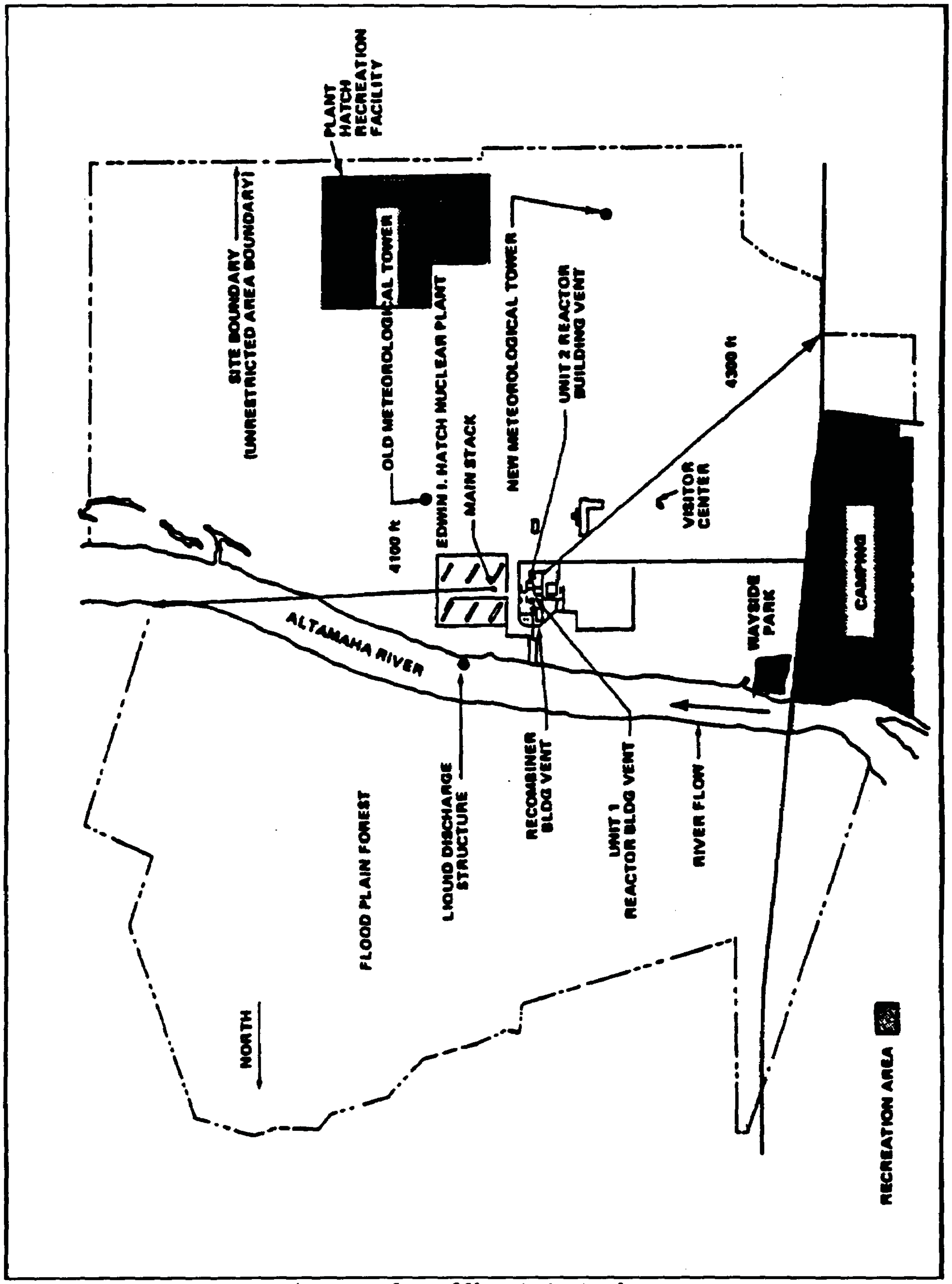

Figure 10-1 Site Map for Effluent Controls